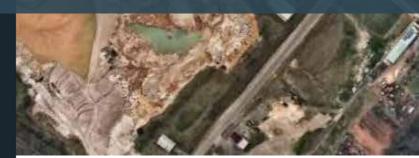


March 2025

Annual Review and Compliance
Report for
Maroota Sand Quarry
DA 267-11-99
Year Ending 31st December 2024



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Maroota Sand Quarry

Annual Review and Compliance Report 2023

Name of operation	Roberts Rd, Maroota Sand Quarry
Name of operator	Hodgson Quarries and Plant Pty Ltd
Development consent / project approval #	DA 267-11-99
Name of holder of development consent / project approval	Dr L. S. Martin
Annual Review start date	01/01/2024
Annual Review end date	31/12/2024

I, Tara O'Brien, certify that, to the best of my knowledge, this audit report is a true and accurate record of the compliance status of Roberts Rd, Maroota Sand Quarry for the period 1/1/2024 to 31/12/2024 and that I am authorised to make this statement on behalf of Hodgson Quarries and Plant Pty Ltd. *Note.*

b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or \$22,000, or both).

Name of authorised reporting officer	Tara O'Brien
Title of authorised reporting officer	Environmental Consultant
Signature of authorised reporting officer	

Revision Table

Date	Version	Author	Reviewed	Approved
18/03/2025	D0	ТО	LGT/SR	ТО
31/3/2025	F0	ТО	LGT/SR	ТО

a) The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000.

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1 Executive Summary

This Annual Review has been prepared on behalf of Hodgson Quarries and Plant Pty Ltd (the Operator). The Roberts Rd Maroota Sand Quarry, located on Roberts Road near Old Northern Road, Maroota, NSW has been extracting sand and gravels in accordance with Development Approval conditions 267-11-99, Environment Protection Licence 6535 and Water Access Licence 24163 since the 1990s.

On the 13th August, 2021 the project received notification that an application for modification (Mod 4) had been approved. The modification allows for the importation of VENM and ENM to create a landform that better integrates with the surrounds. To assist with this implementation, there was an increase in traffic numbers (from 100 daily to 140), an extension to the period of approval (from 2025 to 2030), and removal of a condition limiting the exposed and active area. This report audits the compliance of the site to the Mod 4 conditions from 1st January 2024 to 31st December 2024.

A draft consolidated consent available from the DPIE Major Projects portal numbers the conditions in Schedule 2 differently to that in Mod 2 and the Notification of Modification for Mod 4. This report therefore adopts the numbering convention given in the Notification of Modification and past consent versions, rather than the draft Consolidated Mod 4 Consent in that it aligns more closely with previously existing conditions. It is hoped that the errors in the draft will shortly be rectified.

All operational and environmental management criteria within the consent conditions have been met during the report period, 1st January to 31st December 2024.

All management plans were updated in 2023 but no approvals received to date.

2 Conditions Compliance

Under Condition 6 of the Conditions of Consent, a Conditions Compliance Report must be submitted to the Secretary prior to the commencement of extraction in areas that are not currently subject to extraction. Subsequent reports will be submitted annually for the first three years of extraction in areas not currently subject to extraction.

There have been no new areas opened up in the three years since the 2022 Annual Review and Conditions Compliance Report for the year ending December 2021. Therefore, no condition compliance report has been undertaken in this report period.

The Operator intends to open up new areas in 2025 and a Conditions Compliance Review will be undertaken prior to commencing in the new areas.

2.1 ACTIONS TO ADDRESS PREVIOUS NON-COMPLIANCES

2.1.1 Conservation Bond

Schedule 2 condition 61 requires the site to lodge a Conservation and Rehabilitation Bond. The calculation was approved 18th December 2023 and the bond has now been lodged.

2.1.2 Updating of Plans and Strategies

Schedule 2 condition 22 and 67 requires the site to review all Management Plans within 3 months of consent modification. Only the Surface Water Management Plan and Transport Management Plan had been reviewed and updated following consent Mod 4. Condition 58 requires the Rehabilitation Plan to be updated for changes to the final landform described in Mod 4. All management plans were updated in 2023 and are awaiting department approval.

2.1.3 Independent Environmental Audit 2023

In accordance with Condition 70, an Independent Environmental Audit (IEA) was conducted in March 2023 by James Hart. James Hart concluded:

"Hodgson Quarries had developed and generally implemented management plans and associated documentation to address the requirements of the conditions of consent.

While compliance with aspects of the conditions of the project approval and management plans was found, fourteen non-compliances were raised where compliance with requirements of the conditions of consent, EPL, WAL or management plans prepared for the site was not demonstrated.

Hodgson Quarries should ensure that actions are identified and implemented to address the findings contained within this audit to enable compliance with all obligations and ensure environmental impacts of the developments are appropriately managed."

The final report was submitted and received 8th May 2023 along with a response and action plan. The action plan was updated following initial submission, with the final Version 3 submitted 10th July 2023 following DPE responses. No further updates to the action plan were required by the DPE.

Issue No.	Condition	Requirement	Issue sighted	Recommendation	Proposed Action	Due Date	DPE Request for Information 22-23/6/2023	Documentation/ Status											
NC- 01	Schedule 2	The Proponent, in acting on this approval, must carry out the project in accordance with:	Non-compliances have been identified with conditions of consent, triggering a non-	It is recommended that all non- compliances identified are addressed and closed out.	This table will be reviewed monthly until all listed NC's are closed out. The report and review section of the	Every month until all closed out		This table											
	Condition 2	(a) the conditions of this approval; and	compliance with this condition.	Consider implementing a process to track compliance requirements and status.	OEMP will be strengthened when updated.														
		(b) all written directions of the Secretary		requiremente una etatae.															
NC- 02	Schedule 2	The Applicant shall prepare a Water Management Plan for the development to the satisfaction of the Secretary. This plan must be prepared in consultation with DPIE Water by suitably qualified and experienced person/s whose appointment has been approved by the Secretary, and be submitted to the Secretary for approval by 31 December 2016. The plan must be updated on an annual basis in consultation with DPIE Water for three years from the date of approval of Modification 2 and thereafter as agreed with by the Secretary.	Surface Water Management Plan requires the following monitoring to be conducted:	maintained to verify monitoring and inspections have been completed in accordance with the Surface Water Management Plan.	to updated to include these items. Weather forecast is routinely monitored and maintenance works	7/07/2023	undertaken in accordance with the Surface Water Management Plan (SWMP): a. Section 4.9.1 – Regular monitoring of soil erosion, sediment and water within 18 hours of a rainfall event of sufficient intensity and duration to cause runoff (approximately 70 mm of rainfall over 5 days); b. Section 4.9.3 – Visual check of	CLOSED: Appendix A: a) Weather Event; b) Monthly WMP checks c) Tailgate and Road check eg to 230704. Weather station alarm set to 15mm per day (cumulative totals to be performed manually)											
	Condition 42	The Applicant shall implement the approved management plan as approved from time to time by the Secretary.	• monitoring of the soil erosion, sediment and water is undertaken regularly and within 24 hours of expected rainfall and within 18 hours of a rainfall event of sufficient intensity and duration to cause runoff (approximately 70mm of rainfall over 5 days).							and c. Section 4.9.3 – Visual inspection for evidence of tailgate discharge and/or sediment build- up at the exit to site undertaken weekly. 2. If the answer to items 1a)-c) above is no, please advise why the monitoring was not undertaken as required.									
			Visual check of stability and operation of all banks, ponds, channels and spillways undertaken monthly.																
			Visual inspection for evidence of tailgate discharge and/or sediment build-up at exit to site Weekly				records: 13. Evidence the monitoring outlined in items 1a)-c) were undertaken.												
			However, no records were available to verify that inspections had been conducted.																

Issue No.	Condition	Requirement	Issue sighted	Recommendation	Proposed Action	Due Date	DPE Request for Information 22-23/6/2023	Documentation/ Status								
NC- 03		The results of the Groundwater Monitoring Program shall be reported to the Department and DPIE Water, using contour plans depicting the surface topography, updated contour maps of the wet weather high groundwater level of the regional aquifer and proposed depth of extraction for each extraction Phase.	Reporting on the Groundwater Monitoring Program not undertaken on a six-monthly basis.	implemented to ensure that the results of the Groundwater Monitoring Program are reported to the Department and	to advise whether this requirement is still valid, and how the reporting should occur. The report and review section of the OEMP will be	DPI to be contacted by 30th June. Actions to follow if/as required	and implemented, in consultation with DPE Water, a process for the reporting of Groundwater monitoring results to the Department and to DPE Water on a 6-monthly basis. 5. If the answer to item 4 above is no, outline the actions the project	(DA267-11-99-PA-35). DPE Water has no comment.								
	44	Reporting is to occur on a six monthly basis for the duration of extractive operations, and throughout rehabilitation of the site, unless otherwise agreed with the Secretary.					will implement to bring this condition into compliance.									
		The Applicant shall implement the Groundwater Monitoring Program as approved from time to time by the Secretary.														
NC- 04		The Applicant must prepare a Traffic Management Plan that must:	Traffic Management plan requires formal observation of compliance of both the Drivers Code of Conduct and Covering of Loads at three monthly intervals to be undertaken to document any departures and identify any remedial actions with employees, heavy vehicle drivers or haulage companies that may be necessary as a result of these observations.		Observation of compliance to be undertaken and recorded. Observations to re-occur in accordance with TMP	Every 3 months starting April 2023	6. Was the observation of compliance with both the Drivers Code of Conduct and/or Covering of Loads conducted at three monthly intervals as required by the Traffic Management Plan? 7. If the answer to item 6 above is no, please advise why the observation of compliance was not undertaken at three monthly									
	50A	(a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary;	No records of completion of formal observations were available.							intervals. 8. If the answer to item 6 above is yes, please advise why the						
		(b) be prepared in consultation with TfNSW and Council;					observations were not formally recorded.Please provide the									
		(c) include a Drivers' Code of Conduct that contains procedures to ensure that drivers:					following records:14. Evidence of the observation of compliance with both the Drivers Code of									
		(i) adhere to posted speed limits or other required travelling speeds;					Conduct and/or Covering of Loads was conducted at three									
		(ii) adhere to designated transport routes;					monthly intervals.									
		(iii) implement safe and quiet driving practices; and														
		(iv) minimise potential conflict with school buses.														
		(d) describe the measures to be put in place to ensure compliance with the Drivers' Code of														
		Conduct; and														

Issue No.	Condition	Requirement	Issue sighted	Recommendation	Proposed Action	Due Date	DPE Request for Information 22-23/6/2023	Documentation/ Status	
		(e) propose measures to minimise the transmission of dust and tracking of material onto the surface of public roads from vehicles exiting the site.							
		The Applicant must submit the Traffic Management Plan for the approval of the Secretary by the 31 October 2021, or as otherwise agreed by the Secretary. The Applicant must implement the Traffic Management Plan as approved.							
NC- 05	Schedule 2	The Applicant shall prepare a Landscape and Rehabilitation Management Plan for the development to the satisfaction of the Secretary. This plan must:	The Landscape and Rehabilitation Plan has not been updated each 3 year period, or following approval of DA 267-11-99 Mod 4.	A process should be implemented to ensure that the Landscape and Rehabilitation Plan is 3 yearly as required by 60(d) and following changes	LRMP will be updated and reviewed every 3 years. The report and review section of the OEMP will be strengthened when updated.	31/07/2023	9. Has the Landscape and Rehabilitation Management Plan (LRMP) been revised every 3 years, in accordance with Schedule 2, Conditions 60(d)?10.	CLOSED: Submitted 22/08/2023	
	Condition 60	(a) be submitted to the Secretary for approval by 30 June 2017, unless otherwise agreed by the Secretary;		to conditions of approval.	to conditions of approval.			If the answer to item 9 above is no, please advise why and when you expect the next revision to take place.Please provide the	
		(b) provide details of the conceptual final landform and associated land uses for the site;					following records:15. A copy of the most recent draft of the LRMP.		
		(c) describe the short, medium and long-term measures that would be implemented to ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this consent;							
		(d) include a detailed description of the measures that would be implemented over the next 3 years (to be updated for each 3 year period following the 3 years covered by the initial approval of the plan) including the procedures to be implemented for:							
		 maximising the salvage of environmental resources within the approved disturbance area for beneficial reuse; 							
		protecting vegetation and fauna habitat outside the approved disturbance area on-site;							
		minimising the impacts on native fauna;							
		landscaping the site to minimise visual and lighting impacts;							
		• reviewing improved pasture species and application rates;							
		controlling weeds and feral pests;							
		controlling erosion;							
		controlling access; and							

Issue No.	Condition	Requirement	Issue sighted	Recommendation	Proposed Action	Due Date	DPE Request for Information 22-23/6/2023	Documentation/ Status
		bushfire management;						
		(e) include a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;						
		(f) include a mass balance calculation to ensure that appropriate volumes of material are available to implement the final landform as described in this plan;						
		(g) provide for the construction and maintenance of the process water dam in accordance with the approved design and construction criteria (see Condition 42(b));						
		(h) identify the potential risks to the successful rehabilitation of the site, and include a description of the contingency measures that would be implemented to mitigate these risks; and						
		(i) include details of who would be responsible for monitoring, reviewing, and implementing the plan.						
		The Applicant shall implement the management plan as approved from time to time by the Secretary						
NC- 06	Schedule 2	By 31 December 2017, the Applicant shall lodge a Conservation and Rehabilitation Bond with the Department to ensure that the management of biodiversity and the rehabilitation of the site are implemented in accordance with the performance and completion criteria set out in the Flora and Fauna Management Plan and Landscape and Rehabilitation Plan. The sum of the bond shall be	A Conservation and Rehabilitation Bond has not been lodged with the Department.	The Conservation and Rehabilitation Bond should be finalised and lodged to DPE	The Bond will be finalised and submitted		11. When do you expect to finalise and lodge the Conservation and Rehabilitation Bond to the Department?	Closed: Bond lodged and dated April 2024
	Condition 61	determined by:						
		(a) calculating the cost of rehabilitating the site taking into account the likely surface disturbance over the following 3 years of quarrying operations; and						
		(b) employing a suitably qualified quantity surveyor or other expert to verify the calculated costs, to the satisfaction of the Secretary.						

Issue No.	Condition	Requirement	Issue sighted	Recommendation	Proposed Action	Due Date		Documentation/ Status		
		Note: If the rehabilitation of the site is completed to the satisfaction of the Secretary, then the Secretary will release the bond. If the rehabilitation of the site is not completed to the satisfaction of the Secretary, then the Secretary will call in all or part of the bond, and arrange for the completion of the relevant works.								
NC- 07	Schedule 2	The Applicant shall assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in this Consent. Any exceedance of these criteria and/or performance measures constitutes a breach of this Consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.	Exceedance of PM2.5 criteria in October 2021 a result of local bushfire.	Neither exceedance was the result of dust generation by quarry activities. No further action required.	No action required	7/07/2023	12. Provide a detailed response outlining the date, time, cause and details of the incident resulting in an exceedance of site PM2.5 dust criteria in September 2021.	CLOSED: AppD Description of Dust Exceedance		
	Condition 64	Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity:	Exceedance of Dust deposition criteria in 2022. Exceedance was found to be the result of contamination of the ample with sand as a result of maintenance activities in the near vicinity of the dust gauge, and not the result of dust generated by the project.							
		(a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;	Both exceedances were reported to DPE with no further action required.							
		(b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and								
		(c) implement remediation measures as directed by the Secretary,								
		to the satisfaction of the Secretary.								
NC-	Schedule 2	Within 3 months of the submission of:		Hodgson Quarries should	The report and review section of the	31/07/2023	Please note, the proposed actions			
80	Condition 67	(a) an annual review under Condition 66 above;		ensure that a process is implemented to review, and if required update, the strategies,	OEMP will be strengthened when updated.		68A, and 70 do not directly correlate to the Auditor's	Submitted 26/07/2023		
		(b) an incident report under Condition 68 below;		plans, and programs required under this Consent in accordance with Condition 66.			recommendations. Please ensure that the project identifies relevant actions that are to be			
		(c) an audit report under Condition 70 below; or		The outcomes of the review						

Issue No.	Condition	Requirement	Issue sighted	Recommendation	Proposed Action	Due Date	DPE Request for Information 22-23/6/2023	Documentation/ Status
		(d) any modification to the conditions of this Consent (unless the conditions require otherwise), the Applicant shall review, and if necessary revise, the strategies, plans, and programs required under this Consent to the satisfaction of the Secretary.	should be submitted to the Secretary for approval.			implemented to bring the project into compliance.		
		Where this review leads to revisions in any such document, then within 4 weeks of the review, unless the Secretary agrees otherwise, the revised document must be submitted to the Secretary for approval.						
		Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.						
NC- 09	Condition 68	The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.	An exceedance of site PM2.5 dust criteria occurred in September 2021 as a result of a local grassfire. The exceedance was not reported to DPE in accordance with Condition 68.	Hodgson Quarries should ensure that all incidents, including exceedances of site monitoring criteria, are reported to DPE in accordance with Condition 68.	The report and review section of the OEMP will be strengthened when updated.	31/07/2023	Please note, the proposed actions for Schedule 2, conditions 67, 68, 68A, and 70 do not directly correlate to the Auditor's recommendations. Please ensure that the project identifies relevant actions that are to be implemented to bring the project into compliance.	CLOSED: Submitted 26/07/2023
NC- 10	Condition	Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing via the Major Projects Website and identify the development (including the development application number	the 2021 Annual Review had	notified to DPE be in writing via the Major Projects Website and identify the development (including the development application number and name), set out the condition of this	OEMP will be strengthened when	31/07/2023	Please note, the proposed actions for Schedule 2, conditions 67, 68, 68A, and 70 do not directly correlate to the Auditor's recommendations. Please ensure that the project identifies relevant actions that are to be	
	33.1	and name), set out the condition of this consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.		consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.			implemented to bring the project into compliance.	

Issue No.	Condition	Requirement	Issue sighted	Recommendation	Proposed Action	Due Date		Documentation/ Status	
NC- 11		Every 3 years from the date of this consent and at the completion of works under this consent, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:	Previous Independent Environmental Audit conducted 4 June 2020.	Hodgson Quarries should ensure that audit are planned and undertaken within 3 years of the date of consent.	nned OEMP will be strengthened when			CLOSED: Submitted 26/07/2023	
	70	(a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;	Current audit commenced 29 March 2023.						
		(b) include consultation with the relevant agencies;							
		(c) assess the environmental performance of the development and assess whether it is complying							
		with the requirements in this Consent and any relevant EPL (including any assessment, plan or program required under these approvals);							
		(d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and							
		(e) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any assessment, plan or program required under the abovementioned approvals.							
		Note: This audit team must be led by a suitably qualified auditor and include experts in any field specified by the Secretary.							
NC- 12	EPL	Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.	Non-compliances have been identified with the requirements of EPL 6535, which trigger a non-compliance with this condition.	It is recommended that all non- compliances identified are addressed and closed out. Consider implementing a process to track compliance	The report and review section of the OEMP will be strengthened when updated.	31/07/2023	compliances identified in the IEA to the project's Environmental Protection License (EPL 6535) have been referred to the EPA for	CLOSED: Submitted 26/07/2023	
		In this condition the reference to "the licence application" includes a reference to:		requirements and status.			consideration.		
		a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and							
		b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.							

Issue No.	Condition	Requirement	Issue sighted	Recommendation	Proposed Action	Due Date		Documentation/ Status
NC- 13	NC- EPL 01.1 13	Licensed activities must be carried out in a competent manner.	During the current audit, it was found that oils and chemicals had been stored in un-bunded locations.	All chemical and hydrocarbon containers should be stored in a bunded area.	Metals are to be sorted into those that are required for spare parts and repairs, and that which can be recycled or otherwise disposed of.	Remaining waste tyres: 30/08/2023. Spill pallets to be installed by 8/12/2023	to the project's Environmental Protection License (EPL 6535)	CLOSED: EPA email 11/12/2023
		including used tyres was should be gathered an	Waste material stored on site should be gathered and removed by the licenced contractor.	An additional bund will be built in accordance with the relevant Australian Standard to house additional chemicals and hydrocarbons and replace the oil sock around the drums in the		have been referred to the EPA for consideration.		
		a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and		Metal parts stored in various locations on site should be sorted and stored in a single location in a neat and tidy manner.	workshop. Stock of chemicals and oils will be run down. Empty drums and unused tyres will be picked up by a licenced contractor.			
		b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.		Consider reducing the quantity of containers on site to enable storage within the existing bunded facility.				

2.2 ACTIONS REQUIRED FROM PREVIOUS REPORTS

2.2.1 Annual Review and Compliance Report 2022

The 2023 Annual Review and Conditions Compliance Report was submitted to DPE on 28th March 2024 through the Major Projects Portal. Acknowledgement was received from DPIE on 28th March 2024, and acceptance of the report received 9th April 2024.

It noted that the Biodiversity Report as required by the Flora and Fauna Management Plan was not completed in 2023 and this is considered a breach of Condition 56 of the CoC and also a breach of Schedule 2, Condition 22 for not implementing the EMP.

Non-compliances with Conditions 2 and 22 (update of the OEMP) of the Consent identified in the 2023 Annual Review were assessed by NSW Planning and determined to record the breaches with no further enforcement action.

All actions from the previous Annual Review and Condition Compliance Report were closed out.

2.2.2 Air Quality Monitoring Review

In accordance with Schedule 2 conditions 29A and 29B, an Air Quality Monitoring Review (AQMR) was undertaken by an approved independent expert, and by the DPIE on 28/2/2023.

The recommendations were implemented.

Table 1. Conclusions and Recommendations from AQMR

Description	Date Implemented
Ensure field parameters recorded each sampling event	Sampler made aware of requirements 2/2/2023
Ensure that the procedure for sampling is documented and that all sampling technicians are trained in it regularly	Procedure and documentation training 30/3/2023 Procedure in AQMP dated 21/7/23 not yet approved
Update the site Air Quality Management Plan (AQMP) to include the modification 4 requirements. The author recommends that, in consultation with the DPE, monitoring for TSP be discontinued as this is a less critical parameter, and instead replaced by a ratio calculation from PM10 based on monitoring data collected from the site over as long a period as possible, without including the extraordinary events of the 2019-2020 bushfires. The explanation for how this is to be calculated would be included in the updated AQMP	AQMP updated 21/7/2023 including calculation of TSP. Plan not yet approved, therefore monitoring adjustment recommendations not yet implemented.

3 Introduction

3.1 PROJECT SITE

This Annual Review and Conditions Compliance Report has been prepared by VGT Environmental Compliance Solutions Pty Ltd (VGT) on behalf of Hodgson Quarries and Plant Pty Ltd (the Operator). The Roberts Rd Maroota Sand Quarry is located on Roberts Road near Old Northern Road, Maroota, NSW. Maroota is approximately 50 kilometres north-west of Sydney (see *Figure One*). The Operator extracts sand and gravels from the site according to Development Approval conditions 267-11-99.

3.2 BACKGROUND

The Maroota area is known for the production of sand from a paleochannel system and represents a valuable resource to the building industry. The sand is obtained from two main sources, the Maroota Sand which overlies the weathered profiles of the Hawkesbury Sandstone. Clay beds deposited by the meandering of the paleochannels are common throughout the Maroota Sand formation.

The Roberts Rd site has been operational since the 1990's and construction of a water supply dam commenced in or around the 1970's. Consent was granted for extraction and processing of sand, clay and pebble material in 2000 and the continued construction of the dam which is located on the northern boundary of the site. The client took over operations on the site in 2004.

This Annual Review and Conditions Compliance Report covers the period 1st January 2024 to 31st December 2024 and has been conducted against the Modification 4 approved on 13th August 2021.

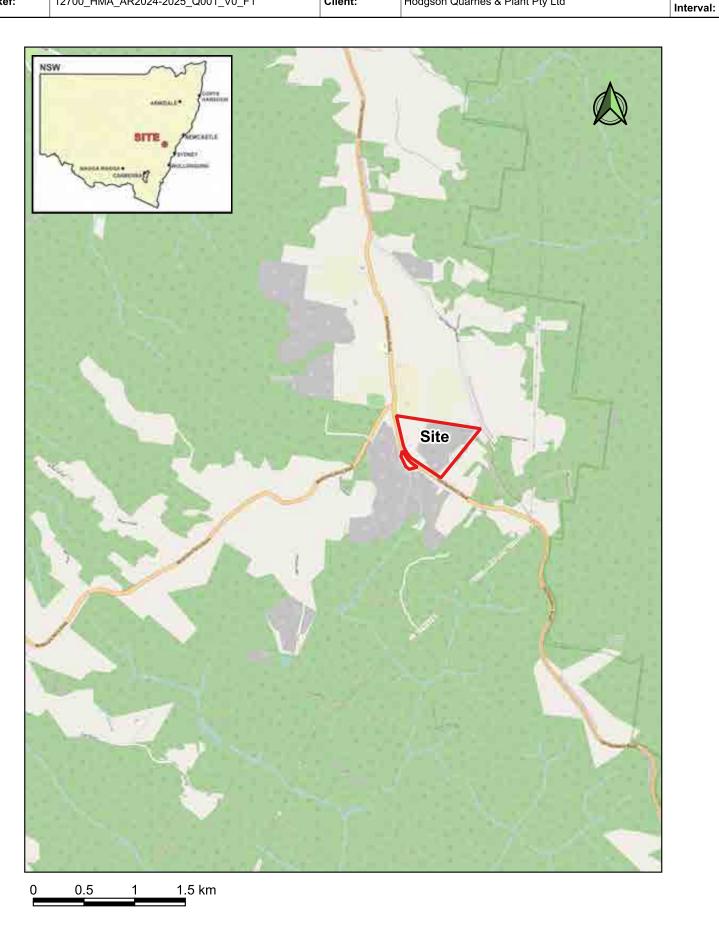
3.3 QUARRY CONTACTS

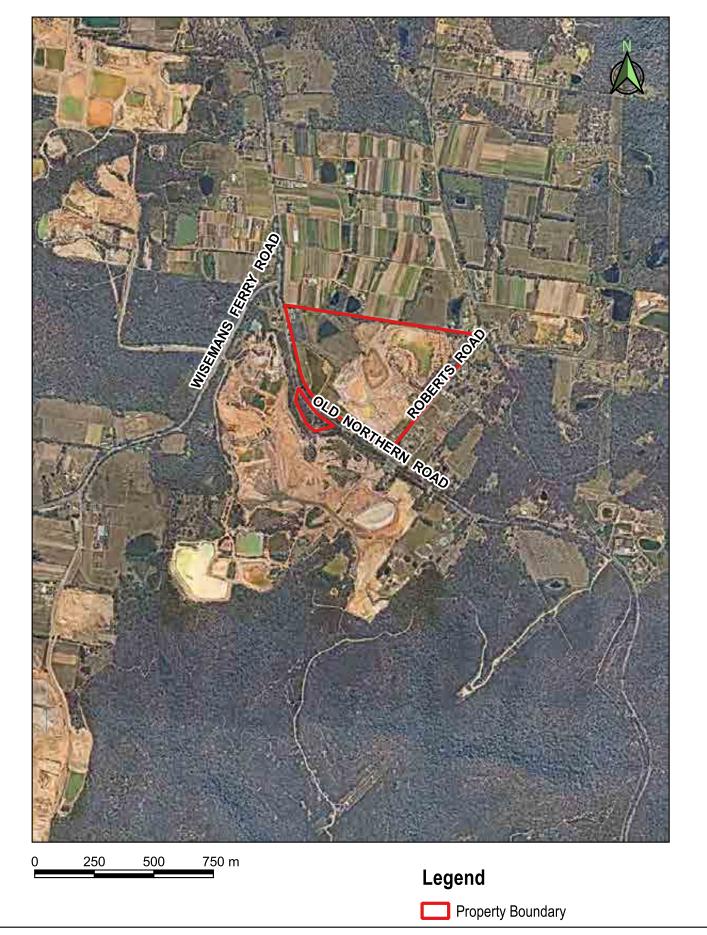
	Production Manager	Environmental Officer
	Martin Hodgson	Stuart Reed
	Hodgson Quarry and Plant Pty Ltd	Hodgson Quarry and Plant Pty Ltd
Address	PO Box 1778,	PO Box 1778,
	Gosford NSW 2250	Gosford NSW 2250
Mobile	0408 251 393	0418 277 871
Phone	(02) 4372 1649	(02) 4372 1649
Email	hodgsonquarries@gmail.com	hodgsonquarries@gmail.com

Plan of:	Annual Review & Compliance Report 2025 for Roberts Road Maroota Sand Quarry - Site Location	Location:	Maroota Quarry, Roberts Road, Maroota, NSW	Source:	Google OpenStreetMap &nearmap - Image Date 23/10/2024 Zone MGA 56	Plan By:	SK/JD
Figure:	ONE	Council:	Hills Shire Council	Survey:	Not Applicable	Project Manager:	то
Version/Date:	V0 20/02/2025	Tenure:	Not Applicable	Projection:	GDA2020/MGA Zone 56 EPSG:7856	Office:	Thornton
Our Ref	12700 HMA AR2024-2025 Q001 V0 F1	Client:	Hodgson Quarries & Plant Pty I td	Contour	Not Applicable		



This figure may be based on third party data which has not been verified by vgt and may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and vgt does not warrant its accuracy.





4 Approvals

This section details the approvals and licenses held for the site, as well as relevant legislative requirements that the owner, operator and site workers should be aware of. This chapter will be reviewed annually to ensure information remains up to date with legislative and policy changes.

4.1 DEPARTMENT OF PLANNING AND ENVIRONMENT

Development approval (DA267-11-99), with conditions of consent was first issued by the then Department of Urban Affairs and Planning on the 31st of May 2000. The first modification to S98/00772 was issued on the 29th of November 2000 (Mod 1). In view of the imminent expiry of the consent in May 2015, a further Modification to Consent (Mod 3) was submitted to the DPE to extend the life of the quarry to permit continued operations whilst Mod 2 was under consideration by the DPE. This was approved on the 18th of August 2015 with an expiry of the 31st of May 2016.

A Modification to Consent (Mod 2) to both regularise the existing extraction operation and to extend the life of the approved extraction was submitted to the Department of Planning and Environment (DPE) in May 2015. The DPE made requests for further information and an amended Modification to Consent document addressing those issued was submitted in September 2015 and approved on 18th March 2016.

A Modification to Consent (Mod 4) was submitted in November 2019. Mod 4 was granted 13th August 2021, see *Appendix A*.

There were no changes to the consent requirements this report period.

4.1.1 Report Requirements

This Review is required under condition 66 (Annual Review) of the consolidated consent.

Table 2. Review Requirements

Consent Condition No	Condition Text	Where addressed in this report
66	By the end of March each year (or as otherwise agreed by the Secretary), the Applicant shall review the environmental performance of the development for the previous calendar year to the satisfaction of the Secretary. This review must:	Submitted March 2024
66 (a)	(a) describe the development (including any rehabilitation) that was carried out in the past calendar year, and the development that is proposed to be carried out over the current calendar year;	Sections <u>5</u> , Section <u>6.10</u>
66 (b)	 (b) include a comprehensive review of the monitoring results and complaints records of the development over the past year, which includes a comparison of these results against the: relevant statutory requirements, limits or performance measures/criteria; monitoring results of previous years; and relevant predictions in the EIS, Modification 1 and Modification 2; 	Section <u>6</u>
66 (c)	(c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;	Section <u>2</u> ,
66 (d)	(d) identify any trends in the monitoring data over the life of the development;	Section 6
66 (e)	(e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and	Section <u>6</u>

Consent Condition No		Where addressed in this report
66 (f)	(f) describe what measures will be implemented over the next year to improve the environmental performance of the development.	Section <u>6</u>

4.2 ENVIRONMENTAL PROTECTION AUTHORITY (EPA)

Environmental Protection License 6535 (see *Appendix B*) has been issued under the *Protection of the Environmental Operations Act* for Crushing, Grinding or Separating Works and Dredging Works. It is renewed annually on the 12th of March and requires monitoring for noise impacts (see Section <u>6.8</u> for results). The EPL was amended on 16th June 2023 to include waste disposal (application to land) as a scheduled activity (importation of ENM and VENM described in Section <u>5.3</u>) and new noise monitoring locations.

4.3 WATER NSW, NSW DEPARTMENT OF PLANNING & ENVIRONMENT - WATER (DPE-W) AND NATIONAL RESOURCES ACCESS REGULATOR (NRAR)

The site holds a number of licenses issued under the *Water Management Act 2000*, for the operation of groundwater bores and dams. Location of these bores and dams can be found on *Figure Three*. A summary table of those relevant to the development consent and their current status can be found in *Table 4*. Water licenses and their conditions have been included in *Appendix D*.

Table 3. Relevant Water Licences Summary

Identification	Licence when Registered	Water Access Licence Number (WAL)	Water Approval No'/ Reference Number	Purpose	Allocation	Expiry	Bore Status	
PT84PB1	10BL159748 (converted to WAL)	WAL 24163	10WA114817 10AL114816	Extraction	45.0 ML per year	14/06/2025	Converted to WAL	Can extract at a rate of 3L/sec.
	10SL045324 (converted to WAL)	WAL 26163	10CA104888 10AL104887	Irrigation	264.0 ML per year	16/02/2026	Converted to WAL	2 pumps and 2 Bywash Dams. Allocation to be transferred
PT84MW1	10BL158808	NR	NR	Monitoring	-	perpetuity	In use for water sampling	Installed 20/10/1998. Located near nursery.
PT84MW5	10BL158808	NR	NR	Monitoring	-	perpetuity	Not in use	Collapsed. Replaced by MW8
PT84MW6	10BL605696	NR	NR	Monitoring		perpetuity	In use for water sampling	Installed January 2015. To replace PT84MW4
MW7	10BL605799	NR	NR	Monitoring		perpetuity	In use for water sampling	Installed December 2016
MW8	10BL605799	NR	NR	Monitoring		perpetuity	In use for water sampling	Installed December 2016
MW9	10BL605799	NR	NR	Monitoring		perpetuity	Mined out	Installed December 2016
MW10	10BL605798	NR	NR	Monitoring		perpetuity	In use for water sampling	Installed December 2016
MW11	10BL605797	NR	NR	Monitoring		perpetuity	In use for water sampling	Installed December 2016
MW12	10BL605799	NR	NR	Monitoring		perpetuity	In use for water sampling	Installed December 2016
MW13	10BL605799	NR	NR	Monitoring		perpetuity	Mined out	Installed December 2016

NR = Not required: used for monitoring only

5 Operations Description

The site has approval under Mod 4 to extract sand and gravel at the rate of up to 70 incoming and 70 outgoing trucks per day and a maximum of 10 incoming and 10 outgoing truck movements per hour.

Extraction of the sand is contingent upon a water supply dam to wash the clay from the material won. The material is loaded onto a belt feeder which introduces the sand into a mixing tank. An electric pump at the water storage dam pumps water to the mixing tank via a pipeline. The sand slurry is drawn out of the mixing tank by a slurry pump and pumped to the processing plant. The processing plant washes and screens material, using water primarily from the existing water supply dam adjacent to the northern boundary (Process Dam 1). After washing and screening, material is stockpiled adjacent to the plant area prior to transportation off-site by truck. Trucks are loaded using a front-end-loader. Washing and screening forms a residual clay/silt slurry which is piped to designated drying areas in a previously extracted cell where it will be spread in thin layers to dry. Liberated water is drained to the water dam for re-use in the processing plant.

Site operations are illustrated on the following figures.

Road Maroota Sand Quarry - Sequence of Extraction Project TWO Council: Hills Shire Council Survey: TO Figure: Not Applicable Manager: Version/ This figure may be based on third V0 12/02/2025 Tenure: GDA2020/MGA Zone 56 EPSG:7856 Not Applicable Projection: party data which has not been verified Date: by vgt and may not be to scale. 100 m Unless expressly agreed otherwise, this figure is intended as a guide only Contour Our Ref: 12700_HMA_AR2024-2025_Q002_V0_F2 Client: Hodgson Quarries & Plant Pty Ltd Not Applicable Interval: PT84 MW? Dam 3 - Nursery **6B** Dam3-Nursery Dam **Drying Area** Dam 1A- Process Dam **2B** 6295600 MW12 Dam 1B (Old Process Dam 1) Dam 4 - Fariii Dam 2 - Tailings Dam 1 - Process **Processing Plant 5B** 6A Dam 4-Farm Dam Dam 2C Drying Pond (Not In Use) **2C 3B** Dam 2A 6295400 **1**B 4A PT84 MW6 Stockpile Area Dam 2B **1**A 2A **3A 4B** 5A MW10 6295200 Legend Note: Phases and Years are indicative only, and Years 2-5 (2016-2021) Property Boundary Phase 6 Years 1-2 (2015-2017) Years 5+ (2020+) are dependent on market demand and product mixing requirements. Phase 1 Phase 3 Phase 5 Water Sampling Phase 2 Monitoring Wells Phase 4 VGT Environmental Compliance Solutions Pty Ltd 4/30 Glenwood Drive, Thornton NSW 2322 PO Box 2335, Greenhills NSW 2323 ph: (02) 4028 6412 ABN: 26 621 943 888 email: mail@vgt.com.au www.vgt.com.au

nearmap - Image Date 23/10/2024 Zone MGA 56

Source:

SK/JD

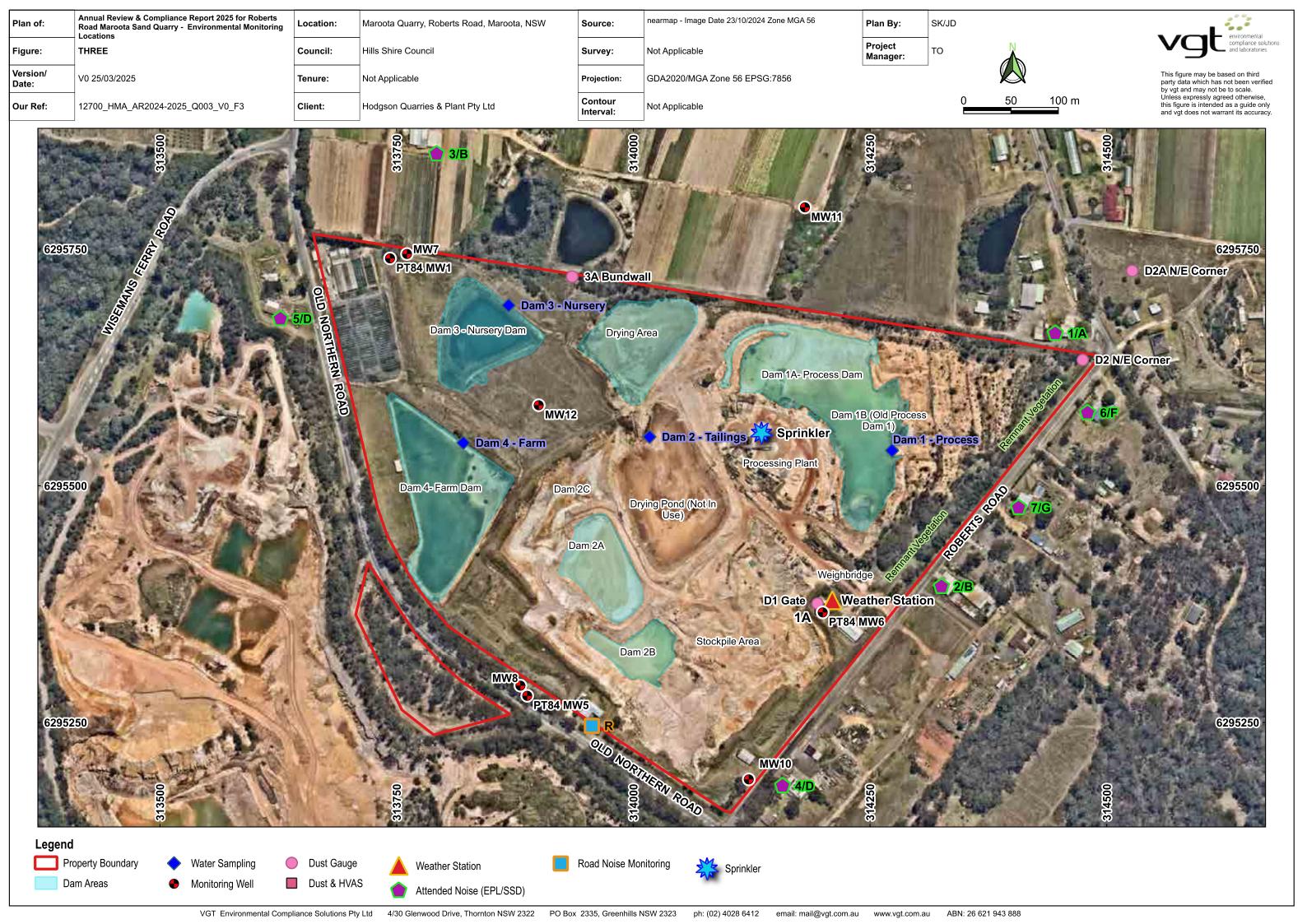
Plan By:

Annual Review & Compliance Report 2025 for Roberts

Location:

Maroota Quarry, Roberts Road, Maroota, NSW

Plan of:



Annual Review & Compliance Report 2025 for Roberts Plan of: Location: Maroota Quarry, Roberts Road, Maroota, NSW Plan By: Source: nearmap - Image Date 23/10/2024 Zone MGA 56 Road Maroota Sand Quarry - Site Layout Fyfe Quarry Contours 24/02/2022. NSW Spatial Services ELVISDEM Surrounding Contours Dated May 2017. Spot Heights via Ross Robinson Consulting Pty Ltd 2025. Project Hills Shire Council Survey: TO **FOUR** Council: Figure: Manager: Version/ This figure may be based on third V1 31/03/2025 Tenure: Not Applicable Projection: GDA2020/MGA Zone 56 EPSG:7856 party data which has not been verified by vgt and may not be to scale. Date: Unless expressly agreed otherwise, this figure is intended as a guide only Contour Our Ref: 12700_HMA_AR2024-2025_Q004_V1_F4 Client: Hodgson Quarries & Plant Pty Ltd 1m Interval: and vgt does not warrant its accuracy Dam3-Nursery Dam **Drying Area** Dam 1A- Process Dam 6295600 6295600 Dam 1B (Old Proces Dam 4- Farm Dam Drying Pond (Not In Use) 6295400 196.3m R Stockpile Area Dam 2B 6295200 Legend Property Boundary VENM/ENM Emplacement (2023) 2024-2025 Survey Point **Topography 2017/2022** VENM/ ENM Emplacement (2024) --- 1m Contour Dam Areas — 5m Contour VGT Environmental Compliance Solutions Pty Ltd 4/30 Glenwood Drive, Thornton NSW 2322 PO Box 2335, Greenhills NSW 2323 ABN: 26 621 943 888 ph: (02) 4028 6412 email: mail@vgt.com.au

5.1 OPERATIONS 2024 CALENDAR YEAR

The site layout is illustrated in Figure Four. The operation restricts activities to between the hours in Table 4.

Table 4. Operational Hours

Days of the week	Activity	Hours
Monday to Friday	Construction	7.00am to 6.00pm
Monday to Friday	Extraction and processing of material	7.00am to 6.00pm (11 hrs)
Saturdays	Extraction and processing of material	7.00am to 1.00pm (6 hrs)
Monday to Friday	Vehicle loading	6.00am to 6.00pm (12 hrs)
Saturdays.	Vehicle loading	6.00am to 1.00pm (7 hrs)
Sundays & Public Holidays	No works permitted	

These hours were not exceeded during the report period, although it is site practice to open the gates at 5:30am to prevent trucks from parking on Roberts Rd. There were no extraordinary maintenance works or atypical operations outside of these hours during the report period.

Approximately 44,900 tonnes of material was sold during the report period, which was lower than 2023, and compliant with Schedule 2 Condition 9A (a) that the site will process or dispatch no more than 480,000 tonnes per calendar year.

Schedule 2 condition 17A states that:

17A. The Applicant must provide MEG with annual quarry production data, covering a full calendar year, by no later than 30 January for the following calendar year.

MEG requires that that extraction data be supplied on a financial year basis rather than calendar year and is now able to be submitted online via the Regulator Portal. It is hoped that this condition can be revised in consultation with MEG and DPE prior to the final consolidated consent conditions being issued for Mod 4.

The Safety Management System was updated with the inclusion of a 'Diversity in the Workplace Policy' and a 'Power Screen Pre-Start' procedure.

5.2 TRANSPORT AND TRUCK MOVEMENTS

As per Condition 50A(e), an Operational Traffic Management Plan (TMP) was submitted March 2022 to DPIE with the request for TfNSW for consultation as well as submitted to Council. Consultation was received as well as DPE comments, and Revision 4 of the TMP was approved on 13/12/2022.

The TMP includes a Drivers Code of Conduct, which is to be individually signed by all transport and truck drivers and is reviewed annually.

5.2.1 Compliance Requirements

The TMP requires the following monitoring and records keeping.

Table 5. Traffic and Transport Monitoring Measures

Aspect	Frequency	Comments
Accurate records of quarry products transported to and from site	Calendar month and annually	Section <u>5.2.2</u>

Aspect	Frequency	Comments
Accurate records of laden vehicles movements	Per hour, day, week, calendar month and year	Section <u>5.2.2</u>
Monitor complaints with respect to Roberts Rd and other haul routes	Continuously	Section <u>5.4</u>
A formal observation of compliance with Drivers Code of Conduct and Covering of Loads	Three monthly	Starting March 2023, records are available on request.

5.2.2 Monitoring Results and Compliance Trends

At no time during the report period did the number of laden trucks exceed the limit of 70 incoming or outgoing trucks per day. The weighbridge is not capable of logging movements per hour.

Section 94A contributions are paid monthly.

Table 6. Annual Production Last 5 Years

Cal Year	Production Tonnes	Limit Production per Calendar Year		
2020	56,894	480000		
2021	95,987	480000		
2022	75,054	480000		
2023	71,413	480000		
2024	51,499	480000		

Graph 1. Annual Production Trends Last 5 Years

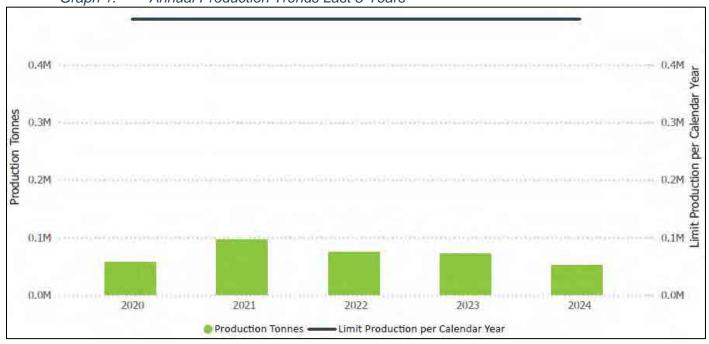
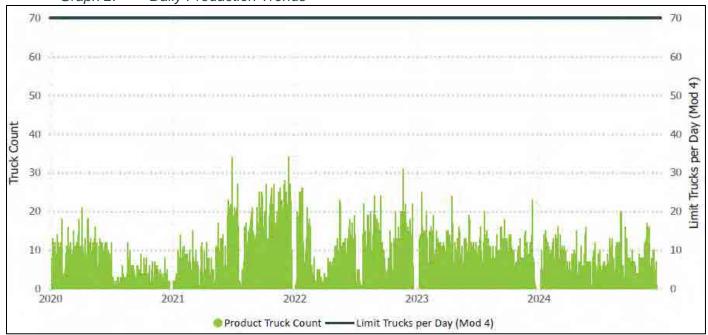


Table 7. Max Daily Production Trucks This Report Period

Date	Max Daily Product Trucks This Year	Limit Trucks per Day (Mod 4)	Production Tonnes	
4/9/24	20	70	659.58	
20/11/24	17	70	535.68	
21/11/24	17	70	566.16	
28/2/24	16	70	523.27	
21/5/24	16	70	525.39	
16/9/24	16	70	522.00	
25/11/24	16	70	597.60	

Graph 2. Daily Production Trends



5.3 MATERIAL IMPORTATION

5.3.1 Compliance Requirements

The Mod 4 consent condition number 9A states:

9A. The Applicant must not:

- (b) receive more than 320,000 tonnes of VENM and ENM (in total) at the site in any calendar year;
- (c) import more than 3 million tonnes of VENM and ENM to the site; and
- (d) import VENM and ENM beyond 31 May 2030.

5.3.2 Monitoring Results and Compliance Trends

VENM and ENM Certificates have been obtained and are available on request. An example report is included in *Appendix K*.

Table 8. Annual VENM / ENM Importation Trends Last 5 Years

Cal Year	Importation Tonnes	Limit Import Tonnes per Calendar Year	Limit Import Tonnes Total
2022	6,632	320000	3000000
2023	22,234	320000	3000000
2024	117,434	320000	3000000
Total	146,300	320000	3000000

Graph 3. Annual Importation Trends Last 5 Years

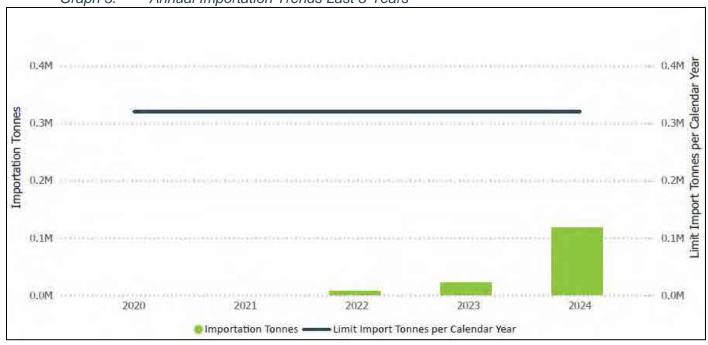
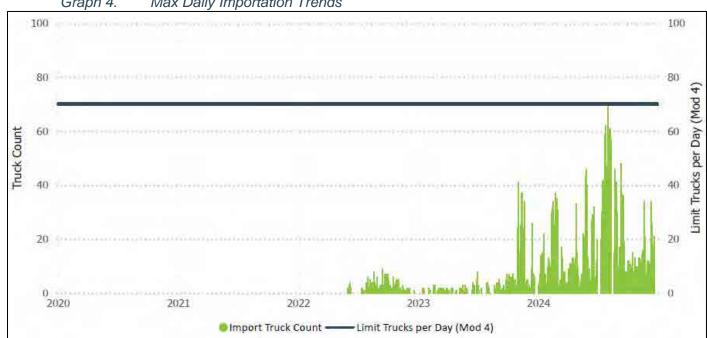


Table 9. Max Daily Importation Trucks This Report Period

Date	Max Daily Import Trucks This Year	Limit Trucks per Day (Mod 4)	
31/7/24	70	70	
24/7/24	62	70	
5/8/24	61	70	
7/8/24	61	70	
1/8/24	60	70	
23/7/24	59	70	
E/0/7A	50	70	



Graph 4. Max Daily Importation Trends

Data on the VENM and ENM received at the site is collected and retained for every load, including details of the origin, date and quantity received. An example of VENM or ENM certificate covering the imported material is found in Appendix K and a full list is available on request.

5.4 COMPLAINTS AND COMMUNITY CONSULTATION

The client advertises a community complaints and enquiries phone number in the white pages, on their website (www.vgt.com.au/hodgsons), and in prominent signage on the front gate. All monitoring results, approved management plans and compliance reports, as well as relevant consent and approval documents are also available on the website. The complaints procedure is outlined in the Operational Environmental Management Plan. All complaints are recorded and actioned within 24 hours where possible. There have been no complaints received by the client during the reporting period. The complaints register and form is included in Appendix E.

Regular, informal consultation is undertaken verbally with neighbours.

PROPOSED OPERATIONS 2025 CALENDAR YEAR 5.5

Operations are proposed to remain similar in 2025. The active cells are proposed to be phases 3 and 4 as illustrated on Figure Two and commencement of extraction in Phase 5A is intended.

Emplacement of imported material is proposed to continue in the middle and southern end of Process Area Dam 1.

6 Environmental Management

6.1 WASTE MANAGEMENT

Rubbish is sorted on site into various streams including general rubbish, recyclable containers, used oils, etc and removed by licensed contractors.

During the IEA it was noted that oils and chemicals had been stored in un-bunded locations as well as waste materials such as used tyres present on the site. Negotiations with EPA resulted in the removal of recyclable waste and used tyres, and the purchase of pallet bunds. These works were completed by mid-December 2023. The client has advised that 6 tyres remain on site as safety barriers and there were no further tyres on the site that require disposal.

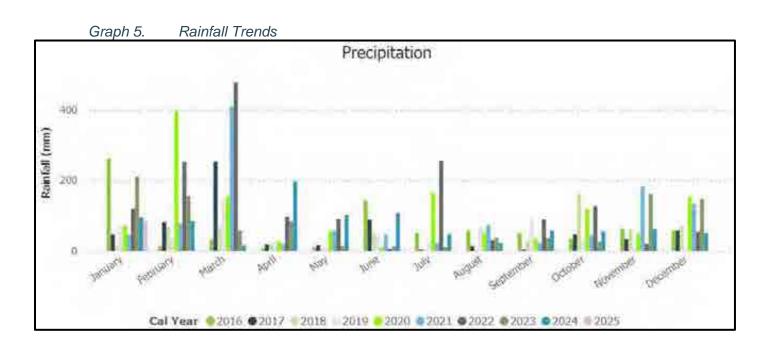
No other waste has been stored on site during the reporting period.

6.2 CLIMATE SUMMARY

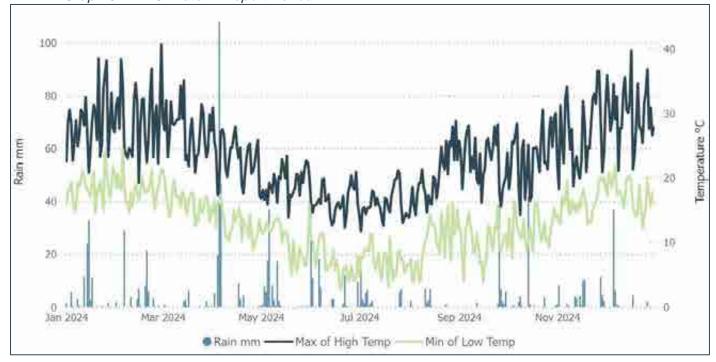
Weather data is collected on site and downloaded monthly. This data is used to inform the water balance and assist in interpreting dust and groundwater impacts.

Table 10. Rainfall Summary

							Precipitation mm					
Cal Year	January	February	March	April	May	June	July	August	September	October	November	December
2020	70.8	396.0	154.0	25,4	55.6	8.6	164.6	51.8	33.2	118.4	46.4	152.8
2021	45.6	77.2	408.8	19,2	57.0	46.4	22.0	73.4	21.4	43.8	181.8	132.2
2022	119.0	252,0	477.6	96.4	89.8	5.0	254.2	30.4	87.8	125.6	19.6	53.4
2023	210.0	155.2	57.0	84.2	13.8	12.8	10.4	36.4	35.8	24.4	160.2	146.8
2024	94.4	84.2	15.0	196.2	101.2	107.4	47.0	21.0	56.8	54.0	60.6	50.2



Graph 6. Climate in Report Period



Graph 7. Wind Roses for Report Period



6.3 AIR QUALITY

6.3.1 Requirements and Predictions

The consent and Air Quality Management Plan specifies the following Air Quality Criteria:

Table 11. Air Quality Criteria

Parameter	Averaging Period	Consent Limit Mod 4	Prediction ^a Max at Residences	Prediction b Max at Residences after 18/08/2021 Mod 4
Total Suspended Particulates (TSP) μg/m³	Annual	90	57	43
PM ₁₀ μg/m ³	24 hours	50	49	Not predicted
PM ₁₀ μg/m ³	Annual	25	15	22
PM _{2.5} μg/m ³	24 hours	25	Not predicted	Not predicted
PM _{2.5} μg/m ³	Annual	8	Not predicted	14.0
Insoluble Solids g/m²/month	Annual	4	1.7	2.8

Note ^a: The Air Quality Impact Assessment prepared for the Environmental Assessment for Mod 2 (Nexus Environmental Planning Pty Ltd, September 2015) predicted these impacts at the boundary.

Note ^b: The Air Quality Impact Assessment prepared for Mod 4 SoEE (Jacobs Group Australia Pty Ltd, 2019) predicted these impacts at the residents.

The EPL specifies no limits on air quality.

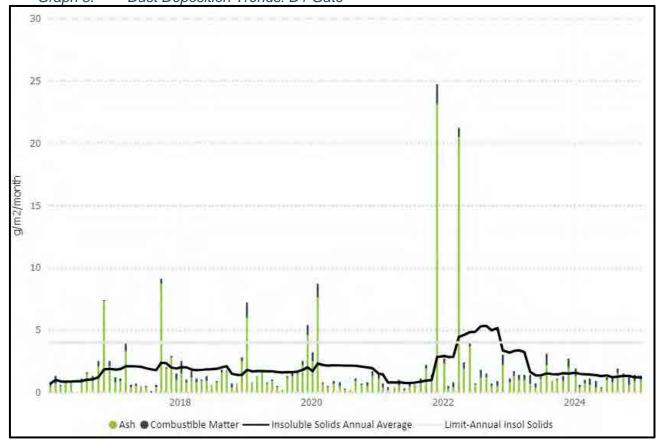
6.3.2 Monitoring Results Compliance and Trends

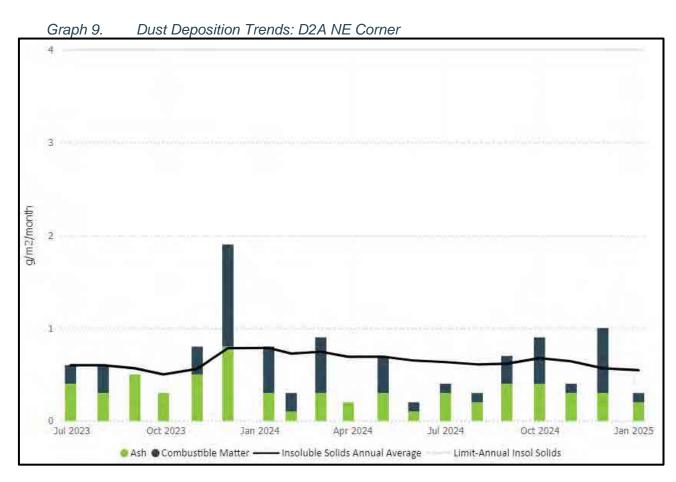
All air quality monitoring results are given in *Appendix H* and are summarised below.

Table 12. Dust Deposition Gauge Results

Date Sampled	D1 Gate	D2a North East Corner	D3A Bundwall
1/2/2024	0.6	0.8	0.6
1/3/2024	1.0	0.3	0.9
28/3/2024	1.1	0.9	0.4
1/5/2024	0.9	0.2	0.6
31/5/2024	0.4	0.7	0.4
1/7/2024	1.2	0.2	0.6
1/8/2024	1.3	0.4	0.3
30/8/2024	1.9	0.3	0.5
1/10/2024	1.5	0.7	1.4
1/11/2024	1.2	0.9	0.8
2/12/2024	1.4	0.4	3.7
6/1/2025	1.3	1.0	2.1
Annual Average	1.2	0.3	1.0

Graph 8. Dust Deposition Trends: D1 Gate





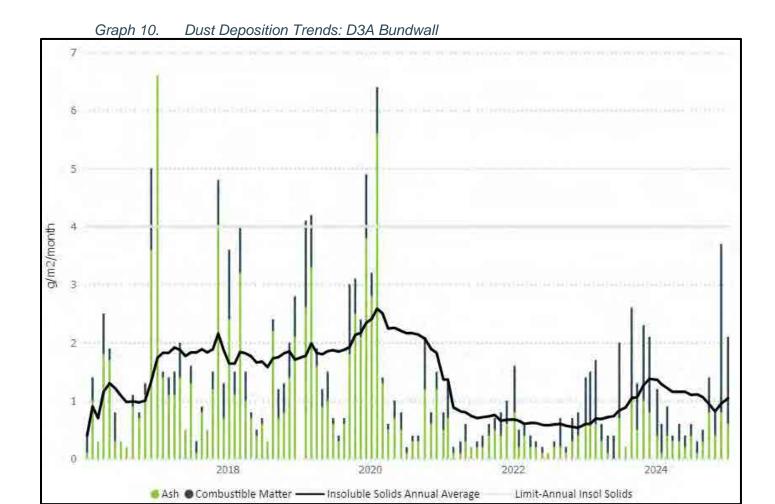


Table 13. Particulate Matter Annual Averages

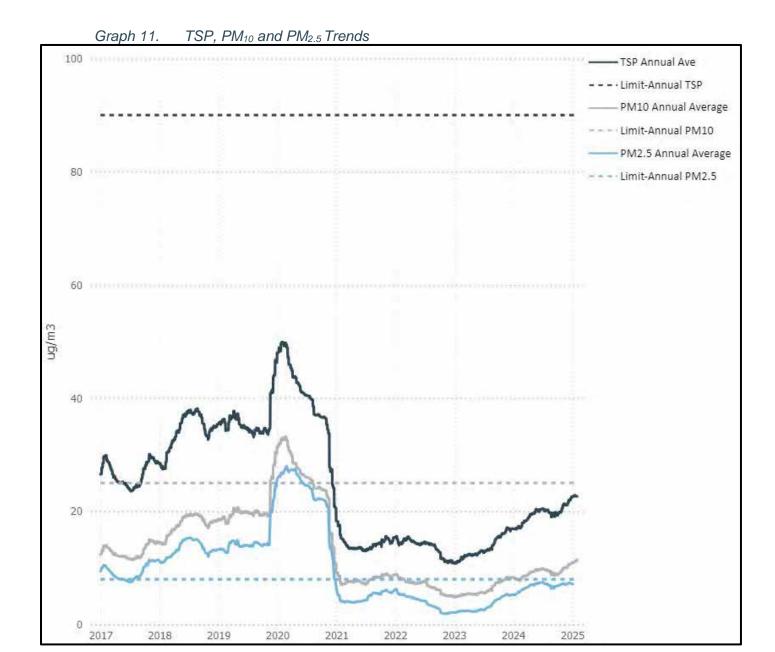
Annual Averages	TSP μg/m³	PM10 μg/m³	PM2.5 μg/m³
2024	22.6	11.4	7.1
Compliant with DA	Yes	Yes	Yes
Criteria	90	25	8
Prediction	57 (Mod 2) 43 (Mod 4)	15 (Mod 2) 22 (Mod 4)	N/A (Mod 2) 14 (Mod 4)
2023	17.2	8.3	5.3
2022	11.0	5.0	2.1
2021	15.4	8.8	6.1
2020	21	11	7.8
2019	48	32	26

Table 14. Max 24 Hour Particulate Matter Averages

Max 24hr Averages	TSP μg/m³	PM10 μg/m³	PM2.5 μg/m³
2024	55	27	25
Compliant with DA	Yes	Yes	Yes**
Criteria (Mod 4)	N/A	50	25
2023	55	43	16 [36**]
2022	27	16	9

Table 15. 24Hr Exceedances

Date	PM10 μg/m³	PM2.5 μg/m³	Comments
Not applicable	None	None	



6.3.3 Interpretation and Effectiveness of Controls

6.3.3.1 Interpretation of Monitoring Results

Total Suspended Particulates (TSP) and PM2.5 and PM10 24-hour and Annual Averages for 2023 were compliant with DA criteria. Dust deposition (Insoluble Solids) were also compliant with DA criteria.

All air quality monitoring results for the depositional dust gauges are relatively stable over the reporting period. The TSP, PM₁₀ and PM_{2.5} are indicating an increasing trend over the last few years. This may be due to the lower rainfall over the last few years and the increasing area of unvegetated VENM/ENM emplacement in rehabilitation areas.

6.3.3.2 Particulate Matter 24-Hour Average Exceedance

The high-volume air samplers did not exceed the Particulate Matter performance criteria condition of 25 μ g/m³ for the 2.5 μ m level for the 24-hour average. The PM10 24-hour average performance criteria condition of 50 μ g/m³ was also not exceeded during the reporting period.

6.3.3.3 Potential Sources of Dust

Sources of dust from the site activities are:

- Dozers ripping sandstone,
- Loading and unloading of raw material using dump trucks,
- Loading the hopper,
- Screening,
- · Loading processed material into trucks,
- Traffic on unsealed haul road, and
- Wind erosion from extraction and processing areas.

Background sources of dust include:

- Wind erosion from surrounding farmland and quarries,
- Mowing and ploughing activities on adjacent farmland,
- Earth-moving activities on nearby quarries,
- Traffic, particularly diesel-powered trucks on Old Northern Rd, and
- Bushfire, burning off, and domestic wood-fired heating.

6.3.3.4 Effectiveness of Air Quality Management Controls

Table 16. Effectiveness of Air Quality Management Controls

Control	Interpretation	Effective?
Increase use of watercart in dry weather	Dust results do not increase with truck movements, nor on high wind days. Examination of wind direction during monitoring shows sources are off site.	Yes
Delaying non-essential earth-moving activities during periods of high wind	Dust results do not increase with truck movements, nor on high wind days. Examination of wind direction during monitoring shows sources are off site.	Yes
Reducing truck speeds	Dust results do not increase with truck movements	Yes
Damping down	Dust results do not increase with truck movements, nor on high wind days. Examination of wind direction during monitoring shows sources are off site.	Yes
Installation of a mobile sprinkler in 2019	Sprinklers are installed. Dust results do not increase on high wind days. Examination of wind direction during monitoring shows sources are off site.	Yes
Trucks covered when entering and leaving the site	Dust results do not increase with truck movements	Yes

6.3.4 Measures Proposed for Improvement

Air quality management controls have been effective for the 2024 calendar year and will be maintained during 2025. A sprinkler distributes water to disturbed areas that the water cart has difficulty accessing. Dust will continue to be monitored using high volume air samplers and dust deposition gauges.

Relocation of the monitors adjacent to the office was investigated previously and a lack of power and security makes the relocation not feasible.

A review of the Air Quality Management Plan was recommended by the Air Quality Monitoring Review and was undertaken in 2023 and is pending DPE approval. Recommendations are that TSP be no longer undertaken; however, monitoring continues until approval of the Management Plan.

6.3.4.1 Air Quality Monitoring 2023 Review

In accordance with Schedule 2 Condition 29A, an expert was commissioned to undertake a review of the air quality monitoring system at the site. The report was accepted by the DPE following revisions on 28/2/2023, with the recommendations and conclusions below:

"Based on the relevant criteria set out in AS3580.19 Methods for sampling and analysis of ambient air, Method 19: Ambient air quality data validation and reporting, and upon review of the results from 1/09/2021 to 1/9/2022, the air quality monitoring at the Roberts Rd Maroota Sand Quarry is fit for purpose, as accurate as can be reasonably expected, and exceeds those of the site's nearest neighbours.

The following recommendations are proposed to assist in improving the site's air quality monitoring system:

- Ensure site conditions and observations for the monitoring period are included on the sample sheet for all air quality samples, along with name of the technician, date and time sampled, and compliance with the siting and instrument requirements of the relevant method.
 - o To be checked by Environmental Manager after each sampling event, or monthly at a minimum.
- Ensure that the procedure for sampling is documented and that all sampling technicians are trained in it regularly.
 - Procedure for sampling to be included in updated AQMP (see next point for timing). Training records to be maintained by the site and updated as required by staff changes.
- Update the site Air Quality Management Plan (AQMP) to include the modification 4 requirements. The author
 recommends that, in consultation with the DPE, monitoring for TSP be discontinued as this is a less critical
 parameter, and instead replaced by a ratio calculation from PM10 based on monitoring data collected from the
 site over as long a period as possible, without including the extraordinary events of the 2019-2020 bushfires.
 The explanation for how this is to be calculated would be included in the updated AQMP.
 - It is recommended that the AQMP be updated within 3 months + 4 weeks (in accordance with Schedule 2 condition 67) following submission of the Annual Report and Independent Environmental Audit whichever is later, to ensure all outcomes from those reviews are included."

In accordance with these recommendations, procedures for all air quality samples have been documented (see previous Annual Review for examples) and has been undertaken as detailed in Section 2.2.2.

6.4 SURFACE WATER, SEDIMENT AND EROSION

The Water Management Plan (version July 2018) was submitted to the (then) Dol Water and DPE to comply with the conditions of consent (Mod 2) and was approved by DPE on 22nd August 2018. An update was undertaken in December 2020 and was submitted via the Major Projects Portal for consultation in February, April and August 2021 (DA267-11-99-PA-11) as documented in submitted response number DA267-11-99-PA-13. An email request to NRAR for comment was sent again on 12th October 2021 with a response received 26th October 2021 that the matter was being reviewed. NRAR and DPIE-Water responded on 2nd Nov 2021 via the Major Projects portal that they had no comment. The WMP was then submitted to DPE via the Major Projects Portal, where comments requesting changes were advised in April 2022. Revision F2 dated June 2022 was approved on the 28th June 2022.

The water depth monitoring shows that all surface water bodies are above the level of the groundwater in both Maroota Sands and Hawkesbury Sandstone aquifers.

There was no water discharged from the site during the report period.

The surface level was monitored in the Process Dam using an automated logger that was downloaded monthly. This logger has been removed due to the emplacement of VENM and ENM within the Process Dam. Rainfall is monitored using the onsite weather station, and evaporation is collected from the local BOM data.

6.4.1 Requirements and Predictions

6.4.1.1 Water Testing

There are no quality parameters for water testing within the consent conditions or the EPL. Requirements regarding surface water monitoring in the consent condition 42 (b) are given below:

[The Surface Water Management Plan includes] a program to monitor:

- o the effectiveness of the water management system;
- o site discharge water quality; and
- o surface water level and quality in the Process Water Dam, including the quantification of rainfall inflow, groundwater inflow and evaporation;

6.4.1.2 WMP Monitoring and Maintenance

Table 17. Monitoring and Maintenance from the WMP 2022

Parameter	Source	Compliance	Comments
Topsoil stripping to be visually monitored to check moisture content of soil and depth of stripping.	WMP section 4.9.3	Yes	
Stockpiles to be visually assessed at time of forming to check they do not exceed three metres high.	WMP section 4.9.3	Yes	
Visual check of stability and operation of all banks, ponds, channels and spillways to be undertaken monthly. Effecting any necessary repairs.	WMP section 4.9.3	Yes	
Removal of spilled sand or other materials from hazard areas, including lands closer than five metres from areas of likely concentrated or high velocity flows, especially waterways and access roads.	WMP section 4.9.3	Yes	
Removal of trapped sediment whenever less than design capacity remains for the sediment basins.	WMP section 4.9.3	Yes	Sediment dams meet required storm event capacity

Parameter	Source	Compliance	Comments
Ensuring rehabilitated lands have effectively reduced the erosion hazard and initiate upgrading or repair as appropriate	WMP section 4.9.3	Yes	Not yet applicable
Visual inspection for evidence of tailgate discharge and/or sediment build-up at exit to site.	WMP section 4.9.3		
Constructing additional erosion and/or sediment control works as might become necessary to ensure the desired water control is achieved.	WMP section 4.9.3	Yes	Not yet applicable
Automatic data loggers to monitor the dam levels to assist in the water balance modelling.	WMP section 4.9.3	Yes	Loggers installed in all surface dams. Dam 1 logger removed due to dam rehabilitation during the report period.
Weather data is obtained from the on-site weather station and reported in the Annual Review. Data is also used to calculate the water balance.	WMP section 4.9.3	Yes	Section 6.2
The water balance will be reviewed annually using rainfall, evaporation data, water usage on the site and any other relevant inputs.	WMP section 4.9.3	Yes	Section 6.6
All on-site dams to be sampled and water quality tested on an annually basis to determine if there is a relationship to the groundwater and to ascertain the water quality. Parameters include but no limited to: pH, Conductivity, Total Dissolved Solids, Chloride, Sulphate, Calcium, Magnesium, Sodium, Potassium, Nitrate, Oil and Grease.	WMP section 4.9.3	Yes	Section 6.4.2
Water quality in Sediment Basin 1, as shown in the Final Landform, will be within EPL criteria prior to discharge (once a variation to permit discharge has been approved).	WMP section 4.9.3	Yes	Not yet applicable

6.4.2 Monitoring Results Compliance and Trends

6.4.2.1 Water Quality Results

Surface water quality was tested 4 times during 2022 with the aim of assessing the relationship between surface water and groundwater. The pH is naturally low in the groundwater, and since the surface water has such low buffering capacity, the water from the bore water used in the processing plant (PB1) has a high influence on the pH of the Process Dam and Dam 2A and 2B. Dams 3 and 4 show little similarity to the groundwater, with pH closer to neutral. Dams 3 and 4 are influenced by surface inflows. The Oil & Grease was reported as Not Visible on all occasions.

Dams 2A, 2B and 2C have replaced Dam 2 as it is not an active dam due to silt buildup. Sampling for water quality for Dams 2A, 2B and 2C has not been undertaken due to the lack of safe access. As the water is returned to Dam 1 (which is monitored) at the end of each day, sampling of dams 2A, 2B and 2C is considered superfluous.

Table 18. Surface Water Quality Results Dam 1 – Process

Sample	Date	pН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
Dam 1 - Process	22/1/24	7.2	149	93	28	13	5.3	2.0	14	3.0
Dam 1 - Process	12/4/24	7.4	131	82	16	17	6.2	1.0	8	3.0
Dam 1 - Process	1/10/24	4.7	261	160	60	10	4.0	4.0	29	2.0
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
Dam 1 - Process	22/1/24	7.2	149	93	28	13	5.3	2.0	14	3.0
Dam 1 - Process	12/4/24	7.4	131	82	16	17	6.2	1.0	8	3.0
Dam 1 - Process	1/10/24	4.7	261	160	60	10	4.0	4.0	29	2.0
Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
			4.40	93	28	13	5.3	2.0	1.4	3.0
Dam 1 - Process	22/1/24	7.2	149	93	20	13	0.0	2.0	14	3.0
	22/1/24 12/4/24	7.2 7.4	149	93 82	16	17	6.2	1.0	8	3.0
Dam 1 - Process Dam 1 - Process Dam 1 - Process										
Dam 1 - Process	12/4/24	7.4	131	82	16	17	6.2	1.0	8	3.0
Dam 1 - Process Dam 1 - Process Sample	12/4/24 1/10/24 Date	7.4 4.7	131 261 Max of Electrical	82 160 Max of Total	16 60 Max of	17 10 Max of	6.2 4.0 Max of	1.0 4.0 Max of	8 29 Max of	3.0 2.0 Max of
Dam 1 - Process Dam 1 - Process	12/4/24 1/10/24	7.4 4.7 Max of pH	131 261 Max of Electrical Conductivity	82 160 Max of Total Dissolved Solids	16 60 Max of Chloride	17 10 Max of Sulphate	6.2 4.0 Max of Calcium	1.0 4.0 Max of Magnesium	8 29 Max of Sodium	3.0 2.0 Max of Potassium

Table 19. Surface Water Quality Results Dam 2 – Tailings

	Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
Dam 2 -	Tailings	31/7/24	4.7	230	140	52	16	4.0	4.0	23	3.0
Dam 2 -	Tailings	1/10/24	4.3	244	150	57	7	2.0	4.0	27	3.0
	Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
Dam 2 -	Tailings	31/7/24	4.7	230	140	52	16	4.0	4.0	23	3.0
Dam 2 -	_	1/10/24	4.3	244	150	57	7	2.0	4.0	27	3.0
	Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
Dam 2 -	Tailings	31/7/24	4.7	230	140	52	16	4.0	4.0	23	3.0
Dam 2 -	Tailings	1/10/24	4.3	244	150	57	7	2.0	4.0	27	3.0
	Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
Dam 2 -	Tailings	31/7/24	4.7	230	140	52	16	4.0	4.0	23	3.0
	Tailings	1/10/24	4,3	244	150	57	7	2.0	4.0	27	3.0
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Table 20. Surface Water Quality Results Dam 3 – Nursery

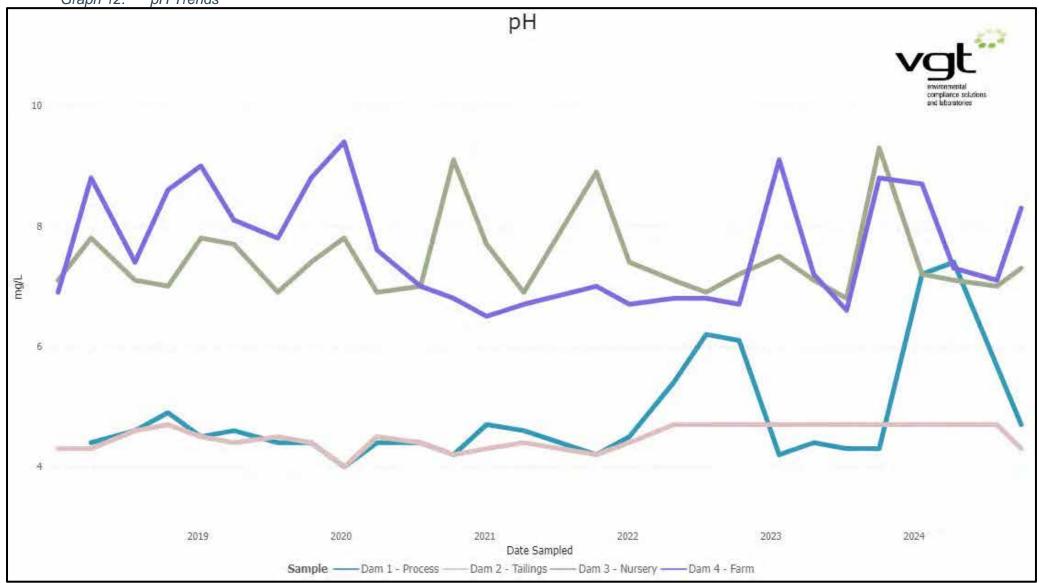
Sample	Date	pН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
Dam 3 - Nursery	22/1/24	7.2	181	110	29	6	6.5	4.0	14	7.2
Dam 3 - Nursery	12/4/24	7.1	155	97	28	6	3.0	2.0	12	5.7
Dam 3 - Nursery	31/7/24	7.0	149	93	29	10	5.0	3.0	14	5.3
Dam 3 - Nursery	1/10/24	7.3	159	99	30	8	5.0	3.0	16	4.0
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
Dam 3 - Nursery	22/1/24	7.2	181	110	29	6	6.5	4.0	14	7.2
Dam 3 - Nursery	12/4/24	7.1	155	97	28	6	3.0	2.0	12	5.7
Dam 3 - Nursery	31/7/24	7.0	149	93	29	10	5.0	3.0	14	5.3
Dam 3 - Nursery	1/10/24	7.3	159	99	30	8	5.0	3.0	16	4.0
Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
Dam 3 - Nursery	22/1/24	7.2	181	110	29	6	6.5	4.0	14	7.2
Dam 3 - Nursery	12/4/24	7.1	155	97	28	6	3.0	2.0	12	5.7
Dam 3 - Nursery	31/7/24	7.0	149	93	29	10	5.0	3.0	14	5.3
Dam 3 - Nursery	1/10/24	7.3	159	99	30	8	5.0	3.0	16	4.0
Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
Dam 3 - Nursery	22/1/24	7.2	181	110	29	6	6.5	4.0	14	7.2
Dam 3 - Nursery	12/4/24	7.1	155	97	28	6	3.0	2.0	12	5.7
Dam 3 - Nursery	31/7/24	7.0	149	93	29	10	5.0	3.0	14	5.3
Dam 3 - Nursery	1/10/24	7.3	159	99	30	8	5.0	3.0	16	4.0
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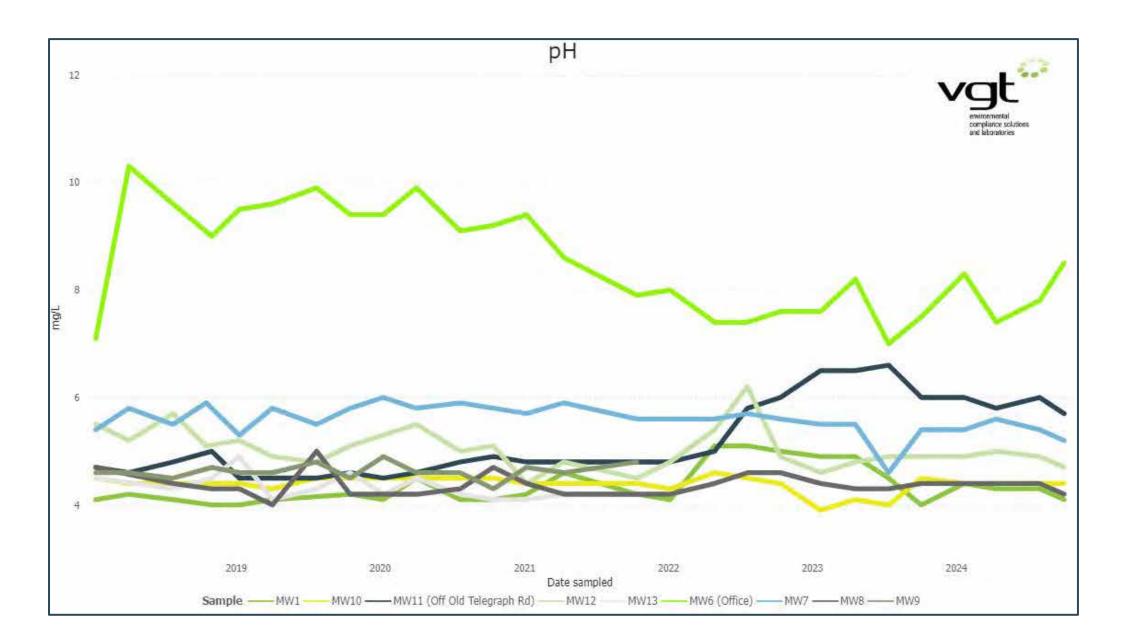
Table 21. Surface Water Quality Results Dam 4 - Farm

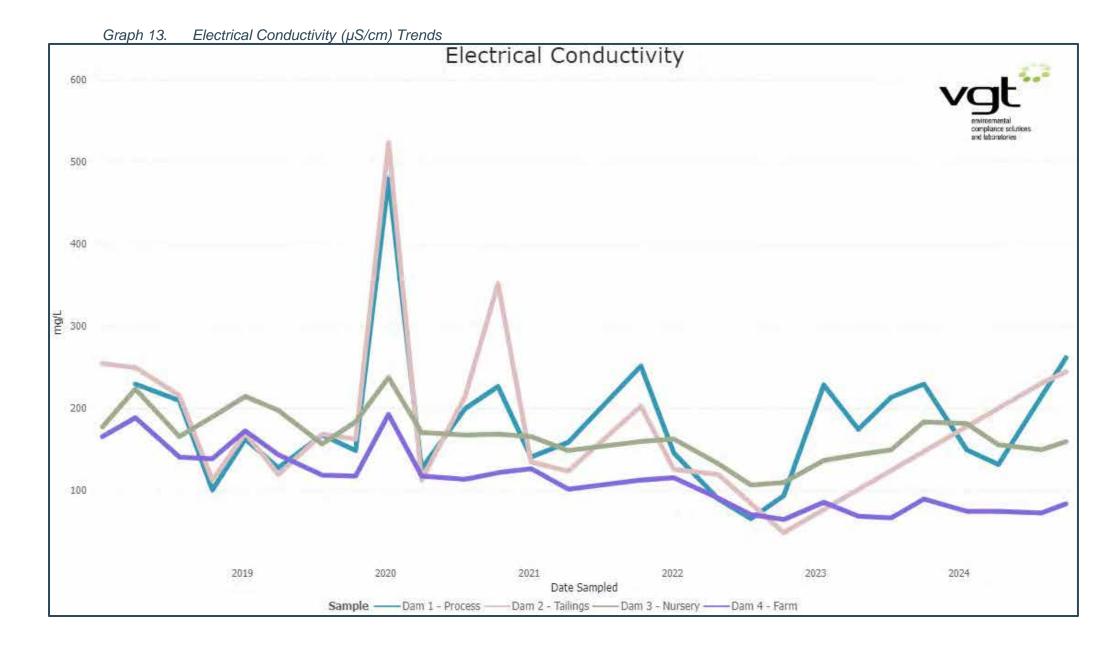
Sample	Date	pН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
Dam 4 - Farm	22/1/24	8.7	74	0	14	2	1.0	1.0	8	3.0
Dam 4 - Farm	12/4/24	7.3	74	0	14	2	0.7	0.9	6	3.0
Dam 4 - Farm	31/7/24	7.1	72	0	11	5	2.0	2.0	7	3.0
Dam 4 - Farm	1/10/24	8.3	83	52	12	5	2.0	2.0	8	2.0
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
Dam 4 - Farm	22/1/24	8.7	74	0	14	2	1.0	1.0	8	3.0
Dam 4 - Farm	12/4/24		74	0	14	2	0.7	0.9	6	3.0
Dam 4 - Farm	31/7/24	7.1	72	0	11	5	2.0	2.0	7	3.0
Dam 4 - Farm	1/10/24	8.3	83	52	12	5	2.0	2.0	8	2.0
Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
Dam 4 - Farm	22/1/24	8.7	74	0	14	2	1.0	1.0	8	3.0
Dam 4 - Farm	12/4/24	7.3	74	0	14	2	0.7	0.9	6	3.0
Dam 4 - Farm	31/7/24	7.1	72	0	11	5	2.0	2.0	7	3.0
Dam 4 - Farm	1/10/24	8.3	83	52	12	5	2.0	2.0	8	2.0
Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
Dam 4 - Farm	22/1/24	8.7	74	0	14	2	1.0	1.0	8	3.0
Dam 4 - Farm	12/4/24	7.3	74	0	14	2	0.7	0.9	6	3.0
Dam 4 - Farm	31/7/24	7.1	72	0	11	5	2.0	2.0	7	3.0
Dam 4 - Farm	1/10/24	8.3	83	52	12	5	2.0	2.0	8	2.0
Dam 4 - Farm	1/10/24	8.3	83	52	12	5	2.0	2.0	8	

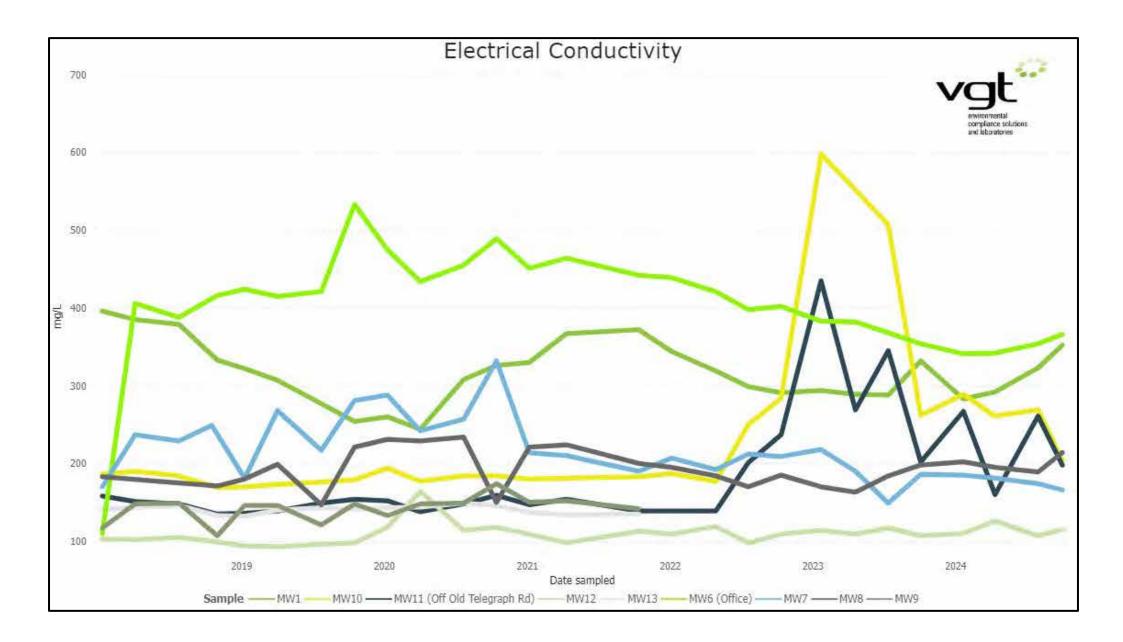
6.4.2.2 Water Quality Trends

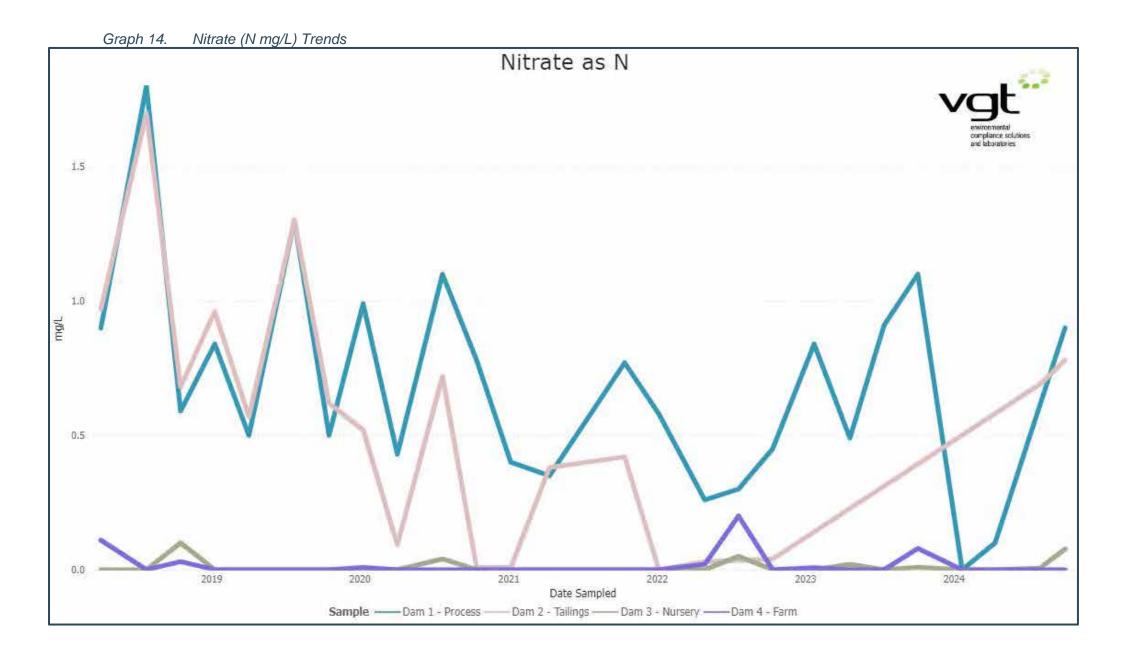
Graph 12. pH Trends

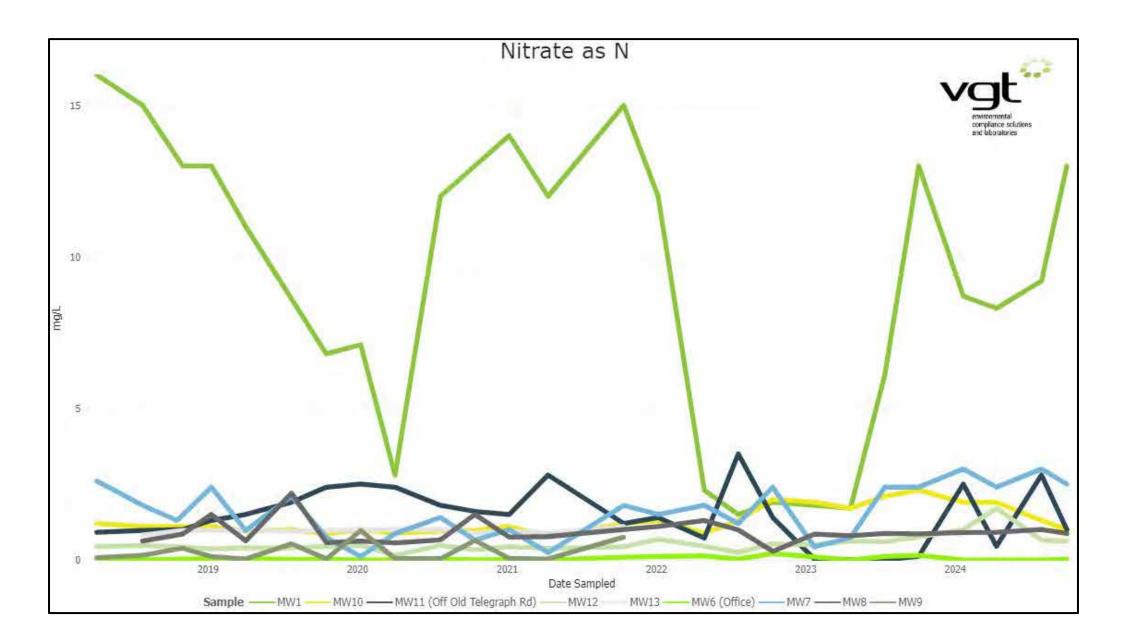












6.4.2.3 Water Depth

The extraction of sand on the site relies on an adequate supply of water for washing and screening of material. After processing, residual clay/silt is delivered to the designated drying areas and liberated water is drained into a holding dam (currently Drying Dam 2A and 2B) to settle sediment entrained in the process. Water from the holding dam is then released back into the process dam (Dam 1) for re-use. Release from Dam 2A and 2B to Dam 1 is facilitated via pumping. During processing Dam 2A and 2B fill with sediment as well as water resulting in the upward displacement of water in the dam. The overall effect is that whilst a nominal small volume is always held in Dam 2A and 2B, virtually all processing water makes its way back to Dam 1 overnight.

6.4.3 Interpretation and Effectiveness of Controls

The primary consideration in assessing the effectiveness of the surface water controls is that the downstream environment is not adversely affected by discharged waters. In this regard the controls are effective as the site has more than sufficient capacity to contain surface water for the design storm event and no uncontrolled discharges have occurred.

The sediment and erosion controls are considered effective in terms of preventing sediment from leaving the site. Within the excavation there is evidence of erosion however all eroded soils and sediment are contained with the pit. Untouched areas are covered with pasture or tree stands and are not prone to erosion.

The water depth monitoring shows that all surface water bodies are above the level of the groundwater in both Maroota Sands and Hawkesbury Sandstone aquifers.

6.4.4 Measures Proposed for Improvement

Specific monitoring improvements to be investigated are as follows.

- Continue surface water level monitoring and report in accordance with the approved Surface Water Management Plan.
- Undertake water quality monitoring and reporting in accordance with the approved Surface Water Management Plan.
- Apply to the Secretary to reduce the need for annual water management plan updates.

6.5 GROUNDWATER

A Groundwater Study, Groundwater Management Plan (GWMP) and Groundwater Monitoring Program was submitted to the then DPE and Dol-W to comply with the conditions of consent, and approved by the DPE in August 2018. The groundwater monitoring bores on the site are summarised in *Table 23*.

Table 22. Groundwater Monitoring Bores

Identification	Aquifer	Bore Status	Comments
(PT84)MW1	Maroota Sands (perched)	In use for water sampling	Installed 20/10/1998. Located near nursery.
(PT84)MW6	Maroota Sands, (upgradient)	In use for water sampling	Installed January 2015. To replace PT84MW4
MW7	Hawkesbury Sandstone	In use for water sampling	Installed December 2016
MW8	Maroota Sands (perched)	In use for water sampling	Installed December 2016. To replace MW5
MW9	Hawkesbury Sandstone	Intermediate - Mined out	Installed December 2016.
MW10	Maroota Sands	In use for water sampling	Installed December 2016
MW11	Maroota Sands downgradient	In use for water sampling	Installed December 2016
MW12	Hawkesbury Sandstone	In use for water sampling	Installed December 2016
MW13	Maroota Sands (perched)	Intermediate - Mined out	Installed December 2016.

6.5.1 Requirements and Predictions

Groundwater level monitoring is required under the consent conditions 42-44. It is not possible to measure depth within PT84PB1 due to the attached infrastructure; the pumping records are supplied in <u>Appendix J</u>. PT84PB2 is owned and operated by the landowner; the quarry operators have no use or access.

Table 23. Groundwater Level Monitoring

Parameter	Criteria	Units	Source
Groundwater Level	Monitored continuously	Metres AHD	Consent sched 2 cond 43
Depth of Extraction	Extraction does not take place below a level 2 metres above the wet weather high groundwater level of the regional aquifer, as measured and mapped on the site	Contours in metres AHD	Consent sched 2 cond 17

6.5.2 Monitoring Results Compliance and Trends

Groundwater level monitoring results from the continuous automatic data loggers are corrected for barometric pressure and calibrated to manual measurements undertaken each month. Groundwater levels are currently monitored in seven boreholes located on the site. MW1 logger was installed prior to 2015; the remaining loggers were installed in 2017. Following anomalous readings from the MW5 logger during 2017, the bore was investigated and discovered to have collapsed. The logger was relocated to a functioning bore and MW5 abandoned and replaced by nearby MW8.

Loggers in MW1 and MW12 were reinstated in November 2018 following repairs undertaken between May/June 2018 and October 2018. During this time manual readings continued. MW13 and MW9 has been decommissioned due to expansion of the quarry in November 2021.

On the 13th of February 2024 notification of the proposed destruction of the bores MW9 and MW13, due to advancing quarrying, was submitted to the NRAR. NRAR provided recommendations (see Appendix N) via an email dated 1st March 2024 in which it was requested that the bores be replaced to 'fill the monitoring gap in the monitoring program of the Maroota Tertiary Sands Groundwater Source from the southwest adjacent to Nursery Dam 4'. This is not considered necessary (see discussion below) and a response to NRAR is pending.

The location of the Maroota Sands regional groundwater table was described in the Groundwater Study undertaken by Dundon Consulting in October 2017 as following:

It is interpreted that the Maroota Sands regional water table is only present within the central part of the property, as the top of the Hawkesbury Sandstone rises above this water table level across the eastern and western parts of the property. Hawkesbury Sandstone is exposed on the eastern flank of the Main Process Dam. The lines marking the limit of saturated Maroota Sands are shown on **Figure 16**. To the west and east of this central deep zone, there is groundwater present in perched zones within the Maroota Sands, but the recent drilling program has shown that these zones are both limited in area and of limited saturated thickness.

The contours on **Figure 16** suggest a relatively gentle gradient to the north/north-northeast, down the likely axis of the palaeovalley.

Annual Review & Compliance Report 2025 for Roberts Maroota Quarry, Roberts Road, Maroota, NSW Plan of: Road Maroota Sand Quarry - Wet Weather High Location: Groundwater Level Hawkesbury Sandstone (Feb 2018) Hills Shire Council Council: Figure: Version/ V1 28/03/2025 Not Applicable Tenure: Date: Our Ref: 12700_HMA_AR2024-2025_Q005B_V1_F5 Client: Hodgson Quarries & Plant Pty Ltd

Source:

Dundon Consulting Pty Ltd Figure 16 Dwg No. 06-0318-021d 08/03/2018

Dundon Consulting Pty Ltd 08/03/2018

Projection: MGA

Contour

Interval:

1m

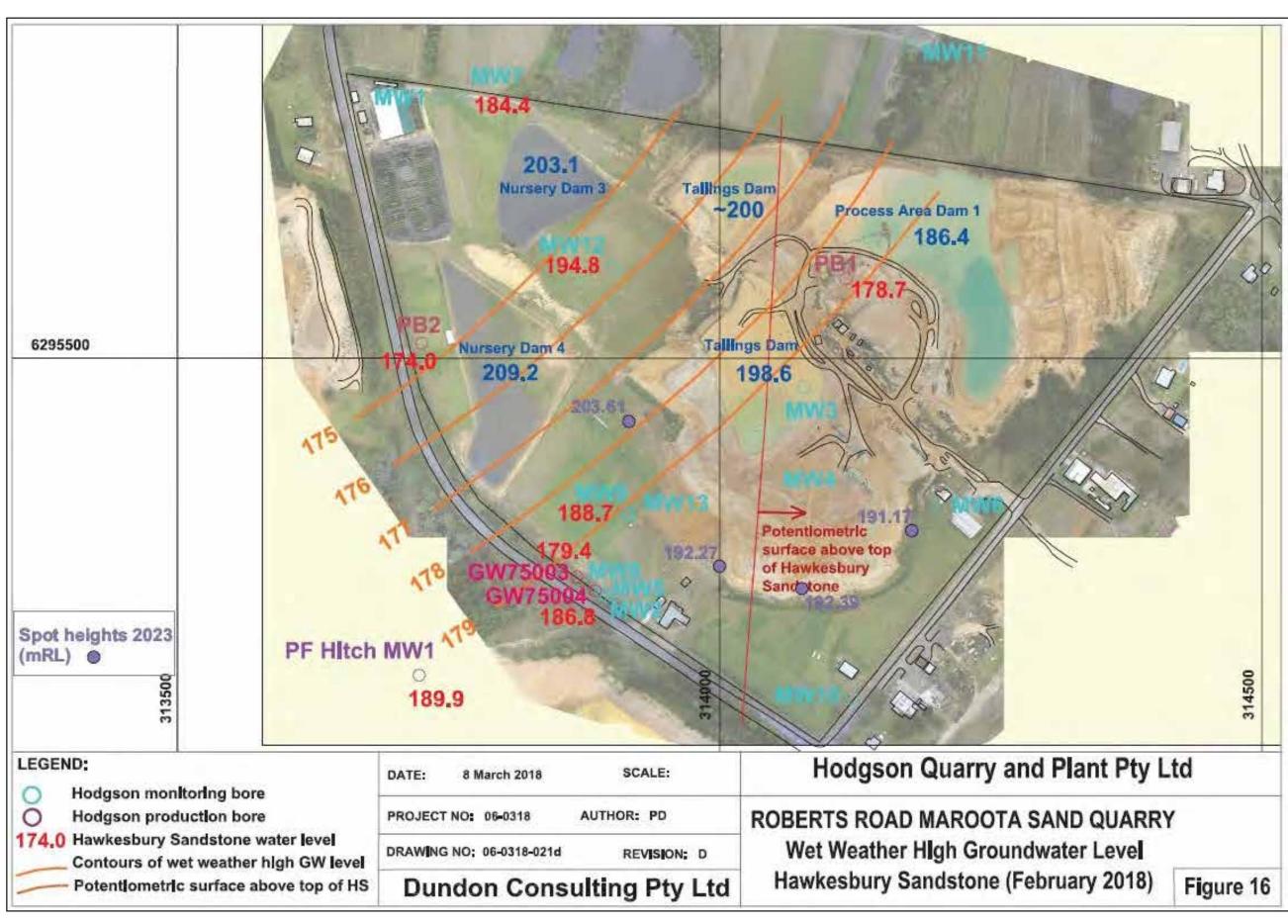
Project TO

Plan By:

TO/SK/JD



Inis rigure may be based on third party data which has not been verified by vgt and may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and vgt does not warrant its accuracy



It should be noted that the Ground Water Study determined that MW9 and MW13 are located within the 'edge of the saturated Maroota Sands' and corresponds to and mirrors the relative level changes monitored in bore MW1, MW7, MW8 and MW12 (see Graph 16). Whereas bores MW6, MW10 and MW11 are monitoring the Maroota Sand Regional Water Table within the central section of the palaeochannel. The channel groundwater level trends higher in the south and lower in the south, consistent with the direction of groundwater flow. Any impacts to the groundwater levels will be detected by the existing bores and it is therefore not considered necessary to replace the bores.

There are no performance criteria for groundwater quality parameters within the consent conditions or the EPL. Quality is monitored quarterly to assist with predicting any interactions between surface and ground waters.

The groundwater quality results and trends are shown below.

Graph 15. Groundwater Depth Trends

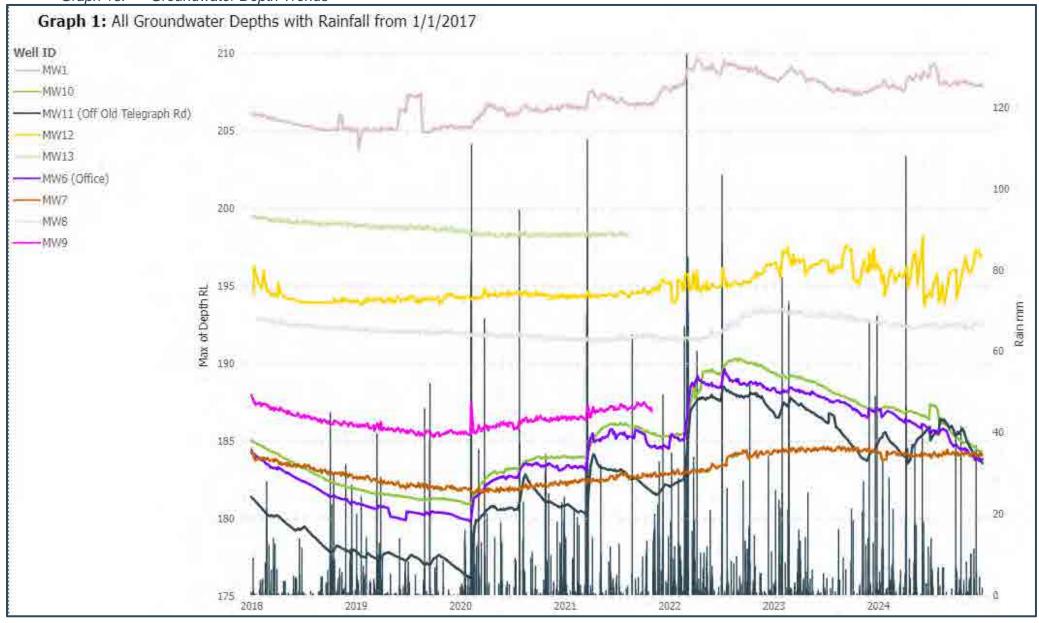


Table 24. Groundwater Quality Results – MW1

	Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW1		22/1/24	4.4	283	180	44	24	5.2	12.0	17	4.0
MW1		12/4/24	4.3	292	180	41	29	5.0	12.0	19	5.0
MW1		31/7/24	4.3	323	200	51	30	6.7	13.0	22	5.7
MW1		1/10/24	4.1	352	220	41	33	7.5	13.0	20	6.4
	Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
MW1		22/1/24	4.4	283	180	44	24	5.2	12.0	17	4.0
MW1		12/4/24	4.3	292	180	41	29	5.0	12.0	19	5.0
MW1		31/7/24	4.3	323	200	51	30	6.7	13.0	22	5.7
MW1		1/10/24	4.1	352	220	41	33	7.5	13.0	20	6.4
	Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
MW1		22/1/24	4.4	283	180	44	24	5.2	12.0	17	4.0
MW1		12/4/24	4.3	292	180	41	29	5.0	12.0	19	5.0
MW1		31/7/24	4.3	323	200	51	30	6.7	13.0	22	5.7
MW1		1/10/24	4.1	352	220	41	33	7.5	13.0	20	6.4
	Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
MW1		22/1/24	4.4	283	180	44	24	5.2	12.0	17	4.0
MW1		12/4/24	4.3	292	180	41	29	5.0	12.0	19	5.0
		31/7/24	4.3	323	200	51	30	6.7	13.0	22	5.7
MW1		31///27	7.3	323	200	31	50	0.7	13.0	~~	3.7

Table 25. Groundwater Quality Results – MW6

Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW6 (Office)	22/1/24	8.3	341	210	87	0	3.0	2.0	49	2.0
MW6 (Office)	12/4/24	7.4	342	210	77	1	2.0	2.0	45	2.0
MW6 (Office)	31/7/24	7.8	354	220	82	0	4.0	3.0	43	2.0
MW6 (Office)	1/10/24	8.5	366	230	81	0	5.0	4.0	56	2.0
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
MW6 (Office)	22/1/24	8.3	341	210	87	0	3.0	2.0	49	2.0
MW6 (Office)	12/4/24	7.4	342	210	77	1	2.0	2.0	45	2.0
			254	220	82	0	4.0	3.0	43	2.0
MW6 (Office)	31/7/24	7.8	354	220	02		7.0	5.0		
MW6 (Office) MW6 (Office)	31/7/24 1/10/24	7.8 8.5	366 366	230	81	0	5.0	4.0	56	2.0
-										
MW6 (Office)	1/10/24	8.5	366 Min of Electrical	230 Min of Total	81 Min of	0 Min of	5.0 Min of	4.0 Min of	56 Min of	2.0 Min of
MW6 (Office) Sample	1/10/24 Date	8.5 Min of pH	366 Min of Electrical Conductivity	230 Min of Total Dissolved Solids	81 Min of Chloride	0 Min of Sulphate	5.0 Min of Calcium	4.0 Min of Magnesium	56 Min of Sodium	2.0 Min of Potassium
MW6 (Office) Sample MW6 (Office)	1/10/24 Date 22/1/24	8.5 Min of pH 8.3	366 Min of Electrical Conductivity 341	230 Min of Total Dissolved Solids 210	81 Min of Chloride 87	0 Min of Sulphate 0	Min of Calcium	4.0 Min of Magnesium 2.0	56 Min of Sodium 49	2.0 Min of Potassium 2.0
MW6 (Office) Sample MW6 (Office) MW6 (Office)	1/10/24 Date 22/1/24 12/4/24	8.5 Min of pH 8.3 7.4	366 Min of Electrical Conductivity 341 342	230 Min of Total Dissolved Solids 210 210	Min of Chloride 87 77	0 Min of Sulphate 0 1	5.0 Min of Calcium 3.0 2.0	4.0 Min of Magnesium 2.0 2.0	Min of Sodium 49 45	Min of Potassium 2.0 2.0
MW6 (Office) Sample MW6 (Office) MW6 (Office) MW6 (Office)	1/10/24 Date 22/1/24 12/4/24 31/7/24	8.5 Min of pH 8.3 7.4 7.8	366 Min of Electrical Conductivity 341 342 354	230 Min of Total Dissolved Solids 210 210 220	Min of Chloride 87 77 82	Min of Sulphate 0 1	5.0 Min of Calcium 3.0 2.0 4.0	Min of Magnesium 2.0 2.0 3.0	Min of Sodium 49 45 43	2.0 Min of Potassium 2.0 2.0 2.0
MW6 (Office) Sample MW6 (Office) MW6 (Office) MW6 (Office) MW6 (Office)	1/10/24 Date 22/1/24 12/4/24 31/7/24 1/10/24	8.5 Min of pH 8.3 7.4 7.8 8.5	366 Min of Electrical Conductivity 341 342 354 366 Max of Electrical	Min of Total Dissolved Solids 210 210 220 230 Max of Total	Min of Chloride 87 77 82 81	Min of Sulphate 0 1 0	5.0 Min of Calcium 3.0 2.0 4.0 5.0	Min of Magnesium 2.0 2.0 3.0 4.0	Min of Sodium 49 45 43 56	2.0 Min of Potassium 2.0 2.0 2.0 2.0 Max of
MW6 (Office) Sample MW6 (Office) MW6 (Office) MW6 (Office) MW6 (Office) Sample	1/10/24 Date 22/1/24 12/4/24 31/7/24 1/10/24 Date	8.5 Min of pH 8.3 7.4 7.8 8.5 Max of pH	366 Min of Electrical Conductivity 341 342 354 366 Max of Electrical Conductivity	Min of Total Dissolved Solids 210 210 220 230 Max of Total Dissolved Solids	Min of Chloride 87 77 82 81 Max of Chloride	Min of Sulphate 0 1 0 0	5.0 Min of Calcium 3.0 2.0 4.0 5.0 Max of Calcium	Min of Magnesium 2.0 2.0 3.0 4.0 Max of Magnesium	Min of Sodium 49 45 43 56 Max of Sodium	2.0 Min of Potassium 2.0 2.0 2.0 2.0 Max of Potassium
MW6 (Office) Sample MW6 (Office) MW6 (Office) MW6 (Office) MW6 (Office) Sample MW6 (Office)	1/10/24 Date 22/1/24 12/4/24 31/7/24 1/10/24 Date	8.5 Min of pH 8.3 7.4 7.8 8.5 Max of pH	366 Min of Electrical Conductivity 341 342 354 366 Max of Electrical Conductivity 341	Min of Total Dissolved Solids 210 210 220 230 Max of Total Dissolved Solids	Min of Chloride 87 77 82 81 Max of Chloride	Min of Sulphate 0 1 0 0 Max of Sulphate 0	5.0 Min of Calcium 3.0 2.0 4.0 5.0 Max of Calcium 3.0	Min of Magnesium 2.0 2.0 3.0 4.0 Max of Magnesium 2.0	Min of Sodium 49 45 43 56 Max of Sodium	Min of Potassium 2.0 2.0 2.0 2.0 2.0 Max of Potassium 2.0

Table 26. Groundwater Quality Results – MW7

	Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW7		22/1/24	5.4	185	120	30	9	1.0	0.8	28	0.5
MW7		12/4/24	5.6	181	110	29	8	0.0	0.0	26	0.0
MW7		31/7/24	5.4	174	110	31	7	2.0	1.0	24	0.9
MW7		1/10/24	5.2	166	100	30	6	2.0	2.0	27	1.0
	Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average o Potassiun
MW7		22/1/24	5.4	185	120	30	9	1.0	0.8	28	0.5
MW7		12/4/24	5.6	181	110	29	8	0.0	0.0	26	0.0
MW7		31/7/24	5.4	174	110	31	7	2.0	1.0	24	0.9
MW7		1/10/24	5.2	166	100	30	6	2.0	2.0	27	1.0
	Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
MW7		22/1/24	5.4	185	120	30	9	1.0	0.8	28	0.5
MW7		12/4/24	5.6	181	110	29	8	0.0	0.0	26	0.0
MW7		31/7/24	5.4	174	110	31	7	2.0	1.0	24	0.9
MW7		1/10/24	5.2	166	100	30	6	2.0	2.0	27	1.0
	Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassiun
		22/1/24	5.4	185	120	30	9	1.0	0.8	28	0.5
MW7		, -,					8	0.0	0.0	26	0.0
MW7 MW7		12/4/24	5.6	181	110	29	8	0.0	0.0	20	0.0
			5.6 5.4	181 174	110 110	31	7	2.0	1.0	24	0.0

Table 27. Groundwater Quality Results – MW8

	Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	P√s E.
MW8		22/1/24	4.4	202	130	49	2	1.0	3.0	22	0.0
8WM		12/4/24	4.4	195	120	45	1	0.7	3.0	20	0.0
8WM		31/7/24	4.4	189	120	47	1	1.0	3.0	21	0.0
8WM		1/10/24	4.2	214	130	49	1	0.9	3.0	23	0.0
	Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
MW8		22/1/24	4.4	202	130	49	2	1.0	3.0	22	0.0
MW8		12/4/24	4.4	195	120	45	1	0.7	3.0	20	0.0
MW8		31/7/24	4.4	189	120	47	1	1.0	3.0	21	0.0
MW8		1/10/24	4.2	214	130	49	1	0.9	3.0	23	0.0
	Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
MW8		22/1/24	4.4	202	130	49	2	1.0	3.0	22	0.0
MW8		12/4/24	4.4	195	120	45	1	0.7	3.0	20	0.0
MW8		31/7/24	4.4	189	120	47	1	1.0	3.0	21	0.0
8WM		1/10/24	4.2	214	130	49	1	0.9	3.0	23	0.0
	Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
MW8		22/1/24	4.4	202	130	49	2	1.0	3.0	22	0.0
MW8		12/4/24	4.4	195	120	45	1	0.7	3.0	20	0.0
MW8		31/7/24	4.4	189	120	47	1	1.0	3.0	21	0.0
MW8		1/10/24	4.2	214	130	49	1	0.9	3.0	23	0.0

Table 28. Groundwater Quality Results – MW10

	Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW10		22/1/24	4.4	289	180	74	3	1.0	5.6	31	1.0
MW10		12/4/24	4.4	261	160	61	6	0.7	5.0	30	1.0
MW10		31/7/24	4.4	269	170	67	12	1.0	5.4	27	1.0
MW10		1/10/24	4.4	204	130	49	2	0.7	5.0	27	0.9
	Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
MW10		22/1/24	4.4	289	180	74	3	1.0	5.6	31	1.0
MW10		12/4/24	4.4	261	160	61	6	0.7	5.0	30	1.0
MW10		31/7/24	4.4	269	170	67	12	1.0	5.4	27	1.0
MW10		1/10/24	4.4	204	130	49	2	0.7	5.0	27	0.9
	Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
MW10		22/1/24	4.4	289	180	74	3	1.0	5.6	31	1.0
MW10		12/4/24	4.4	261	160	61	6	0.7	5.0	30	1.0
MW10		31/7/24	4.4	269	170	67	12	1.0	5.4	27	1.0
MW10		1/10/24	4.4	204	130	49	2	0.7	5.0	27	0.9
				Many of Floring	Max of Total	Max of	Max of	Max of	Max of	Max of	Max of
	Sample	Date	Max of pH	Max of Electrical Conductivity	Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW10	Sample		Max of pH				Sulphate 3	Calcium 1.0	Magnesium 5.6	Sodium 31	Potassium 1.0
MW10 MW10	Sample	22/1/24 12/4/24		Conductivity	Dissolved Solids	Chloride					
	Sample	22/1/24	4.4	Conductivity 289	Dissolved Solids 180	Chloride 74	3	1.0	5.6	31	1.0

Table 29. Groundwater Quality Results – MW11

Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW11 (Off Old Telegraph Rd)	22/1/24	6.0	267	170	32	20	19.0	4.0	15	6.0
MW11 (Off Old Telegraph Rd)	12/4/24	5.8	160	100	30	11	4.0	2.0	13	6.0
MW11 (Off Old Telegraph Rd)	31/7/24	6.0	261	160	29	34	18.0	5.0	15	8.7
MW11 (Off Old Telegraph Rd)	1/10/24	5.7	198	120	35	10	7.4	3.0	17	5.0
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
MW11 (Off Old Telegraph Rd)	22/1/24	6.0	267	170	32	20	19.0	4.0	15	6.0
MW11 (Off Old Telegraph Rd)	12/4/24	5.8	160	100	30	11	4.0	2.0	13	6.0
MW11 (Off Old Telegraph Rd)	31/7/24	6.0	261	160	29	34	18.0	5.0	15	8.7
MW11 (Off Old Telegraph Rd)	1/10/24	5.7	198	120	35	10	7.4	3.0	17	5.0
Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
MW11 (Off Old Telegraph Rd)	22/1/24	6.0	267	170	32	20	19.0	4.0	15	6.0
MW11 (Off Old Telegraph Rd)	12/4/24	5.8	160	100	30	11	4.0	2.0	13	6.0
MW11 (Off Old Telegraph Rd)	31/7/24	6.0	261	160	29	34	18.0	5.0	15	8.7
MW11 (Off Old Telegraph Rd)	1/10/24	5.7	198	120	35	10	7.4	3.0	17	5.0
Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
MW11 (Off Old Telegraph Rd)	22/1/24	6.0	267	170	32	20	19.0	4.0	15	6.0
MW11 (Off Old Telegraph Rd)	12/4/24	5.8	160	100	30	11	4.0	2.0	13	6.0
MW11 (Off Old Telegraph Rd)	31/7/24	6.0	261	160	29	34	18.0	5.0	15	8.7
MW11 (Off Old Telegraph Rd)	1/10/24	5.7	198	120	35	10	7.4	3.0	17	5.0

Table 30. Groundwater Quality Results – MW12

			Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
	22/1/24	4.9	110	69	20	9	2.0	1.0	14	0.9
	12/4/24	5.0	126	79	22	9	2.0	1.0	13	2.0
	31/7/24	4.9	107	67	22	7	2.0	1.0	13	0.9
	1/10/24	4.7	115	72	23	7	2.0	1.0	15	0.7
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
	22/1/24	4.9	110	69	20	9	2.0	1.0	14	0.9
	12/4/24	5.0	126	79	22	9	2.0	1.0	13	2.0
	31/7/24	4.9	107	67	22	7	2.0	1.0	13	0.9
	1/10/24	4.7	115	72	23	7	2.0	1.0	15	0.7
Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
	22/1/24	4.9	110	69	20	9	2.0	1.0	14	0.9
	12/4/24	5.0	126	79	22	9	2.0	1.0	13	2.0
	31/7/24	4.9	107	67	22	7	2.0	1.0	13	0.9
	1/10/24	4.7	115	72	23	7	2.0	1.0	15	0.7
Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
	22/1/24	4.9	110	69	20	9	2.0	1.0	14	0.9
	12/4/24	5.0	126	79	22	9	2.0	1.0	13	2.0
		4.9	107			7	2.0	1.0	13	0.9
		4.7	115	72	23	7	2.0	1.0	15	0.7
	Sample	31/7/24 1/10/24 Sample Date 22/1/24 12/4/24 31/7/24 1/10/24 Sample Date 22/1/24 12/4/24 31/7/24 1/10/24 Sample Date 22/1/24	31/7/24 4.9 1/10/24 4.7 Sample Date Average of pH 22/1/24 4.9 12/4/24 5.0 31/7/24 4.9 1/10/24 4.7 Sample Date Min of pH 22/1/24 4.9 12/4/24 5.0 31/7/24 4.9 12/4/24 5.0 31/7/24 4.9 1/10/24 4.7 Sample Date Max of pH 22/1/24 4.9 1/10/24 4.7	Sample Date Average of Electrical Conductivity	Sample Date Average of pH Electrical Conductivity	Sample Date of pH Average of Electrical Conductivity Average of Dissolved Solids Average of Chloride 22/1/24 4.9 110 69 20 12/4/24 5.0 126 79 22 31/7/24 4.9 107 67 22 1/10/24 4.7 115 72 23 Sample Date Min of pH Min of Electrical Conductivity Min of Total Dissolved Solids Min of Chloride Sample Date Min of pH Min of Electrical Conductivity Min of Total Dissolved Solids Min of Chloride 22/1/24 4.9 110 69 20 12/4/24 5.0 126 79 22 31/7/24 4.9 107 67 22 1/10/24 4.7 115 72 23 Sample Date Max of pH Max of Electrical Conductivity Max of Total Dissolved Solids Max of Chloride 22/1/24 4.9 110 69 20 12/4/24 5.0 126 79 22 31/7/24 4.9 110 69 20 12/4/24 5.0 126 79 22 31/7/24 4.9 107	Sample Date Average of pH Average of plissolved Solids Average of Chloride Sulphate	Sample Date Average of pH Electrical Conductivity Dissolved Solids Chloride Sulphate Calcium	Sample Date Average of pH Min of pH Min of Electrical Conductivity Dissolved Solids Chloride Sulphate Calcium Magnesium	Sample Date Average of pH Average of Electrical Min of Total Min of Sulphate Calcium Magnesium Sodium

6.5.3 Wet Weather High Groundwater Level

As the limit on the depth of extraction is defined to be 2m above the Wet Weather High Groundwater level, groundwater monitoring is essential to determine this limit. The consent defines the Wet Weather high groundwater level as 'the rolling average of all recorded groundwater level measurements at any monitoring location on the site, as the first recorded following any rainfall event of at least 50mm over any 24hour period, and as contour mapped using this data'. Rainfall data is also required to assist in the determining of the limit of extraction. The site received greater than 50mm on several 24-hour periods during 2024.

Table 31. Groundwater Depth Changes with Rainfall Event

Well ID	Regional Aquifers	Ave of All Depth Readings after latest >50mm/day rainfall event (2024)	Wet Weather High Groundwater RL (2024)	Lowest Level in Quarry at nearest location (March 2025)	RL (2018 Contours from
Rainfall	Event 5/04/2024 108 mm				
MW12	Hawkesbury Sandstone	194.88	196.9		
MW7	Hawkesbury Sandstone	183.09	185.1		
MW10	Maroota Sands	185.07	187.1	190.8	186 (southern boundary)
MW6	Maroota Sands	184.38	186.4	190.8	185 (approx. centre of channel
MW11	Maroota Sands (downstream)	182.09	184.1		184 (northern boundary)

The quarry floor levels is generally 2 metres above the Wet Weather High Groundwater Level, as illustrated in the above table, the exception being the south eastern corner of the pit closest to MW6 (see *Figure Six*). The operator intends to backfill this area as soon as practicable.

6.5.4 Interpretation and Effectiveness of Controls

Groundwater levels in the Maroota Sands channel have fallen across the majority of the site during 2024 and since 2022 in response to lower rainfall since a peak rainfall year in 2022. Levels in the bores on the perimeter of the paleochannel have remained steady.

The Maroota Sands channel has risen and fallen from those used in 2018 for the original groundwater modelling, however the rolling average of all depth readings remains below the previously modelled Wet Weather High Groundwater Level contours. The Hawkesbury Sandstone regional aquifer has also remained at approximately similar levels. These are illustrated on *Figure Five*.

Water quality results show no impact from groundwater on surface water and vice versa. Downstream groundwater levels have trended down in the regional water table from lower rainfall, where the quarry is not impacting on downstream waters.

The quarry floor levels are greater than 2 metres above the Wet Weather High Groundwater Level, therefore the quarry floor is compliant. When necessary, the lowest levels of the pit are backfilled with clay inter-burden in accordance with measures described in the Groundwater Improvement Program to ensure that the floor was sealed during the higher rainfall periods encountered this report period.

6.5.5 Measures Proposed for Improvement

Specific monitoring improvements to be investigated are as follows.

- Continue groundwater and surface water level monitoring and report in accordance with the approved Groundwater Monitoring Program and Groundwater Management Plan.
- Undertake water quality monitoring and reporting in accordance with the approved Groundwater Monitoring Program and Water Management Plan.
- Apply to the Secretary to reduce the need for annual water management plan updates and 6-monthly reporting.
- A Condition Compliance Report will be undertaken prior to opening up new extraction areas in 2025.

Annual Review & Compliance Report 2025 for Roberts Road Maroota Sand Quarry - Wet Weather High Maroota Quarry, Roberts Road, Maroota, NSW Plan By: Plan of: Location: nearmap - Image Date 23/10/2024 Zone MGA 56 Source: Groundwater Level Maroota Sands (2022) Fyfe Quarry Contours 24/02/2022 NSW Spatial Services ELVISDEM Surrounding Contours
Dated May 2017, Spot Heights by Ross Robinson Consulting Project Survey: TO Council: Hills Shire Council Figure: Manager: Version/ This figure may be based on third party data which has not been verified V2 31/03/2025 GDA2020/MGA Zone 56 EPSG:7856 Tenure: Not Applicable Projection: Date: by vgt and may not be to scale. 100 m Unless expressly agreed otherwise, this figure is intended as a guide only Contour Our Ref: 12700_HMA_AR2024-2025_Q005_V2_F6 Client: Hodgson Quarries & Plant Pty Ltd 1m Interval: 313500 314000 6295750 6295500 6295250 314500 Legend Contours of Wet Weather Property Boundary **Edge of Saturated Maroota Sands** High GW Level (mRL) Groundwater Monitoring Well Location Dam Areas 2024-2025 Survey Point ABN: 26 621 943 888 VGT Environmental Compliance Solutions Pty Ltd 4/30 Glenwood Drive, Thornton NSW 2322 PO Box 2335, Greenhills NSW 2323 ph: (02) 4028 6412 email: mail@vgt.com.au

6.6 SITE WATER BALANCE

The Water Management Plan contains the Water Balance in accordance with the consent condition. It is updated annually.

6.6.1 Requirements and Predictions

Condition 42 (a) of the consent states:

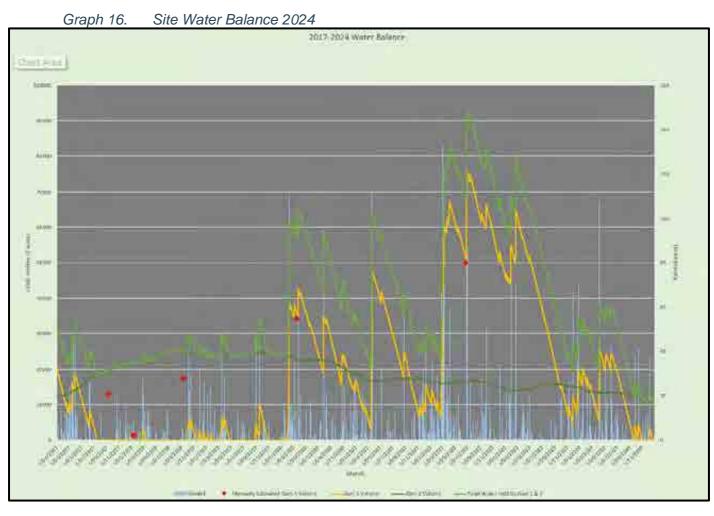
[The Surface Water Management Plan includes]:

Site Water Balance that:

- includes details of:
- o sources and security of water supply, including contingency planning;
- water use on site;
- o water management on site, including groundwater inflows to the quarry voids and site discharges; and
- o audit and reporting procedures, including comparisons of the site water balance each calendar year; and
- o describes the measures that would be implemented to minimise clean water use on site and maximise recycling opportunities.

6.6.2 Monitoring Results Compliance and Trends

Monitoring of water depths is discussed in Sections 6.4 and 6.5. The Site Water Balance for 2024 is shown below.



6.6.3 Interpretation and Effectiveness of Controls

The water balance has focused on the currently disturbed catchments and Dams 1 and 2. Dams 3 and 4 are not controlled by the operator and usage/pumping rates are unknown. At present they play no part in the site operations and therefore are not included in the water balance. Rainfall from data obtained onsite was used in the calculations of the water balance.

A level logger was installed in Dam 1 in late September 2017 and data obtained up to 2022 has been applied to the model. At the time the logger was installed, the RL of the water in Dam 1 was recorded. Measurements were taken over the area of the dam to determine the depth of water to the base of the silt. The dam was found to be only up to 0.5m deep over the vast majority of its extent with the exception of a deeper void (up to 3m deep) around the pump intake. This data was used to project an approximate contour model of the base of the dam. From the model, the volume of the water within the dam has been estimated at various depths (RLs). These volumes were then correlated with the monthly average depth recorded by the logger and plotted against the volume of water held predicted by the water balance to assess its reliability.

There was some difficulty in correlating the predicted water volume against that recorded by the logger, particularly during periods of low water. It is surmised that the silt residing below the base of the dam holds a large quantity of water which is unable to be measured and this accounts for the discrepancy between the water balance calculation and the volume estimated using the logger data and 12D modelling. It is also noted that the distribution of silt within the Process Dam is not constant and the reliance on previous 12D modelling of the base of the dam is not reliable.

Regarding the above issues, the volumes of water held in the dams has previously been estimated using the area of the dams (calculated using QGIS and Nearmaps imagery) and an estimated depth from manual depth check measurements of the logger installed. The depth of water is taken as the difference from the base of the logger at 185.901m RL to the manual depth recorded at the time of interest. Dam 1 is currently partially backfilled as part of the rehabilitation and the logger has been removed. Previous calculated volumes, using the dam area and logger data, were generally consistent with the predictions (see *Graph 19*).

Dissipation from the dams has been included in the water balance assumptions since 2023. It is apparent there are additional losses during production each day than was not evident in earlier calculations, when the dam levels were extremely low. Dissipation from the Process Dam has been estimated at 65 cubic metres per day and 5 cubic metres per day for Dam 2.

From the plot of the predicted water balance, based on actual rainfall data, pumping rates and truck tonnages, the high rainfall replenished supplies of water in the dam. There were no plant stoppages due to lack of water this report period.

6.6.4 Measures Proposed for Improvement

The following measures will be instigated during the next reporting period.

• The Site Water Balance will be updated again for the 2025 Annual Review.

6.7 PROCESS WATER DAM

The Water Management Plan (version July 2018) was submitted to the (then) Dol Water and DPE to comply with the conditions of consent (Mod 2) and was approved by DPE on 22nd August 2018. An update was undertaken in December 2020 and was submitted via the Major Projects Portal for consultation in February, April and August 2021 (DA267-11-99-PA-11) as documented in submitted response number DA267-11-99-PA-13. An email request to NRAR for comment was sent again on 12/10/21 with a response received 26/10/21 that the matter was being reviewed. NRAR and DPIE-Water responded on 2nd Nov 2021 via the Major Projects portal that they had no comment. The WMP was then submitted to DPE via the Major Projects Portal, where comments requesting changes were advised in April 2022. Revision F2 dated June 2022 was approved on the 28th June 2022.

6.7.1 Requirements and Predictions

The following conditions are from the consent schedule 2:

- 38. The Applicant shall not extract:
 - (a) below a depth of 182 m AHD in the footprint of the Process Water Dam, if not already extracted as at the date of Modification 2
- 42 (b) [The Surface Water Management Plan includes]
 - a detailed description of design and construction criteria for the Process Water Dam based on a feasibility study of:
 - o capacity to construct multiple cells within the overall dam footprint (ie a two stage or three stage dam);
 - whether the dam floor and walls are able to be effectively lined with compacted clay (especially for multiple cells);
 - o whether effective hydraulic separation can be achieved between such cells;
 - o rehabilitating such cells to create a single dam within the final landform; and
 - o the appropriateness of diverting runoff received from off-site around the dam;

45. The Applicant must ensure that the Process Water Dam is designed and constructed in a manner that satisfies the design and construction criteria for the Process Water Dam as developed under the Surface Water Management Plan (see condition 42(b) above).

6.7.2 Monitoring Results Compliance and Trends

The deepest point of the dam remains approximately 185 m AHD in the vicinity of the bore and pump. The remainder of the top of the sediment remains at approximately 187 m AHD. This is compliant with all relevant criteria.

6.7.3 Interpretation and Effectiveness of Controls

The current Process Water Dam has proved effective in preventing uncontrolled discharge off-site. It is also providing sufficient supply of suitable water to the processing plant, with supplementation from the processing bore required.

As discussed in the Surface Water Management Plan and Rehabilitation and Landscape Plan, the three-stage construction of the dam to a depth of 178m AHD or firm base is no longer relevant, and the current monitoring shows that the base of the Process Dam is 2 m above the Wet Weather High Groundwater Level, therefore no changes will be made to the Process Dam other than the backfilling of the eastern portion for the dam for rehabilitation.

6.7.4 Measures Proposed for Improvement

The Process Dam will continue to be monitored in accordance with the Surface Water Management Plan.

6.8 NOISE AND ROAD NOISE

6.8.1 Requirements and Predictions

The NSW EPA varied the licence to include additional noise monitoring points in June 2023. These additional requirements have been included in the Noise Management Plan 2023 which has not yet been approved by the DPIE. To ensure compliance with the EPL, the additional points have been monitored this report period.

The annual noise monitoring was undertaken in October 2024 against the Mod 4 conditions which specifies the following Noise Impact Criteria:

Condition 47: The Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 2 at any residence on privately-owned land.

Table 32. Operational Noise Criteria (dB(a))

Receiver	Day (7am to 6pm) LAeq(15min)	6am-7am LA1(1min)	6am-7am LAeq(15min)		
В	44	50	40		
All other receivers	43	50	40		

Noise generated by the development is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy (as may be updated or replaced from time-to-time).

Condition 47:

- (a) The excavator to be used is to be fitted with acoustic mufflers to achieve a noise level of approximately 76dB(A) when measured at 7 metres.
- (b) The on-site generator is to be fitted with an acoustic enclosure to ensure that noise levels less than 44dB(A) at 30m are achieved.
- (c) A noise compliance investigation is to undertaken within one month of the installation of the equipment to demonstrate compliance with the noise level limits stated in Conditions 47(a) and 47(b). The results of the compliance investigation are to be provided for the approval of the Secretary within 14 days of the completion of the investigations.

Condition 48: The Applicant shall ensure that traffic noise from the development does not exceed (L Aeq(1 hr)) 55 dB(A) between 7 am and 10 pm and 50 dB(A) between 10 pm and 7 am at any affected residence under adverse weather conditions. Where ambient Leq levels already exceed these criteria, the Applicant shall ensure that traffic noise from the development does not result in an increase of more than 2 dB(A).

Note: Adverse weather conditions means in the presence of winds up to 3 metres per second and/or temperature inversions of up to 4 degrees Centigrade per 100 metres.

The EPL specifies the following noise related limits:

Table 33. Noise-related Conditions

7001	00.	710100 7010	toa Corraitions					
Condition	Descri	ption						
L3.1	this lice during measu	generated at the premises that is measured at each noise monitoring point established under ence must not exceed the noise levels specified in Column 4 of the table below for that point the corresponding time periods specified in Column 1 when measured using the corresponding rement parameters listed in Column 2. 1,3,4,5,6,7						
		Time period	Measurement parameter	Measurement frequency	Noise level dB(A)			
		Day	LAeq (15 minute)	-	43			
	POINT	2						
		Time period	Measurement parameter	Measurement frequency	Noise level dB(A)			
		Day	LAeq (15 minute)	-	44			
L3.2	a) Day	e purpose of co means the pe y and public ho	riod from 7am to 7pm	n Monday to Saturday and the	period from 8am to 6pm			

Condition	Description					
L3.3	table below. b) For those meteorological condition L3					
	Assessment Period	Meteorological Conditions				
	Day	Stability Categories A, B, C, D and E with wind speeds up to and including 3m/s at 10m above ground level.				
L3.4	meteorological weather station. b) Stability category shall be deter Policy for Industry (NSW EPA, 20	are to be determined from meteorological data obtained from a rmined using the following method from fact Sheet D of the Noise				
L3.5	To assess compliance: a) with LAeq (15 minutes) noise limits in condition L3.1, the noise measurement equipment must located: (i) approximately on the property boundary, where any residence is situated 30 metres or less fr property boundary closest to premises: or where applicable, (ii) in an area within 30 metres of a residence facade, but not closer than 3 metres where any residence on the property is situated more than 30 metres from the property boundary closest to premises; or, where applicable, (iii) in an area within 50 metres of the boundary of a National Park or Nature Reserve, (iv) at any other location identified in condition L3.1 b) with the LAeq (15 minutes) noise limits in condition L3.1, the noise measurement equipment be located: (i) at the reasonably most affected point at a location where there is no residence at the location (ii) at the reasonably most affected point within an area at a location prescribed by condition L3.					
L3.6	measured in excess of the noise I locations referred to in condition L Notes to L3.5 and L3.6: The reas	3.1 will still occur where noise generated from the premises is imit at a point other than the reasonably most affected point at the .3. 5 (a) or L3.5 (b). Sonably most affected point is a point at a location or within an area acted to experience the highest sound pressure level from the				
L3.7	corrections in Table C1 in Fact Sheet C of the A	e noise generated from the premises, the modifying factor loise Policy for Industry (NSW EPA, 2017) may be applied, if ments by the noise monitoring equipment.				
L3.8	Noise measurement must not be the acquisition of valid measurement	undertaken where rain or wind speed at microphone level will affect ents.				

The Noise Impact Assessment prepared for the Environmental Assessment for Mod 2 (Nexus Environmental Planning Pty Ltd, September 2015) made the following commitments.

Table 34. Predicted Noise Impacts, 2015 LAeq, 15min (dBA)

Scenario	All Locations
Typical Operations	43

The Mod 4 Predicted Noise Levels at Receivers LAeq, 15 min dB(A) predicted an exceedance by 1dB(A) at Receiver RR10 when VENM emplacement and extraction are undertaken in Stage 1A and 5A combined. It was stated that "As the noise predictions of Table 7.22 are based on worst-case site noise emissions, it is expected that compliance with noise limits will be achievable by adherence to the ongoing noise control strategies in the Quarry Operational and Road Noise Management Plan (ORNMP) (MAC, 2016)."

Table 35. Predicted Noise Impacts, Mod 4 LAeq, 15min (dBA)

Scenario	All Locations
Typical Operations	43*

^{*}Except for minor 1dB(A) exceedances at Receiver B (Receiver RR10). (Umwelt (Australia) Pty Limited, 2019)

6.8.2 Monitoring Results Compliance and Interpretation

Results of operational and road noise monitoring undertaken in October 2023 are given in *Appendix K*. The report states:

"Attended monitoring conducted between Tuesday 22 October 2024 and Wednesday 23 October 2024 identified that Roberts Rd Sand Quarry noise emissions were audible on several occasions, although satisfying the relevant EPL noise limits. A review of monitoring data and operator attended observations determined that Roberts Rd Sand Quarry contributions are below the EPL and Consent limits for all assessment periods."

Further details and interpretation of results are given in the attached report.

Table 36. Operator-Attended Noise Survey Results

EPL Receiver/ Consent Receiver	LAmax	LAeq	LA90	Quarry LAeq 15 min / 1min	Criteria LAeq 15 min / 1min	Comment	
			Da	y Time Attended Monit	oring Results – 22/10/20	24	
1/A	76	57	36	<30	43 / NA	Compliance achieved	
2/B	97	64	36	<30	44 / NA	Compliance achieved	
3/C	70	50	39	<30	43 / NA	Compliance achieved	
4/D	76	55	39	<30	43 / NA	Compliance achieved	
5/E	89	67	44	<34	43 / NA	Compliance achieved	
6/F	80	54	34	<30	43 / NA	Compliance achieved	
7/G	84	84 56 34		<30 43 / NA		Compliance achieved	
			Morning S	Shoulder Attended Mon	itoring Results - 13 & 14	1/12/2023	
1/A	63	44	37	<30/33	40 / 50	Compliance achieved	
2/B	85	59	39	34/45	40 / 50	Compliance achieved	
3/C	65	52	43	<33/<33	40 / 50	Compliance achieved	
4/D	78	53	34	<30/<30	40 / 50	Compliance achieved	
5/E	93	69	45	<35/<35	40 / 50	Compliance achieved	
6/F	69	46	37	<30/36	40 / 50	Compliance achieved	
7/G	72	48	39	<30/32	40 / 50	Compliance achieved	
2023				All sites	compliant		
2022				All sites	compliant		
2021				All sites	compliant		
2020				All sites	compliant		
2019				All sites	compliant		
2018				All sites	compliant		

Table 37. Road Noise Survey Results

Period	No of Quarry Trucks	Overall Measured dB LAeq (1hr)	Overall Calculated dB LAeq Project Truck Contribution	Criteria	Comment				
6am to 7am	1	48	65	50	Compliance achieved				
7am to 8am	2	51	67	55	Compliance achieved				
2023			Compliant						
2022			Compliant						
2021			Com	pliant					
2020		Compliant							
2019			Compliant						
2018			Com	pliant					

Sound Power Levels were not tested on the site plant and equipment this year. Sound Power levels of existing machinery are given in *Table 42*. There was no new equipment purchased and no atypical works undertaken.

Table 38. Sound Power of Equipment

Plant	Overall Sound Power (dBA)	Criteria in Sound Power dBA	Comment
PC350 Komatsu Excavator	101	101 *	Compliance achieved.
L180G Volvo Loader	103	N/A	
Sand Plant, conveyors, log wash and stacker	100	N/A	
PC400 Komatsu Excavator – commissioning test only	105	101 *	This excavator was under repair for the majority of the year. Once recommissioned, the Sound Power level will be re-checked.
Total Fleet Sound Power	109	113#	Compliance with expected modelling achieved.

^{*} Condition 47a states: 'The excavator to be used is to be fitted with acoustic mufflers to achieve a noise level of approximately 76dBA when measured at 7m.' (This equates to a sound power level of 101dBA.)

6.8.3 Trends and Effectiveness of Controls

6.8.3.1 Noise Trends

<u>Table 37</u> and <u>Table 38</u> summarises 2023 attended noise monitoring results during quarry operations and past noise compliance status. Noise measured at the nominated residences during quarry operations in the reporting period were compliant with Mod 4 criteria.

^{# &#}x27;Typical Scenario and Plant Numbers' assessed in the Mod 2 Acoustic Assessment.

6.8.3.2 Effectiveness of Noise Management Controls

Table 39. Effectiveness of Noise Management Controls

Control	Interpretation	Effective?
Perimeter Bunds	Noise measured at residences complies with requirements and predictions	Yes
Temporary bunds when extracting in close proximity to residences	Temporary bunds are in place around the current extraction area. Noise measured at residences complies with requirements and predictions. Noise measured at residences lower than previous monitoring.	Yes
Training and awareness for employees and truck drivers	Noise measured at residences complies with requirements and predictions. Road noise attributed to the site complies with requirements and predictions.	Yes
Mufflers on excavators	Sound power levels were measured on two excavators; one did not comply, however off-site noise remains inaudible.	Yes
New equipment purchased checked by qualified noise consultant for compliance prior to commissioning	Total fleet sound power levels remain less than modelled	Yes

6.8.4 Measures Proposed for Improvement

As seen from the previous section, the current controls and mitigation measures in place are effective. Any new equipment purchased after the annual noise monitoring event will be tested during the next round.

Should atypical works be undertaken, extraction outside of temporary bunds (surface extraction), or a dozer ripping sandstone during initial topsoil and overburden extraction, a suitably qualified noise consultant will be commissioned to undertake attended noise monitoring during this time. NMP has been updated to include these points but not yet approved by DPE.

6.9 FLORA AND FAUNA

6.9.1 Requirements and Predictions

The consent specifies the following requirements with regard to flora and fauna management:

Table 40. Flora and Fauna Management Conditions

Condition number	Condition Summary	Details of compliance status	Compliant
55	The Applicant shall prepare a Flora and Fauna Management Plan as part of the EMP. The Plan shall be prepared in consultation with National Parks and Wildlife Service and Council, (further detail in consent)	Flora and Fauna Management Plan has been prepared and updated in 2016. OEH (NPWS) was consulted but declined to make comments. Council comments have been included in report	Yes
56	The Applicant shall maintain the revegetated areas for the duration of the Consent. Maintenance may include: (details in consent)	Limited rehabilitation has been undertaken on the site due to the cell staging that has been required. Backfilling of the Process Dam is not complete and is not ready for vegetation. All bundwalls are vegetated and stable.	Yes

Objectives and targets from the Flora and Fauna Management Plan:

Table 41. Flora and Fauna Management Objectives and Targets

Objective / Target	Compliance Status
To protect known threatened flora species on the site and ensure correct procedures are applied in the event of other threatened flora or fauna species being located on the site.	Known species identified, baseline monitoring undertaken in Jan 2018. Monitoring is undertaken annually, although 2023 and 2024 were overlooked. Monitoring was undertaken in March 2025.
Inspections of site flora and fauna to show minimal impacts from operations.	Trends over time show minimised impacts.
Consider the post extraction land use in the management and maintenance of conserved and rehabilitated vegetation.	Conserved vegetation is managed in accordance with Landscape and Rehabilitation Plan

6.9.2 Monitoring Results Compliance and Trends

Monitoring of the flora and fauna was not undertaken in 2023 and 2024 due to oversight. Monitoring has been undertaken in March 2025 and will be presented in the next reporting period. The conclusion of the 2025 report is that the 'Overall the rehabilitation and biodiversity of the site is within the expectations of the life of the quarry. Continued weed management would benefit the site, particularly the WoNS'. The full report is available on request and will be published on .www.vgt.com.au/hodgsons.

6.9.3 Interpretation and Effectiveness of Controls

Weed management activities were undertaken regularly, focussing on the areas adjacent to the carpark and along Roberts Rd where high concentrations of weeds are located as noted in the Biodiversity Report.

6.9.4 Measures Proposed for Improvement

The Biodiversity report recommended a monthly weed control plan given in Appendix D of the Biodiversity Report which is reproduced below. In response to requested actions by DPE, a weed management plan is produced regularly. No weed photography or reports were completed in this reporting period however weeds control is

discussed on the Biodiversity Monitoring Report undertaken in March 2025 and will be presented in the next reporting period.

Table 42. Recommended Weed Control

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
African Lovegrass	Herbicide	Herbiode	Herbicide	Herbicide	Herbicide	0.84	2.11	1000	Herbicide	Herbicide	Herbicide	Herbicide
Blackberry	Herbicide	Herbicide	Herbicide						Herbicide	Herbicide	Herbicide	Herbicide
Bridal Creeper	Hand	Hend removal	Hand removal	Hand removal	removal	Hand removal	removal	Hand	Hand removal	Pland removal	Hand	Hand removal
Cobblers Pegs	Hand removal	Hand removal	Hand removal	Hand removal			111/22/1		Herbicide	Herbicide	Herbicide	Hand removal
Crofton Weed	Herbicide	Herbicide.	Herbicide	Herbizide	Herbicide:				Herbicide	Herbicide	Herbicide	Herbicide
Fireweed	Hand removal	Hand removal	Hand removal	Hand removal	Hand' removel	Hand removal	removal	Hand removal	Hand removal	mand removal	Hand removal	Hand removal
Lantana	Herbicide	Herbicide	Herbicide	Herbicide	Morbicide				Herbicide	Herbicide	Herbicide	Herbicide
Paspalum	Herbicide	Herbicide	Herbicide	Herbicide	Herbicide -	Herbicide			Herbicide	Herbicide	Herbicide	Herbicide
Rhodes Grass	Herbitide	Herticide	tembicide	Herbición	Herbicide	Herbicide	Hertsicide	Herbicide	Herbicide	Herbicide	terbicide	Hertsicide
Whiskey Grass	Hand removal	Hand removal	Hand	Hand remayat	Hand	Hand removal	Hand removal	Hand removal	Herbicide	Herbicide	Herbicide	Hand removal

6.10 REHABILITATION

The Landscape and Rehabilitation Management Plan (LRMP) was updated in July 2023, no approval has been received to date from DPE. The previous LRMP was approved in August 2018.

6.10.1 Requirements and Predictions

Performance indicators and completion criteria were provided in the LRMP and are presented in <u>Table 44</u>. None of these criteria have yet been achieved. The LRMP has been updated to the Mod 4 final landforms presented in <u>Appendix B</u>. The Rehabilitation and Conservation Bond has been calculated to the value of \$313,619.00 and accepted by DPE via correspondence received 18th December 2023 (*Appendix N*). The bond was paid in April 2024.

Table 43. Rehabilitation Performance Indicators and Completion Criteria

Objective	Performance Indicator	Completion Criteria	Monitoring Methodology and Responsibility	Monitoring Frequency	Justification /Source	Current Progress and Expected Completion
Phase 1 - Decommissioning						
Domain 1 - Infrastructure						
Surface Infrastructure to be decommission and removed, unless the Secretary agrees otherwise.	Services not required for final landuse are disconnected.	Relevant services disconnected by qualified contractors	Report from qualified contractors	Upon decommissioning completion	EIS/This report	Not commenced/ Post extraction completion
Minimise the adverse socio-economic effects of quarry closure.						
	Infrastructure not required for final land use is removed	Relevant infrastructure removed.	Inspection and report	Upon decommissioning completion	EIS/This report	Not commenced/ Post extraction completion
	Roads not required for final landuse are removed.	Roads removed unless specified to be retained	Inspection and report	Upon decommissioning completion	EIS/This report	Not commenced/ Post extraction completion
	Roads required for final landuse are reduced in width (if required)	Roads reduced in width to that suitable for final land use.	Inspection and report	Upon decommissioning completion	EIS/This report	Not commenced/ Post extraction completion
	Hardstand areas reduced to a size required for the final landuse	Hardstand areas reduced in size to that suitable for final landuse.	Inspection and report	Upon decommissioning completion	EIS/This report	Not commenced/ Post extraction completion
	No hazardous material remains	All hazardous material removed	Contamination report prepared by qualified person. Register of Hazardous Material.	Following decommissioning with follow up validation testing as required.	This Report	Not commenced/ Post extraction completion
	No remaining product stockpiles	All remaining product stockpiles are removed.	Inspection and report	Upon decommissioning completion	EIS/This report	Not commenced/ Post extraction completion

Objective	Performance Indicator	Completion Criteria	Monitoring Methodology and Responsibility	Monitoring Frequency	Justification /Source	Current Progress and Expected Completion
Phase 1 – Decommissioning (continue	ed)					
Domain 3 - Water Management						
Site to be safe, stable and non-polluting	No sediment laden water enters the remaining clean water dam system.	Final water body has been desilted, if required to increase capacity and minimise sediment entrainment in discharged water. The catchment areas for the final water body are sufficiently rehabilitated so as to only contain clean water runoff.	Inspection by quarry manager and suitably qualified person.	On construction completion and monthly until completion	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Final Water Body construction not commenced/ Post extraction completion
	Sediment dam discharge due to overtopping does not entrain sediment.	Final water body will be designed to Best Practice according to the 'Blue Book' Criteria for a 5 day 90th percentile storm event. All drains will be designed for the 1 in 10-year design storm event and do not re-entrain sediment. The dam spillway will be designed for the 1 in 100-year design storm event.	Inspection by quarry manager and suitably qualified person.	For the final water body, on construction completion and monthly until completion.	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Final Water Body construction not commenced/ Post extraction completion
Domain 4 – Overburden Emplacement	Area					
Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land.	No remaining overburden stockpiles	All overburden stockpiles are removed and or incorporated into the final landform.	Inspection and report	Upon decommissioning completion	EIS, and this report	Not commenced/ Post extraction completion
	Sediment retained in water management structures	Final water body will be designed to Best Practice according to the 'Blue Book' Criteria for a 5 day 90th percentile storm event. All drains will be designed for the 1 in 10-year design storm event and do not re-entrain sediment. The dam spillway will be designed for the 1 in 100-year design storm event.	Existing dams currently meet capacity specifications (see SWMP). Final water body is designed to exceed the required capacity and will be assessed once complete. Inspection by quarry manager and suitably qualified person.	On construction completion and monthly until completion.	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Final Water Body construction not commenced/ Post extraction completion
Domain 6 - Open Cut Void						

No activities within this domain are required during this phase

Domain 9 - Native Vegetation Conservation Area

No activities within this domain are required during this phase

Objective	Performance Indicator	Completion Criteria	Monitoring Methodology and Responsibility	Monitoring Frequency	Justification /Source	Current Progress and Expected Completion
Phase 2 - Landform Establishment						
Domain 1 – Infrastructure						
Domain landform is safe, stable and non-polluting. Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land.	Final landform contours similar to proposed final landform contours.	Slope lengths in rehabilitated areas shall not exceed 20m for a 3H: 1V batter i.e., an earth bank shall be installed. Slope lengths in rehabilitated areas shall not exceed 30m for a 4H: 1V batter i.e., an earth bank shall be installed. Slope lengths in rehabilitated areas shall not exceed 40m for batters >4H: 1V i.e., an earth bank shall be installed.	Survey on completion by registered surveyor.	Upon completion of landform establishment phase.	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Not commenced/ Post extraction completion
	Suitable sediment and erosion controls in place.	Final water body will be designed to Best Practice according to the 'Blue Book' Criteria for a 5 day 90th percentile storm event. All drains will be designed for the 1 in 10-year design storm event and do not re-entrain sediment. The dam spillway will be designed for the 1 in 100-year design storm event.	Final water body is designed to exceed the required capacity and will be assessed once complete. Inspection by quarry manager and suitably qualified person.	Visual Inspection on construction completion and monthly until completion.	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Final Water Body construction not commenced/ Post extraction completion
Domain 3 - Water Management						
Final water body is non-polluting	Final water body is constructed to the engineer's design specification.	The dam dimensions, location and walls construction will be to the engineer's design specification (yet to be determined). The dam spillway will be designed for the 1 in 100-year design storm event.	Inspection by quarry manager and suitably qualified person.	During construction as determined by the engineer	DECC- Managing Urban Stormwater and engineer's plans	Final Water Body construction not commenced/ Post extraction completion
	Final water body is not a pollution hazard to the downstream environment.	Final water body will be designed to Best Practice according to the 'Blue Book' Criteria for a 5 day 90th percentile storm event. All drains will be designed for the 1 in 10-year design storm event and do not re-entrain sediment. The dam spillway will be designed for the 1 in 100-year design storm event.	Final water body is designed to exceed the required capacity post establishment and will be assessed once complete. Inspection by quarry manager and suitably qualified person.	Visual Inspection on construction completion and monthly until completion.	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Final Water Body construction not commenced/ Post extraction completion
Domain 4 - Overburden Emplacement	Area					
Domain landform is safe, stable and non-polluting. Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land.	Final landform contours similar to proposed final landform contours.	Slope lengths in rehabilitated areas shall not exceed 20m for a 3H: 1V batter i.e., an earth bank shall be installed. Slope lengths in rehabilitated areas shall not exceed 30m for a 4H: 1V batter i.e., an earth bank shall be installed. Slope lengths in rehabilitated areas shall not exceed 40m for batters >4H: 1V i.e., an earth bank shall be installed.	Survey on completion by registered surveyor.	Upon completion of landform establishment phase.	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Not commenced/ Post extraction completion

Objective	Performance Indicator	Completion Criteria	Monitoring Methodology and Responsibility	Monitoring Frequency	Justification /Source	Current Progress and Expected Completion
Domain 6 - Open Cut Void						
Comain landform is safe, stable and non-polluting. Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land. Minimise the height and slope of patters. Minimise the drainage catchment.	Final landform contours similar to proposed final landform contours.	Slope lengths in rehabilitated areas shall not exceed 20m for a 3H: 1V batter i.e., an earth bank shall be installed. Slope lengths in rehabilitated areas shall not exceed 30m for a 4H: 1V batter i.e., an earth bank shall be installed. Slope lengths in rehabilitated areas shall not exceed 40m for batters >4H: 1V i.e., an earth bank shall be installed.	Survey on completion by registered surveyor.	Upon completion of landform establishment phase.	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Backfilling of the void in the northeast (Process Dam) with VENM and ENM has commenced / Post extraction completion
Minimise the drainage catchment. Ensure public safety	Landform drains towards water management domain	Final water body will be designed to Best Practice according to the 'Blue Book' Criteria for a 5 day 90th percentile storm event. All drains will be designed for the 1 in 10-year design storm event and do not re-entrain sediment. The dam spillway will be designed for the 1 in 100-year design storm event.	Existing dams currently meet capacity specifications (see SWMP). Final water body is designed to exceed the required capacity and will be assessed once complete. Inspection by quarry manager and suitably qualified person.	Visual Inspection on construction completion and monthly until completion.	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Final Water Body construction not commenced/ Post extraction completion
	Available topsoils are stockpiled appropriately and reused on the site	Available topsoil is spread over final landform	Site contractor to record growth medium management procedures to the quarry manager. Records to include amounts stripped, locations and depths re-spread.	As required during construction.	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Not commenced/ Post extraction completion
Ensure public safety	Tracks suitable for private access or pedestrian usage	Slopes of major tracks <10° or have cross drains/banks installed. Where unsuitable soils are present, tracks to be stabilised with crushed bricks, concrete, gravel or similar.		Upon completion of landform establishment phase.	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Not commenced/ Post extraction completion
Domain 9 - Native Vegetation Conserva	ation Area					

Objective	Performance Indicator	Completion Criteria	Monitoring Methodology and Responsibility	Monitoring Frequency	Justification /Source	Current Progress and Expected Completion
Phase 3 - Growth Medium Development						
Domain A - Infrastructure						
No revegetation is to occur in this dom	nain; therefore, no activities are required d	uring this phase				
Domain B - Water Management						
No revegetation is to occur in this dom	nain; therefore, no activities are required d	uring this phase				
Domain C & D - Rehabilitation Area - G	Grassland/Woodland					
Domain landform is safe, stable and non-polluting. Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land. The quarry pit floor is landscaped and	Compacted surfaces deep ripped to 300mm along contour.	Photographs of ripped areas	Inspection by quarry manager and suitably qualified person.	Following Deep ripping	EIS and this report	Not commenced/ Post landform establishment
revegetated using improved pasture species, native trees and understorey species.						
	Hydromulch Area- Minimum 300mm of subsoil emplaced over deep ripped surface. Minimum of 100mm of topsoil emplaced over subsoil layer.	Small 'test pits' dug and photographed to show final media depth, report indicates required thicknesses achieved.	Photographs of test pits reported by quarry manager and/or suitably qualified person	Following spreading of soils.	EIS and this report	Not commenced/ Post landform establishment
	Buffer Setbacks and Embankments with 1V:3H Grade- Minimum 300mm of subsoil emplaced over deep ripped surface. Minimum of 100mm of topsoil emplaced over subsoil layer. Minimum of 75mm of organic mulch emplaced over topsoil.	Small 'test pits' dug and photographed to show final media depth, report indicates required thicknesses achieved.	Photographs of test pits reported by quarry manager and/or suitably qualified person	Following spreading of soils.	EIS and this report	Not commenced/ Post landform establishment
	Embankments Steeper than 1V:3H Grade-Minimum 300mm of subsoil emplaced over deep ripped surface. Minimum of 100mm of topsoil emplaced over subsoil layer. Jute matting pinned to topsoiled bank. Minimum of 75mm of organic mulch emplaced over topsoil.	Small 'test pits' dug and photographed to show final media depth and presence of jute matting, report indicates required thicknesses achieved.	Photographs of test pits reported by quarry manager and/or suitably qualified person	Following spreading of soils.	EIS and this report	Not commenced/ Post landform establishment

Objective	Performance Indicator	Completion Criteria	Monitoring Methodology and Responsibility	Monitoring Frequency	Justification /Source	Current Progress and Expected Completion
	Permanent Bundwalls- Minimum 300mm of topsoil emplaced over deep ripped surface. Jute matting pinned to topsoiled bank. Minimum of 75mm of organic mulch emplaced over topsoil.	Small 'test pits' dug and photographed to show final media depth and presence of jute matting, report indicates required thicknesses achieved.	Photographs of test pits reported by quarry manager and/or suitably qualified person	Following spreading of soils.	EIS and this report	Not commenced/ Post landform establishment
Domain J - Native Vegetation Conservation Area						

No activities within this domain are required during this phase

Objective	Performance Indicator	Completion Criteria	Monitoring Methodology and Responsibility	Monitoring Frequency	Justification /Source	Current Progress and Expected Completion
Phase 4 - Ecosystem and Land use Est	ablishment					
Domain A - Infrastructure						
No revegetation is to occur in this dom	ain; therefore, no activities are required d	uring this phase				
Domain B - Water Management						
Wetlands water management structure	to remain therefore no activities required	during this phase				
Domain C & D - Rehabilitation Area - G	rassland/Woodland					
Domain landform is safe, stable and non-polluting. Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land. The quarry pit floor is landscaped and revegetated using improved pasture species, native trees and understorey species.	Revegetation species mix applied as suggested in Rehabilitation Management Plan	A target coverage factor of 70% will be subject to further refinement. Low mortality of plants used in progressive revegetation with 75% becoming established 3 years.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	EIS and Rehabilitation Management Plan	Not commenced/ Ongoing
	The rehabilitated area does not constitute an erosion hazard.	Total projected foliage cover is greater than or equal to 70%.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	DECC- Managing Urban Stormwater, EIS, SWMP and this report	Not commenced/ Ongoing
	Weeds not preventing revegetation from establishing	Weed cover no more than 25% over a 3-year monitoring period within any given areas where revegetation has occurred. Note that non-native species purposefully planted to control erosion are excluded from this target.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	EIS and Rehabilitation Management Plan	Not commenced/ Ongoing
	Grazing by native and domestic fauna not adversely impacting on ecosystem development	Rural fences and gates installed around disturbed area to prevent grazing of domestic stock. Feral animal controls will be implemented if required.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	EIS and Rehabilitation Management Plan	Not commenced/ Ongoing
	Branches and logs of any trees cleared on the site are to be spread within the rehabilitation areas to provide habitat for ground fauna	Evidence of logs and other fallen timber spread over re rehabilitated areas. Ground fauna species of similar diversity to adjacent areas of similar habitat.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	EIS and Rehabilitation Management Plan	Not commenced/ Ongoing

Domain J - Native Vegetation Cons	ervation Area					
Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land.	The rehabilitated area does not constitute an erosion hazard.	Total projected foliage cover is greater than or equal to 70%.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	DECC- Managing Urban Stormwater EIS	Not commenced/ Ongoing
	Weeds not overtaking existing vegetation	Monitoring confirms that after 2 years the non- native/non-target species (weeds) represents less than 20% of projected foliage cover or equivalent to surrounding vegetation not disturbed by mining activities.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	EIS and Rehabilitation Management Plan	Not commenced/ Ongoing
		Rural fences and gates installed around disturbed area to prevent grazing of domestic stock. Feral animal controls will be implemented if required.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	EIS and Rehabilitation Management Plan	Not commenced/ Ongoing

Objective	Performance Indicator	Completion Criteria	Monitoring Methodology and Responsibility	Monitoring Frequency	Justification /Source	Current Progress and Expected Completion
Phase 5 - Ecosystem and Land use Su	stainability					
Domain A - Infrastructure						
No activities are required during this p	hase					
Domain B - Water Management						
Domain landform is safe, stable and non-polluting.	Water quality monitoring results show that the final water body is non-polluting should it overtop and is suitable for stock water.	Water Quality meets the objective of Section 120 of the Protection of the Environment Operations Act 1997: and Water Quality meets the objective of the ANZECC Guidelines for 90% protection of freshwater ecosystems.	Water to be monitored for pH, Turbidity, Oil & Grease and TSS on a once off basis. NATA laboratory	Once off basis.	EA and Rehabilitation Management Plan	Not commenced/ Post completion
Domain C & D - Rehabilitation Area - G	Grassland/Woodland					
Landscaped and revegetated using improved pasture species, native trees and understorey species.	Vegetation self-sustaining.	Evidence of new growth of endemic species. Evidence of successive generations of endemic species No further active weed control required (beyond that considered necessary at analogue sites).	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	EA and Rehabilitation Management Plan	Not commenced/ Ongoing
	Rehabilitated areas to be linked to existing and future areas of vegetation where possible to form a network of wildlife corridors	Connectivity between current and future rehabilitated areas is established adjacent to existing and future areas of vegetation where possible. Patches are not to be separated by more than 10 metres where possible.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	EA and Rehabilitation Management Plan	Not commenced/ Ongoing
	Rocks of varying sizes are to be spread over rehabilitated areas to provide ground fauna habitat and refuge.	Evidence of varying sized rocks between 20 mm and greater than 200 mm spread over rehabilitated areas. Ground dwelling fauna species of similar diversity to adjacent areas of similar habitat.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	EA and Rehabilitation Management Plan	Not commenced/ Ongoing
	The provision of nest boxes for a range of arboreal fauna to be installed during the establishment of final rehabilitation areas	On completion of the rehabilitation, a suitably qualified ecologist determines the requirement on whether nest boxes are required. If nest boxes are required to be installed a nest box management plan will be prepared.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	On installation	EA and Rehabilitation Management Plan	Not commenced/ Ongoing

Objective	Performance Indicator	Completion Criteria	Monitoring Methodology and Responsibility	Monitoring Frequency	Justification /Source	Current Progress and Expected Completion
Domain J - Native Vegetation Conserve	ation Area					
Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land.	Vegetation self-sustaining.	Evidence of new growth of endemic species. Evidence of successive generations of endemic species No further active weed control required (beyond that considered necessary at analogue sites).	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	EA and Rehabilitation Management Plan	Not commenced/ Ongoing
	Conservation area to be linked to existing and future areas of vegetation where possible to form a network of wildlife corridors	Connectivity between conservation areas is established adjacent to existing and future areas of vegetation where possible. Patches are not to be separated by more than 10 metres where possible.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	Monthly for the first 6 months, then 6 monthly until completion criteria achieved	EA and Rehabilitation Management Plan	Not commenced/ Ongoing
	The provision of nest boxes for a range of arboreal fauna to be installed during the establishment of final rehabilitation areas	On completion of the rehabilitation, a suitably qualified ecologist determines the requirement on whether nest boxes are required. If nest boxes are required to be installed a nest box management plan will be prepared.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	On installation	EA and Rehabilitation Management Plan	Not commenced/ Ongoing

Objective	Performance Indicator	Completion Criteria	Monitoring Methodology and Responsibility	Monitoring Frequency	Justification /Source	Current Progress and Expected Completion
Phase 6 - Relinquishment						
All Domains						
Relinquishment	Demonstrated compliance with all completion criteria	Outlined above	Completion Report to be prepared by suitably qualified person describing compliance with all criteria.	-	-	Not commenced
Minimise the socio-economic effects of quarry closure	Demonstrated compliance with all completion criteria		Completion Report to be prepared by suitably qualified person describing compliance with all criteria.	-	-	Not commenced

6.10.2 Monitoring Results Compliance and Trends

No rehabilitation monitoring has been undertaken this report period. The backfilling of the eastern portion of the Process Dam (Dam 1) has commenced. The dam has now been divided into 2 water bodies, with the eastern portion undergoing emplacement with VENM material. The western portion remains as the bore water source and storage of surface water for production. More material will be imported to achieve the final landform and revegetation criteria.

6.10.3 Interpretation and Effectiveness of Controls

The perimeter bund walls have been revegetated with grass and shrub species and are stable and not prone to erosion. The perimeter bund walls are providing effective visual screening from the site operations despite the absence of mature trees. The general compliance of the dust and noise monitoring results indicates that this control measure is effective. Internal bunds and topsoil stockpiles are generally well covered with pasture species.

Progressive rehabilitation in the extraction cells has not occurred on the site to date due to the lack of finished faces. Although this results in erosion on the internal faces of the extraction area, sediment is captured within the pit void and does not impact on surrounding land or waterways.

The 10m buffer on the northern boundary has been reinstated and the bund wall vegetated with native species.

The remaining areas on the site, outside the extraction footprint are well vegetated with pasture species and are stable and protected from erosion impacts.

6.10.4 Measures Proposed for Improvement

During the next report period the following activities will be undertaken towards development of the final landform:

- Monitor and maintain perimeter vegetation.
- Revegetation activities will continue on perimeter bunds.
- Regular weed management.
- Continued emplacement of VENM material within the eastern portion of the Process Dam.

7 Management Targets and Strategies for Future Stages

The targets and strategies for future stages have been outlined in the Environmental Management Plan and each individual sub-plan. They are summarised in the table below.

Table 44. Future Targets

Aspect	Target	Criteria
Air Quality	To receive no reasonably preventable complaints from members of the public or statutory authorities regarding air quality emissions from the site, and for monitoring to show that air quality criteria are being met	Air quality criteria outlined in <u>6.3.1</u>
Water	To ensure there is no reasonably preventable impact on surface water external to the site or regional groundwater	Water quality criteria outlined in Sections <u>6.4.1</u> , <u>6.5.1</u> , and <u>6.7.1</u> .
Sediment and Erosion	To control erosion on the site to as to reasonable prevent impacts off site	Sediment and erosion criteria are outlined in <u>6.4</u>
Noise	To receive no reasonably preventable complaints from members of the public or statutory authorities regarding noise or road noise impacts from the site, and for monitoring to show that noise criteria are being met	Noise and road noise criteria are outlined in <u>6.8.1</u>
Flora and Fauna	Inspections of site flora and fauna to show minimal impacts from operations. Consider the post extraction land use in the management and maintenance of conserved and rehabilitated vegetation.	Performance and completion criteria are detailed in the FFMP
Rehabilitation	To ensure that temporary and permanent rehabilitation activities are undertaken in accordance with the Rehabilitation Plan	Performance and completion criteria are detailed in the LRMP.

8 Opportunities for Improvement

8.1 WATER MANAGEMENT PLAN UPDATES

An update of the Water Management Plan was prepared with consultation from DPI Water and NRAR, and submitted to DPIE in 2022. That plan is yet to be approved. A further update will be prepared in 2025.

Schedule 2, Condition 44 of the consent states:

44. The Applicant shall prepare a Water Management Plan for the development to the satisfaction of the Secretary. This plan must be prepared in consultation with DPIE Water by suitably qualified and experienced person/s whose appointment has been approved by the Secretary, and be submitted to the Secretary for approval by 31 December 2016. The plan must be updated on an annual basis in consultation with DPIE Water for three years from the date of approval of Modification 2 and thereafter as agreed with by the Secretary.

NRAR and DPE will be approached as per the above condition to review whether annual updates are required and whether 6 monthly reporting of groundwater depths is still required.

8.2 REHABILITATION CONSERVATION BOND

The bond calculation has been approved and paid.

8.3 INDEPENDENT AUDIT

Table 45. 2023 Independent Audit Recommendations

Opportunity	Actions	Date Achieved
Consider reducing the volume of oil and grease to levels which can be stored within the existing bunded areas	Empty drums removed. Liaison with supplier to ensure cost effective supply of consumables in smaller volumes. Bunded pallets purchased and installed in workshop.	June 2023 Ongoing December 2023
Metal parts stored in various locations on site should be sorted and stored in a single location in a neat and tidy manner	Metal and poly pipe removed. Scrap metal recycle bin in use.	April 2023 July 2023.

Another Independent Environmental Audit is due in 2026.

8.4 ACTIONS AND IMPROVEMENTS PLANNED FOR 2024

Table 46. Summary of Proposed Improvements

Aspect	Improvement
Transport and Traffic	The TMP and Drivers Code of Conduct will continue to be reviewed annually. Records are available on request.
Air Quality	Continue monitoring and management as outlined in AQMP.
Water	Liaise with Water and Planning authorities regarding the further need for WMP annual updates. Investigate whether sprinkler usage is significant enough to record for the water balance calculations. Continue monitoring and management in accordance with WMP.
Noise	Undertake attended operational and road traffic noise monitoring, including compliance with conditions 47 (a) and (b). Any newly purchased equipment to tested for Sound Power compliance.
Flora and Fauna	Biodiversity monitoring will be undertaken during the calendar year. Weed control and quarterly reports as per Biodiversity Report schedule will be undertaken as recommended in Section <u>6.9.</u> Update Flora and Fauna Management Plan for Mod 4 changes.
Rehabilitation	Monitor and maintain perimeter vegetation. Continue importation and emplacement of VENM material in the eastern portion of the Process Dam. Imported material certification records will be available on request.
Administrative	Environmental Management Strategy and sub-plans to be reviewed and revised following submission of this ARCR. Liaise with DPIE regarding outstanding Management Plan approvals to allow further improvements to the site operations. Condition Compliance Report to be undertaken prior to commencing in the Phase 5A area.

References

- Dundon Consulting. (April 2018). Roberts Rd Maroota Sand Quarry Groundwater Study Report.
- Dundon Consulting. (July 2018). Roberts Rd Maroota Sand Quarry Groundwater Management Plan.
- Dundon Consulting. (July 2018). Roberts Rd Maroota Sand Quarry Groundwater Monitoring Program.
- Holmes Air Sciences. (October 1999). Air Quality Impact Assessment, Proposed Sand Extraction Operations, Roberts Rd Maroota, NSW.
- Jacobs Group Australia Pty Ltd. (2019). Roberts Road Quarry Air Quality Impact Assessment for Proposed Modification 4.
- National Environment Protection Council. (February 2016). *National Environment Protection (Ambient Air) Measure.*
- Nexus Environmental Planning Pty Ltd. (May 2015). Environmental Assessment Section 75W Mod 3.
- Nexus Environmental Planning Pty Ltd. (November 1999). Environmental Impact Statement.
- Nexus Environmental Planning Pty Ltd. (September 2015). *Environmental Assessment Section 75W Mod 2.*
- NSW Department of Planning and Environment. (March 2016). DA 267-11-99.
- NSW EPA. (2015). Environment Protection Licence 6535.
- Umwelt (Australia) Pty Limited. (2019). Robert Road Quarry Modification 4 Statement of Environmental Effects. Teralba.
- Wilkinson Murray Pty Ltd. (June 2015). Air Quality Impact Assessment.



Appendix A

Notice of Modification and draft Consolidated Consent Conditions Mod 4

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

DETERMINATION OF A DEVELOPMENT APPLICATION UNDER SECTION 80(1) OF THE **ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979**

I, the Minister for Urban Affairs and Planning, under Section 80(1) of the Environmental Planning and Assessment Act, 1979 (the Act), determine the Development Application referred to in Schedule 1 by granting consent to the Application, subject to the conditions set out in Schedule 2.

The reason for the imposition of conditions is to minimise any adverse environmental effects of the development, consistent with the objectives of the Act.

Andrew Refshauge MP Minister for Urban Affairs and Planning

2000 Sydney File No. S98/00772

SCHEDULE 1

Application made by: Dr L. S. Martin ('the Applicant").

The Minister for Urban Affairs and Planning ("the Minister"). To:

In respect of: Lots 1 and 2 DP 228308, Lot 2 DP 312327, Roberts Road, Maroota, in

the Baulkham Hills Local Government Area.

For the following: Extraction and on-site processing of sand, clay and pebble;

construction of a bund wall.

Development Application: DA No. 267-11-99 lodged with the Department of Urban Affairs and

> Planning on 22 November 1999, accompanied by a Environmental Impact Statement prepared by Nexus Environmental Planning Ptv Ltd.

and dated November 1999.

Determination: 1) To ascertain the date upon which the consent becomes effective,

refer to Section 83 of the Act.

2) To ascertain the date upon which the consent is liable to lapse, refer

to Section 95 of the Act.

3) Section 97 of the Act confers on an applicant who is dissatisfied with the determination of a consent authority a right of appeal to the Land and Environment Court exercisable within 12 months after receipt of

notice.

This instrument includes changes made by DA 267-11-99 Mod 1 in 29 November 2000 (marked red). This instrument includes changes made by DA 267-11-99 Mod 3 in 18 August 2015 (marked blue).

This instrument includes changes made by DA 267-11-99 Mod 2 in 18 March 2016 (marked green).

This instrument includes changes made by DA 267-11-99 Mod 4 in 13 August 2021 (marked purple).

SCHEDULE 2

Conditions of Development Consent

DEFINITIONS

The Act Environmental Planning and Assessment Act 1979, as amended

Approval from EPA means approved in writing by the EPA or as specified as a condition of

a licence

BCA Building Code of Australia

BCD Biodiversity and Conservation Division within the Department Calendar year A period of 12 months from 1 January to 31 December

Construction Construction of the bund wall
Council The Hills Shire Council
DA Development Application

DCP 500 Baulkham Hills Shire Council Development Control Plan No. 500 –

Extractive Industry

Department Department of Planning, Industry and Environment

DPIE Water Group within the Department

EIS Development application DA 267-11-99 and supporting documentation

including the Environmental Impact Statement prepared by Nexus Environmental Planning Pty Ltd, dated November 1999, including the attached landscaping plan; the fax from Holmes Air Sciences dated 21 December 1999; the letter from Nexus Environmental Planning Pty Ltd dated 21 December 1999 and attachments; the letter from Woodward-Clyde dated 21 December 1999; the letter from Woodward-Clyde dated 16 December 1999; the letter from Dick Benbow and Associates Pty Ltd dated 5 January 2000 and attachments; the letter from Dick Benbow and Associates Pty Ltd dated 27 January 2000; and the two faxes from Dick Benbow and Associates Pty Ltd dated 17 February 2000 and attachments, except as modified by the report of Dick Benbow and Associates (Report No 10065 Issue 1) dated 26 June 2000

Environmental Management Plan

ENM Excavated Natural Material, as defined in the EPAs resource recovery orders and exemptions clauses 91, 92 and 93 of the *Protection of the*

Environment Operations (Waste) Regulation 2014.

EPA Environment Protection Authority

EPL Environment Protection Licence under the POEO Act

GTA General Term of Approval

Heritage NSW Heritage NSW within the Department of Premier and Cabinet
An occurrence or set of circumstances that causes or threatens to
cause material harm and which may or may not be or cause a non-

compliance

INP NSW Industrial Noise Policy (NSW EPA, 2000)

L_{A10(15 minute)} is the sound pressure level that is exceeded for 10% of the time when

measured over a 15 minute period

Laden Trucks Trucks transporting quarry products from the site and/or trucks

transporting VENM/ENM to the site

m AHD metres Australian Height Datum

MEG Regional NSW – Mining, Exploration and Geoscience
Minister NSW Minister for Planning and Public Spaces, or delegate

Modification 1 Modification 07-00M1 to DA 267-11-99 and supporting SEE titled Amendment to Method of Extraction and Related Acoustic Bund

EMP

Wall, dated 17 July 2000 and prepared by Nexus Environmental Planning Pty Ltd

Modification 2

Modification application DA 267-11-99 Mod 2 and supporting documentation titled: *Environmental Assessment Section 75W Modification (2): DA 267-11-99, Hodgson Quarries and Plant Pty Ltd: Roberts Road: Maroota* (Volumes 1 and 2), dated 23 September 2015 and prepared by Nexus Environmental Planning Pty Ltd; Response to Submissions *75W Modification (2): DA 267-11-99, Hodgson Quarries and Plant Pty Ltd: Roberts Road: Maroota*, dated 3 December 2015 and prepared by Nexus Environmental Planning Pty Ltd; and email correspondence from Nexus Environmental Planning Pty Ltd to the Department, dated 12 February 2016, 16 February 2016 and 24 February

Modification 3

Modification application DA 267-11-99 Mod 3 and supporting documentation titled Environmental Assessment Section 75W Modification (3): DA 267-11-99, Hodgson Quarry Products Pty Ltd: Roberts Road: Maroota, dated 17 May 2015 and prepared by Nexus Environmental Planning Pty Ltd

Modification 4

Modification application DA 267-11-99 MOD 4 and Statement of Environmental Effects titled: *Roberts Road Quarry Modification 4*, dated December 2019 prepared by Umwelt Environmental Consulting and Submissions Report titled: *Roberts Road Quarry Modification 4*, *Response to Submissions*, dated March 2020 prepared by Umwelt Environmental Consulting, and additional information supporting the Response to Submissions, including:

- Revised noise assessment titled: *Noise Impact Assessment Rev 1*, dated May 2020 prepared by Umwelt Environmental Consulting;
- Letter from Umwelt Environmental Consulting, dated 20 May 2020; and
- Letter from Benbow Environmental, dated 10 September 2020. An occurrence, set of circumstances or development that is a breach of this consent

Non-compliance

Principal Certifying Authority

POEO Act

PCA

Protection of the Environment Operations Act 1997

Process Water Dam Quarrying products

The process water dam located in the north-eastern corner of the site Includes all saleable quarry products, but excludes tailings and other wastes and rehabilitation material

Secretary Subject Site Planning Secretary under the EP&A Act, or nominee

TfNSW VENM Waste Lots 1 and 2 DP 228308, Lot 2 DP 312327, Roberts Road, Maroota, in the Baulkham Hills Local Government Area

Transport for NSW

Virgin Excavated Natural Material, as defined in the POEO Act Has the same meaning as the definition of the term in the Dictionary to the POEO Act

Wet weather high groundwater level

The rolling average of all recorded groundwater level measurements at any monitoring location on the site, as first recorded following any rainfall event of at least 50 mm over any 24-hour period, and as contour mapped using this data

INTEGRATED DEVELOPMENT

Integrated development is development (not being complying development) that, in order for it to be carried out, requires development consent and one or more of the approvals set out in the Act. The subject proposal is integrated development, as it requires development consent and the approval of the Environment Protection Authority under the *Protection of the Environment Operations Act 1997* and, the approval of the Department of Land and Water Conservation under Parts 2 and 5 of the *Water Act 1912*. The general terms of approval of both the EPA and the DPIE Water therefore form part of this Consent.

GENERAL

Obligation to Prevent and Minimise Harm to the Environment

1. There is an obligation on the Applicant to prevent and minimise harm to the environment throughout the life of the project. This requires that all practicable measures are to be taken to prevent and minimise harm that may result from the construction, operation and, where relevant, the decommissioning of the development.

Adherence to Terms of DA and EIS

- 2. The Applicant shall:
 - (a) carry out the development generally in accordance with the EIS, Modification 1, Modification 2, Modification 3 and Modification 4; and
 - (b) comply with the conditions of this consent.

If there is any inconsistency between the documents in Condition 2(a), the most recent documents shall prevail to the extent of the inconsistency. The conditions of this consent shall prevail over documents in Condition 2(a) to the extent of any inconsistency.

Compliance

- 3. The Applicant shall comply with all reasonable requirements of the Secretary in respect of the implementation of the Conditions of this Consent, within such time as the Secretary agrees. The Secretary may order the Applicant to cease work until non-compliance has been addressed to the Secretary's satisfaction.
- 4. The Applicant shall ensure that all contractors and sub-contractors are aware of, and comply with, the Conditions of this Consent.
- 5. The Applicant shall comply with all relevant conditions prescribed in Part 7 of the *Environmental Planning* and Assessment Regulation 1994, as required by Section 80A (11) of the Act.
- 6. The Applicant SHALL submit a Conditions Compliance Report to the Secretary prior to the commencement of extraction in areas that are not currently subject to extraction. Subsequent reports will be submitted annually for the first three years of extraction in areas not currently subject to extraction. Further reports SHALL be submitted as required by the Secretary.

To enable ready comparison with the EIS's predictions, diagrams and tables, the Conditions Compliance Reports shall include, but not be limited to, the following matters:

- (a) a compliance audit of the performance of the project against conditions of Consent and statutory approvals;
- (b) a review of the effectiveness of the environmental management of the development;
- (c) the results of environmental monitoring required under this Consent or other approvals, including interpretations and discussion by a suitably qualified person;

- (d) a listing of any variations obtained to approvals applicable to the DA since the last report;
- (e) a record of all complaints and the actions taken to mitigate all such complaints;
- (f) a report detailing the rehabilitation measures undertaken since the last report; and
- (g) environmental management targets and strategies for stages of the development yet to be completed.
- 7. The Secretary may, after considering a Conditions Compliance Report, notify the Applicant of any reasonable requirements for compliance with this Consent. The Applicant SHALL comply with those requirements within such time as the Secretary may direct.

Note: The Applicant is obliged to ensure that all statutory requirements, including all relevant legislation, Regulations, Australian Standards, Codes, Guidelines and Notices, Conditions and Directions of the Councils and relevant government agencies are met and approvals obtained.

Limits on Approval

- 8. No extraction shall commence in areas that are not currently subject to extraction, until the Applicant has:
 - (a) constructed the bund walls at the corner of Roberts Road and Old Northern Road;
 - (b) submitted the Conditions Compliance Report required under Condition 6; and
 - (c) obtained all licences necessary for the commencement of extraction.
- 9. The duration of extraction under this Consent is **until 31 May** 2030. The Applicant shall ensure that rehabilitation of all disturbed areas is completed within six months of completion of extraction.
- 9A. The Applicant must not:
 - (a) process or dispatch more than 480,000 tonnes of quarrying products at the site in any calendar year;
 - (b) receive more than 320,000 tonnes of VENM and ENM (in total) at the site in any calendar year;
 - (c) import more than 3 million tonnes of VENM and ENM to the site; and
 - (d) import VENM and ENM beyond 31 May 2030.

Complaints Procedures

- 10. Prior to commencement of construction, the Applicant shall:
 - (a) publicise a telephone number on which complaints about the subject development can be registered during the hours of operation in Condition 16; and
 - (b) publicise a postal address where written complaints may be lodged.
 - The telephone number and postal address shall be displayed on the property where it can be read from a public road, for the duration of the development.
- 11. The Applicant shall record details of all complaints received and actions taken in response to complaints in an up-to-date log book. The log book shall be made available for inspection upon request by the Secretary, the EPA or the Council; and a summary of complaints received shall be included in the Conditions Compliance Reports under Condition 6.
- 12. The Applicant shall ensure that an initial response to complaints is provided to the complainant within 24 hours of receipt. The Applicant shall then:
 - (a) investigate the concerns raised by the complainant and undertake all reasonable attempts to determine the cause of concern: and
 - (b) if adverse impacts are identified, undertake all practicable measures to modify the activity which may be causing the impacts.
- 13. If the Applicant's response does not address the complaint to the satisfaction of the complainant within six weeks, the Applicant shall inform the Secretary and take any action as directed by the Secretary.

This may include a requirement to carry out independent investigations of noise and/or dust at the cost of the Applicant, in accordance with Condition 14.

- 14. If the Secretary is satisfied that an independent investigation is required, the Applicant shall:
 - (a) appoint a qualified independent person or team to plan and implement an investigation to qualify the impact and determine the sources of the impact; and
 - (b) bear the cost of the independent investigation and make available plans, programs and other information necessary for the independent person to form an appreciation of the past, present and future works and their effects on dust and/or noise emissions.

This investigation is to be carried out in accordance with a documented Plan. The Plan shall be designed and implemented to measure and/or compute (with appropriate calibration by measurement) the relevant noise and/or dust levels at the complainant's property, that are emitted by the development; and specify a monitoring period and reporting schedule.

The independent person or team, the Plan and the timing of its implementation, shall be approved by the Secretary. The independent person or team shall report to the Secretary and the Applicant.

Further independent investigations shall cease if the Secretary is satisfied that the relevant levels are not being exceeded and are unlikely to be exceeded in the future.

Dispute Resolution

15. In the event that the Applicant, Council, the PCA, or a government authority other than the Department, cannot agree on the specification or requirements applicable under this Consent, the matter shall be referred by either party to the Secretary or, if not resolved, to the Minister, whose determination of the disagreement shall be final and binding on the parties.

HOURS OF OPERATION

- 16. Unless prior written approval of the EPA is obtained, the hours of operation are:
 - construction: 7.00am to 6.00pm Monday to Friday
 - extraction and processing of material: 7.00am to 6.00pm, Monday to Friday and 7.00am to 1.00pm on Saturdays
 - vehicle loading: 6.00am to 6.00pm, Monday to Friday and 6.00am to 1.00pm on Saturdays. No works shall be undertaken on Sundays or Public Holidays.

These restrictions do not apply to routine maintenance work, such as the repair of machinery, provided the work does not result in exceedance of the noise limits in Condition 47.

DEPTH OF EXTRACTION

17. The Applicant shall ensure that extraction does not take place below a level 2 metres above the wet weather high groundwater level of the regional aquifer, as measured and mapped on the site (see Conditions 39(d) and 44).

PRODUCTION DATA

- 17A. Each year the Applicant must provide MEG with annual quarry production data, covering a full calendar year, by no later than 30 January the following calendar year.
- 17B. The data must be provided using the relevant standard form and a copy of the data must be included in the Annual Review (required under condition 66).

ENVIRONMENTAL MANAGEMENT PLAN

18. The Applicant shall prepare a Construction Environmental Management Plan (EMP) to the satisfaction of the Secretary prior to commencement of construction. The Construction EMP shall contain appropriate measures which demonstrate how the environmental objectives for the project will be achieved, including objectives stated in this Consent; and contain a monitoring, reporting and response program.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

- 19. The Applicant shall prepare an Operational Environmental Management Plan (EMP) in consultation with the relevant authorities and to the satisfaction of the Secretary, prior to the commencement of extraction under this Consent. The EMP shall incorporate and integrate environmental management for the existing extraction areas, as well as the areas approved under this Consent.
- 20. The Operational EMP shall include, but not be limited to:
 - (a) environmental objectives for the site;
 - (b) the Air Quality Management Plan (Condition 29);
 - (c) the Water Management Plan (Condition 42);
 - (d) the Noise Management Plan (Condition 46);
 - (e) the Road Noise Management Plan (Condition 48);
 - (f) the Traffic Management Plan (Condition 50A);
 - (g) the Flora and Fauna Management Plan (Condition 55); and
 - (h) the Rehabilitation Plan (Condition 58).
- 21. The Applicant shall make copies of both EMPs available to Council, EPA and DPIE Water within 14 days of approval by the Secretary. The Applicant shall also make a current copy of the EMPs available for inspection by the public or these agencies, for the duration of the Consent.
- 22. The Applicant shall, in consultation with the Secretary, the EPA and the DPIE Water, update the Operational EMP from time to time in order to ensure continuing compliance with the Conditions of this Consent and all relevant approvals and licenses. The EMR shall be responsible for determining if any significant changes to the Operational EMP should be referred to the Secretary for approval.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

- 23. Deleted.
- 24. Deleted.
- 25. Deleted.

Importation of VENM and ENM

- 26. The applicant must:
 - (a) ensure only verified VENM and ENM is received at the site
 - (b) collect date on the VENM and ENM received including detail of the origin, date, and quantity received; and
 - (c) include a copy of this data in the Annual Review.

WASTE

27. No other materials classified as waste under the EPA's Waste Classification Guidelines 2009 (or its latest version) may be received or processed on the site, except as expressly permitted in an applicable EPL, specific resource recovery order or exemption under the Protection of the Environment Operations (Waste) Regulation 2014.

AIR QUALITY

Air Quality Criteria

28. The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in

29.

30. TABLE at any residence on privately-owned land.

Table 1: Air quality criteria

Pollutant	Averaging period	Criterion	
Particulate matter < 10 µm (PM ₁₀)	Annual	a, c 25 μg/m ³	
	24 hour	^b 50 μg/m ³	
Particulate matter < 2.5 µm (PM _{2.5})	Annual	^{a, c} 8 μg/m ³	
	24 hour	^b 25 μg/m³	
Total suspended particulate (TSP) matter	Annual	^{a, c} 90 µg/m ³	
^d Deposited dust	Annual	^b 2 g/m ² /month	^a 4 g/m ² /month

Notes:

28A. The air quality criteria in

A1.

Table do not apply if the Applicant has an agreement with the owner/s of the relevant residence or infrastructure to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Air Quality Management

- 31. The Applicant shall prepare an Air Quality Management Plan as part of the EMP. The Air Quality Management Plan shall:
 - (a) identify existing and potential sources of dust deposition, TSP and fine particulates (PM10 and PM2.5) and specify appropriate monitoring intervals and locations. The purpose of the monitoring is to evaluate, assess and report on these emissions and the ambient impacts with the objective of understanding the development's contribution to levels of dust deposition, TSP and fine particulates in ambient air around the site;

^a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).

^b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

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

^d Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method

- (b) provide a monitoring plan having regard to local meteorology and the relevant Australian Standards, identifying the methodologies to be used, including justification for monitoring intervals, weather conditions, seasonal variations, selecting locations, periods and times of measurements;
- (c) provide details of dust suppression measures for all sources of dust from the development, including a planting and watering regime to ensure that areas of the site which are exposed and active at any one time are minimised to the greatest extent practicable. The use of a polymer in the water to minimise dust impacts shall be investigated as part of this Plan;
- (d) provide details of actions to ameliorate impacts if they exceed the relevant criteria; and
- (e) provide the design of the reactive management system intended to reduce the day-to-day impacts of dust and fine particulates due to the development.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

- 29A. The Applicant must commission an expert review of air quality monitoring at the site. This review must:
 - (a) be undertaken by a suitably qualified and experience person(s) whose appointment has been endorsed by the Secretary:
 - (b) review the accuracy of air quality monitoring at the site over a 12 month period, in general accordance with the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007) and with a particular focus on PM_{2.5} monitoring;
 - (c) provide recommendations (where required) to improve the accuracy of air quality monitoring at the site: and
 - (d) be undertaken in consultation with the EPA.
- 29B. A copy of the expert review report along with a timetable for implementing any recommendations arising from the review required under condition 29A of this Schedule, must be submitted by 1 October 2022, or as otherwise agreed by the Planning Secretary.

The Applicant must implement the recommendations of the expert review to the satisfaction of the Secretary.

- 32. Activities occurring at the premises must be carried out in a manner that will minimise emissions of dust from the premises.1
- 33. The Applicant shall cease offending work at such times when the operations are resulting in visible dust emissions blowing in a direction so as to cross onto public roads or lands not owned by the Applicant.
- 34. The Applicant shall install, operate and maintain a sprinkler system to adequately water all cleared areas and stockpiles so as to minimise dust emissions to acceptable levels.
- 35. The Applicant shall ensure that all vehicular movements on unsealed areas are restricted to specific routes and that all vehicles within the subject site keep to a speed limit of 30 km/h.
- 36. The Applicant shall ensure that trucks are covered when entering and leaving the premises carrying loads of potentially dust generating material.

Air Quality Monitoring

- 37. All monitoring equipment is to be installed and operational prior to commencement of construction.
- 38. Operation of dust deposition gauges and monitoring must be carried out in accordance with;

¹ Environment Protection Authority General Term of Approval

- (a) Australian Standard 3580.10. 01 (1991) Particulates Deposited Matter Gravimetric Method. Approved method AM-19 referred to in *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*, December 1999.
- (b) Australian Standard 2724.3 (1984) Particulate Matter Determination of Total Suspended Particulates (TSP) High Volume Sampler Gravimetric Method. Approved method AM 15 referred to in Approved Methods for the sampling and Analysis of Air Pollutants in New South Wales, December 1999.
- (c) Australian Standard 3580.9.6 (1990) for Suspended Particulate Matter PM10 High Volume Sampler with Size Selective Inlet-Gravimetric Method. Approved method AM-18 referred to in Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales, December 1999.²
- 39. A meteorological station measuring wind speed and direction must be installed and operated by the Applicant at a site determined in consultation with the EPA.³

SOIL AND WATER

Note: The Applicant is required to obtain the necessary water licences for the development under the Water Act 1912 and/or Water Management Act 2000.

Limits on Extraction

- 40. The Applicant shall not extract:
 - (a) below a depth of 182 m AHD in the footprint of the Process Water Dam, if not already extracted as at the date of Modification 2; and
 - (b) below a depth of 186.1 m AHD in all other areas of the site; unless in accordance with Condition 17, and following written notification to the Secretary and DPIE Water.

Groundwater Study and Remediation Works

- 41. Within six weeks of the date of approval of Modification 2, the Applicant shall commission a comprehensive groundwater study of the site. This study must:
 - (a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary and DPIE Water;
 - (b) consult with DPIE Water;
 - (c) examine all existing records of groundwater levels at the site;
 - (d) develop an interim contour map of the wet weather high groundwater level of the regional aquifer, based on all available records (see also Condition 44); and
 - (e) provide advice and recommendations on the Groundwater Monitoring Program as set out in Condition 43.
- 42. Unless otherwise agreed by the Secretary, the Applicant shall submit a report of the study to the Secretary and DPIE Water within six months of commissioning the study. The report must be accompanied by a Groundwater Management Improvement Program, based on the study's findings and recommendations which includes a program of proposed timeframes for implementation. Should the Applicant propose not to implement any of the report's recommendations, it must provide detailed justification to this effect.

New South Wales

² Environment Protection Authority General Term of Approval

³ Environment Protection Authority General Term of Approval

The Groundwater Management Improvement Program must be prepared and implemented to the satisfaction of the Secretary. Progress against the Program shall be reported through Annual Reviews and considered as part of the Independent Environmental Audit.

43. Within six months of the submission of the Groundwater Study and accompanying documents (see Conditions 39 and 40), the Applicant must infill any area of the site identified as being below the wet weather high groundwater level to at least that level as mapped (see Condition 39(d)).

Within six months of any update of the groundwater level contour map, the Applicant must infill any area of the site identified as being below the wet weather high groundwater level to at least that level as mapped (see Condition 44).

Water Management Plan

44. The Applicant shall prepare a Water Management Plan for the development to the satisfaction of the Secretary. This plan must be prepared in consultation with DPIE Water by suitably qualified and experienced person/s whose appointment has been approved by the Secretary, and be submitted to the Secretary for approval by 31 December 2016. The plan must be updated on an annual basis in consultation with DPIE Water for three years from the date of approval of Modification 2 and thereafter as agreed with by the Secretary.

In addition to the standard requirements for management plans (see Condition 65), this plan must include a:

- (a) Site Water Balance that:
 - includes details of:
 - o sources and security of water supply, including contingency planning;
 - water use on site;
 - water management on site, including groundwater inflows to the quarry voids and site discharges; and
 - audit and reporting procedures, including comparisons of the site water balance each calendar year; and
 - describes the measures that would be implemented to minimise clean water use on site and maximise recycling opportunities;
- (b) Surface Water Management Plan, that includes:
 - a detailed description of the surface water management system on site, including the:
 - o clean water diversion systems;
 - erosion and sediment controls;
 - effluent irrigation system;
 - water transfers from the extraction areas;
 - water storages; and
 - discharge points;
 - design objectives and performance criteria for proposed:
 - erosion and sediment control structures;
 - water storages, including quarry voids;
 - o site discharges; and
 - control of water pollution from rehabilitated areas of the site;
 - performance criteria, including trigger levels for investigating any potentially adverse impacts for surface water quality;
 - a program to monitor:
 - o the effectiveness of the water management system;
 - o site discharge water quality; and
 - surface water level and quality in the Process Water Dam, including the quantification of rainfall inflow, groundwater inflow and evaporation;

- a plan to respond to any exceedances of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the project;
- long term water quality management objectives and the measures to achieve these objectives;
- a plan that ensures surface stormwater runoff from the disturbed areas is directed to the sedimentation dam(s);
- a plan that ensures tailgate drainage does not discharge into or onto any adjoining public or Crown road, any other persons land, any Crown land, any river, creek or watercourse, any groundwater aquifer, any native vegetation as described under the *Native Vegetation* Conservation Act 1997 and any wetlands of environmental significance;
- a detailed description of design and construction criteria for the Process Water Dam based on a feasibility study of:
 - capacity to construct multiple cells within the overall dam footprint (ie a two stage or three stage dam);
 - whether the dam floor and walls are able to be effectively lined with compacted clay (especially for multiple cells);
 - o whether effective hydraulic separation can be achieved between such cells;
 - o rehabilitating such cells to create a single dam within the final landform; and
 - o the appropriateness of diverting runoff received from off-site around the dam;
- a strategy for the decommissioning of water management structures, including storage, sedimentation and leachate dams once extraction is complete; and
- audit and reporting procedures, including comparisons of the monitoring results each calendar year and quarterly reporting of surface water monitoring results;
- (c) Groundwater Management Plan that takes into account the Web-based Reporting Guideline (DPE 2015) and Groundwater Monitoring and Modelling Plans Information for Prospective Mining and Petroleum Exploration Activities (DPI 2014), and includes:
 - detailed baseline data on groundwater yield and quality in groundwater bores on privatelyowned land, that could be affected by the project;
 - a program to undertake surveyed probe testing of all extracted areas where clay fines have been deposited to:
 - o accurately determine the depth of extraction and depth of clay fines;
 - identify any ongoing intersection or other interaction between clay fines and the regional groundwater aquifer;
 - identify any geotechnical characteristics of the emplaced clay fines which may pose risks to workplace safety or implementation of the process water dam design or the final landform; and
 - identify measures which can be successfully used in rehabilitating these areas;
 - a program to monitor potential groundwater quality impacts to the regional aquifer from receiving off-site runoff water in the Process Water Dam;
 - groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts, in accordance with the NSW Aquifer Interference Policy;
 - a program to monitor:
 - the impacts of the project on:
 - groundwater inflows to water storages;
 - any groundwater bores on privately-owned land that could be affected by the project;
 - seepage from water storages or backfilled voids on site;
 - a plan to respond to any exceedances of the groundwater assessment criteria;
 - emergency contingency plans for implementation in the event that the groundwater is encountered during excavation; and
 - audit and reporting procedures, including comparisons of the monitoring results each calendar year and quarterly reporting of groundwater monitoring results,

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

Groundwater Monitoring

- 45. The Applicant shall prepare a Groundwater Monitoring Program for the development to the satisfaction of the Secretary. This program must:
 - (a) be prepared in consultation with DPIE Water and be submitted to the Secretary for approval within four months of the date of approval of Modification 2;
 - (b) include proposed construction of a network of at least five active monitoring bores around the southeastern, southern, western and north-western boundaries of the extraction area (but outside of the overall extraction footprint) in proximity to extraction Phases 1 to 6 as identified in Modification 2, to collect continuous groundwater level monitoring data from the regional aguifer;
 - (c) include proposed construction to deepen (or replace) PT84MW1 in order that a bore in that general location monitors the regional aquifer; and
 - (d) include proposed construction of active monitoring bores within the largest components of at least the two forthcoming extraction Phases (on a rolling basis), each to collect at least 2 years of continuous baseline groundwater monitoring data prior to extraction commencing with that Phase.
- 46. The results of the Groundwater Monitoring Program shall be reported the Department and DPIE Water, using contour plans depicting the surface topography, updated contour maps of the wet weather high groundwater level of the regional aquifer and proposed depth of extraction for each extraction Phase. Reporting is to occur on a six monthly basis for the duration of extractive operations, and throughout rehabilitation of the site, unless otherwise agreed with the Secretary.

The Applicant shall implement the Groundwater Monitoring Program as approved from time to time by the Secretary.

Process Water Dam Design and Construction

47. The Applicant must ensure that the Process Water Dam is designed and constructed in a manner that satisfies the design and construction criteria for the Process Water Dam as developed under the Surface Water Management Plan (see condition 42(b) above).

NOISE

Noise Management Plan

48. The Applicant shall prepare a Noise Management Plan as part of the EMP.

The Noise Management Plan shall:

- (a) identify existing and potential noise sources and their relative contribution to noise impacts from the development;
- (b) specify appropriate intervals for noise monitoring to evaluate, assess and report noise emission levels due to construction and normal operations of the development under prevailing weather conditions;
- (c) outline the methodologies to be used, including justification for monitoring intervals, weather conditions, seasonal variations, selecting locations, periods and times of measurements, the design of any noise modelling or other studies, including the means for determining the noise levels emitted by the development;
- (d) specify measures to be taken to document any higher level of impacts or patterns of temperature inversions, and detail actions to quantify and ameliorate enhanced impacts if they occur;

- (e) provide details of noise amelioration measures, including measures to be used to reduce the impact
 of intermittent, low frequency and tonal noise (including truck reversing alarms) and reactive
 management responses for particular noise sources; and
- (f) contingency measures to be implemented should noise complaints be received.
- (g) provision for the notification of adjoining property owners of the commencement and duration of works adjoining the boundary;
- (h) construction of temporary noise shielding to residences affected by short-term noise impacts, including the bund recommended under Modification 2, and include an assessment of the effectiveness of this measure in reducing noise levels; and
- (i) include a noise reduction strategy for typical operations to ensure the noise levels from these operations do not exceed the noise criteria specified in Condition 47.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

Noise Operating Conditions

49. The Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 1 at any residence on privately-owned land.

Table 1: Operational noise criteria dB(A)

Receiver	Day (7am-6pm) Monday to Saturday L _{Aeq (15 min)}	6am-7am Monday to Saturday L _{A1 (1 min)}	6am-7am Monday to Saturday L _{Aeq (15 min)}
Receiver B	44	50	40
All other receivers	43	50	40

^aThe Noise Assessment Locations referred to in Table 1 are shown in Appendix 2

Noise generated by the development is to be measured in accordance with the relevant requirements of the *NSW Industrial Noise Policy* (as may be updated or replaced from time-to-time).

However, these criteria do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement."

- 47(a) The excavator to be used is to be fitted with acoustic mufflers to achieve a noise level of approximately 76dB(A) when measured at 7 metres.
- The on-site generator is to be fitted with an acoustic enclosure to ensure that noise levels less than 44dB(A) at 30m are achieved.
- 47(c) A noise compliance investigation is to undertaken within one month of the installation of the equipment to demonstrate compliance with the noise level limits stated in Conditions 47(a) and 47(b). The results of the compliance investigation are to be provided for the approval of the Secretary within 14 days of the completion of the investigations.
- 47(d) The Applicant must ensure works associated with atypical operations, as described in Modification 2, only occur:
 - (a) for a maximum of 24 days in a year, and only between 8 am to 5 pm on those days, Monday to Saturday;
 - (b) after an investigation of options for avoiding multiple atypical operations at any one time so as to limit noise levels at affected receptors, and the outcomes of this investigation are detailed in the Noise Management Plan; and

(c) at least 24 hours after notifying potentially affected receptors, with such notification to include information on the duration and extent of works, the likely noise to be experienced, and a contact telephone number.

TRAFFIC AND TRANSPORT

Road Noise Management Plan

50. The Applicant shall ensure that traffic noise from the development does not exceed (L Aeq(1 hr)) 55 dB(A) between 7 am and 10 pm and 50 dB(A) between 10 pm and 7 am at any affected residence under adverse weather conditions. Where ambient Leq levels already exceed these criteria, the Applicant shall ensure that traffic noise from the development does not result in an increase of more than 2 dB(A).

Note: Adverse weather conditions means in the presence of winds up to 3 metres per second and/or temperature inversions of up to 4 degrees Centigrade per 100 metres.

51. The Applicant shall prepare a Road Noise Management Plan as part of the EMP. The Plan shall document measures to be taken to meet the criteria, including a monitoring, reporting and response program; and methods for educating drivers in the reduction of road noise impacts.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

Truck movements

52. The Applicant must ensure that truck movements associated with the development do not exceed 70 outbound and 70 inbound per day and does not exceed 10 outbound and 10 inbound per hour.

Traffic Management Plan

- 50A. The Applicant must prepare a Traffic Management Plan that must:
 - (a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary;
 - (b) be prepared in consultation with TfNSW and Council;
 - (c) include a Drivers' Code of Conduct that contains procedures to ensure that drivers:
 - (i) adhere to posted speed limits or other required travelling speeds;
 - (ii) adhere to designated transport routes;
 - (iii) implement safe and quiet driving practices; and
 - (iv) minimise potential conflict with school buses.
 - (d) describe the measures to be put in place to ensure compliance with the Drivers' Code of Conduct; and
 - (e) propose measures to minimise the transmission of dust and tracking of material onto the surface of public roads from vehicles exiting the site.

The Applicant must submit the Traffic Management Plan as approved by the Secretary by the 31 October 2021, or otherwise agreed by the Secretary. The Applicant must implement the Traffic Management Plan as approved by the Secretary.

Section 94A Contributions

53. The Applicant shall pay to Council a contribution under Section 94A of the Act at the rate of \$0.65 per tonne of all extracted/ processed material transported from the subject site.

The following conditions apply to the payment of this contribution:

- (A) The contribution will be calculated and paid monthly from the date of this Consent;
- (b) The contribution will be indexed and adjusted annually as from the date of Consent, in accordance with the Consumer Price Index. This adjustment will be applicable to each financial year for the duration of this Consent and shall take effect from and including July each year, commencing 1 July 2000;
- (c) On or before the fourteenth day of each month for the duration of the Consent, the Applicant shall deliver to Council weighbridge records showing the true quantities of extracted/processed material transported from the property during the immediately proceeding month and the Council will then, as soon as it can conveniently do so, issue an invoice to the Applicant, to be paid within fourteen days;
- (d) The Council has the right to inspect and have the original records relating to any extraction/processing material, including numbers and types of laden trucks, trailers and load quantities transported from the property audited, at any time when Council makes a written request to do so:
- (e) The Council will pay all the said contribution payments into a specially identified account for payment towards the rehabilitation, restoration, repair and/or maintenance of Old Northern and Wisemans Ferry Roads within the Baulkham Hills Shire boundary.

Note: This condition has been imposed in accordance with Council's Contributions Plan No. 6 – Extractive Industries. A copy of this plan may be inspected at the Customer Service Centre, Council's Administration Complex, corner of Carrington and Showground Roads, Castle Hill, between the hours of 8:30 am and 4:30 pm weekdays.

FLORA AND FAUNA

54. Deleted.

- 55. The Applicant shall not clear the strip of remnant vegetation along the southern fence line (Old Northern Road) and the vegetation to the north of the site entrance (Roberts Road) containing Blue Mountains Mahogany (*Eucalyptus notabilis*). This area shall be fenced off to prevent vehicles entering the area.
- 56. In construction of the bund walls at the corner of Roberts Road and Old Northern Road, the Applicant shall minimise disturbance to existing native vegetation.

Flora and Fauna Management Plan

- 57. The Applicant shall prepare a Flora and Fauna Management Plan as part of the EMP. The Plan shall be prepared in consultation with National Parks and Wildlife Service and Council, and shall:
 - (a) describe the characteristics and location of species, populations and communities that the proposal may impact upon;
 - (b) consider the feasibility and practicality of salvaging trees removed for the development for relocation to conserved or rehabilitated areas, for the purposes of reconstructing habitat for ground fauna
 - (c) contain a program for the active management and maintenance of all conserved and rehabilitated vegetation (as detailed in the EIS and required under this Consent) including consideration of:
 - post-extraction land use objectives for the site;
 - utilisation of local endemic species or species naturally occurring in the Maroota area;
 - planting around the conservation area to further buffer this area and enhance its long term viability as a bushland ecosystem;

- connection of existing areas and future areas of revegetation to form a network of wildlife corridors throughout site and to adjoining lands to facilitate species recruitment through natural immigration;
- provision of rocks of varying sizes to provide refuge and basking sites for herpetofauna;
- fencing of revegetated areas to prohibit grazing by stock; and
- provision of artificial nest boxes for a range of arboreal fauna.
- (d) mitigation measures to be implemented should operations compromise the significant flora and fauna communities identified in the EIS;
- (e) an ongoing monitoring program of the existing and proposed revegetated areas to assess their floristical structure and diversity, resilience and robustness to disturbance, and fauna species diversity. The information obtained from the monitoring shall be used to guide future revegetation and management efforts; and
- (f) include detailed performance and completion criteria for evaluating the performance of the flora and fauna management measures and rehabilitation of the site, including triggers for any necessary remedial action.
- 58. The Applicant shall maintain the revegetated areas for the duration of the Consent. Maintenance may include:
 - replanting failed or unsatisfactory areas
 - repairing erosion problems
 - fire management fire suppression or fire encouragement
 - pest and weed control
 - control of feral animal populations
 - · maintain and repair fencing
 - fertiliser application
 - watering plants in drier areas, especially in the establishment phase
 - application of lime or gypsum to control pH and improve soil structure.

HERITAGE

59. If, during the development, the Applicant becomes aware of any heritage or archaeological material, all work likely to affect the material shall cease immediately and the relevant authorities consulted about an appropriate course of action prior to recommencement of work. The relevant authorities may include Heritage NSW, and the Local Aboriginal Land Councils. Any necessary permits or consents shall be obtained and complied with prior to recommencement of work.

LANDSCAPE AND REHABILITATION

Rehabilitation Objectives

60. The Applicant shall rehabilitate the site in a manner that is generally consistent with the final landform designs in Appendix 1, to the satisfaction of the Secretary. All rehabilitation must comply with the objectives in Table 1:

Table 1: Rehabilitation Objectives

Feature	Objective
Site (as a whole)	 Safe, stable and non-polluting Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land
Surface Infrastructure	Decommissioned and removed, unless the Secretary agrees otherwise
	December and removed, unless the occietary agrees otherwise

Quarry Pit Floor	Landscaped and revegetated using improved pasture species, native trees and understorey species
Final Void	Minimise the height and slope of batters
	Minimise the drainage catchment
Community	Ensure public safety
	Minimise the adverse socio-economic effects of quarry closure

Progressive Rehabilitation

59. The Applicant shall rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim stabilisation measures must be implemented where reasonable and feasible to control dust emissions in disturbed areas that are not active and which are not ready for final rehabilitation.

Note: It is accepted that parts of the site that are progressively rehabilitated may be subject to further disturbance in future.

Landscape and Rehabilitation Management Plan

- 60. The Applicant shall prepare a Landscape and Rehabilitation Management Plan for the development to the satisfaction of the Secretary. This plan must:
 - (a) be submitted to the Secretary for approval by 30 June 2017, unless otherwise agreed by the Secretary;
 - (b) provide details of the conceptual final landform and associated land uses for the site;
 - (c) describe the short, medium and long-term measures that would be implemented to ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this consent:
 - (d) include a detailed description of the measures that would be implemented over the next 3 years (to be updated for each 3 year period following the 3 years covered by the initial approval of the plan) including the procedures to be implemented for:
 - maximising the salvage of environmental resources within the approved disturbance area for beneficial reuse;
 - protecting vegetation and fauna habitat outside the approved disturbance area on-site;
 - minimising the impacts on native fauna;
 - landscaping the site to minimise visual and lighting impacts:
 - reviewing improved pasture species and application rates;
 - controlling weeds and feral pests;
 - controlling erosion;
 - controlling access; and
 - bushfire management;
 - (e) include a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;
 - (f) include a mass balance calculation to ensure that appropriate volumes of material are available to implement the final landform as described in this plan;
 - (g) provide for the construction and maintenance of the process water dam in accordance with the approved design and construction criteria (see Condition 42(b));
 - (h) identify the potential risks to the successful rehabilitation of the site, and include a description of the contingency measures that would be implemented to mitigate these risks; and
 - (i) include details of who would be responsible for monitoring, reviewing, and implementing the plan.

The Applicant shall implement the management plan as approved from time to time by the Secretary

Conservation and Rehabilitation Bond

- 61. By 31 December 2017, the Applicant shall lodge a Conservation and Rehabilitation Bond with the Department to ensure that the management of biodiversity and the rehabilitation of the site are implemented in accordance with the performance and completion criteria set out in the Flora and Fauna Management Plan and Landscape and Rehabilitation Plan. The sum of the bond shall be determined by:
 - (a) calculating the cost of rehabilitating the site taking into account the likely surface disturbance over the following 3 years of quarrying operations; and
 - (b) employing a suitably qualified quantity surveyor or other expert to verify the calculated costs, to the satisfaction of the Secretary.

Note: If the rehabilitation of the site is completed to the satisfaction of the Secretary, then the Secretary will release the bond. If the rehabilitation of the site is not completed to the satisfaction of the Secretary, then the Secretary will call in all or part of the bond, and arrange for the completion of the relevant works.

- 62. Within 3 months of each Independent Environmental Audit (see Condition 70), the Applicant shall review, and if necessary revise, the sum of the Conservation and Rehabilitation Bond to the satisfaction of the Secretary. This review must consider the:
 - (a) effects of inflation;
 - (b) likely cost of rehabilitating the site (taking into account the likely surface disturbance over the next 3 years of the development); and
 - (c) performance of the implementation of the rehabilitation of the site to date.

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

- 63. The Applicant shall prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:
 - (a) be submitted to the Secretary for approval by 30 June 2016;
 - (b) provide the strategic framework for environmental management of the development;
 - (c) identify the statutory approvals that apply to the development;
 - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;
 - (e) describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the development;
 - respond to any non-compliance;
 - · respond to emergencies; and
 - (f) include:
 - copies of any strategies, plans and programs approved under the conditions of this consent;
 and
 - a clear plan depicting all the monitoring required to be carried out in relation to the development.

The Environmental Management Strategy is to include a copy of the sequence of extraction as updated under Modification 2, with all dam areas on the site clearly labelled and described.

The Applicant shall implement the approved strategy as approved from time to time by the Secretary.

Adaptive Management

64. The Applicant shall assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in this Consent. Any exceedance of these criteria and/or performance measures constitutes a breach of this Consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.

Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity:

- (a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur:
- (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and
- (c) implement remediation measures as directed by the Secretary, to the satisfaction of the Secretary.

Management Plan Requirements

- 65. The Applicant shall ensure that the management plans required under this Consent are prepared in accordance with any relevant guidelines, and include:
 - (a) detailed baseline data;
 - (b) a description of:
 - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
 - any relevant limits or performance measures/criteria;
 - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;
 - (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
 - (d) a program to monitor and report on the:
 - impacts and environmental performance of the development;
 - effectiveness of any management measures (see c above);
 - (e) a contingency plan to manage any unpredicted impacts and their consequences;
 - (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
 - (g) a protocol for managing and reporting any:
 - incidents;
 - complaints;
 - non-compliances with statutory requirements; and
 - exceedances of the impact assessment criteria and/or performance criteria; and
 - (h) a protocol for periodic review of the plan.

Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

Annual Review

- 66. By the end of March each year (or as otherwise agreed by the Secretary), the Applicant shall review the environmental performance of the development for the previous calendar year to the satisfaction of the Secretary. This review must:
 - (a) describe the development (including any rehabilitation) that was carried out in the past calendar year, and the development that is proposed to be carried out over the current calendar year;
 - (b) include a comprehensive review of the monitoring results and complaints records of the development over the past year, which includes a comparison of these results against the:

- relevant statutory requirements, limits or performance measures/criteria;
- monitoring results of previous years; and
- relevant predictions in the EIS, Modification 1 and Modification 2;
- (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- (d) identify any trends in the monitoring data over the life of the development;
- (e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
- (f) describe what measures will be implemented over the next year to improve the environmental performance of the development.

Revision of Strategies, Plans and Programs

- 67. Within 3 months of the submission of:
 - (a) an annual review under Condition 66 above:
 - (b) an incident report under Condition 68 below;
 - (c) an audit report under Condition 70 below; or
 - (d) any modification to the conditions of this Consent (unless the conditions require otherwise), the Applicant shall review, and if necessary revise, the strategies, plans, and programs required under this Consent to the satisfaction of the Secretary.

Where this review leads to revisions in any such document, then within 4 weeks of the review, unless the Secretary agrees otherwise, the revised document must be submitted to the Secretary for approval.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.

REPORTING AND AUDITING

Incident Notification

68. The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.

Non-Compliance Notification

68A. Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

Regular Reporting

69. The Applicant shall provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this Consent.

INDEPENDENT ENVIRONMENTAL AUDIT

- 70. Every 3 years from the date of this consent and at the completion of works under this consent, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
 - (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
 - (b) include consultation with the relevant agencies;
 - (c) assess the environmental performance of the development and assess whether it is complying with the requirements in this Consent and any relevant EPL (including any assessment, plan or program required under these approvals);
 - (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and
 - (e) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any assessment, plan or program required under the abovementioned approvals.

Note: This audit team must be led by a suitably qualified auditor and include experts in any field specified by the Secretary.

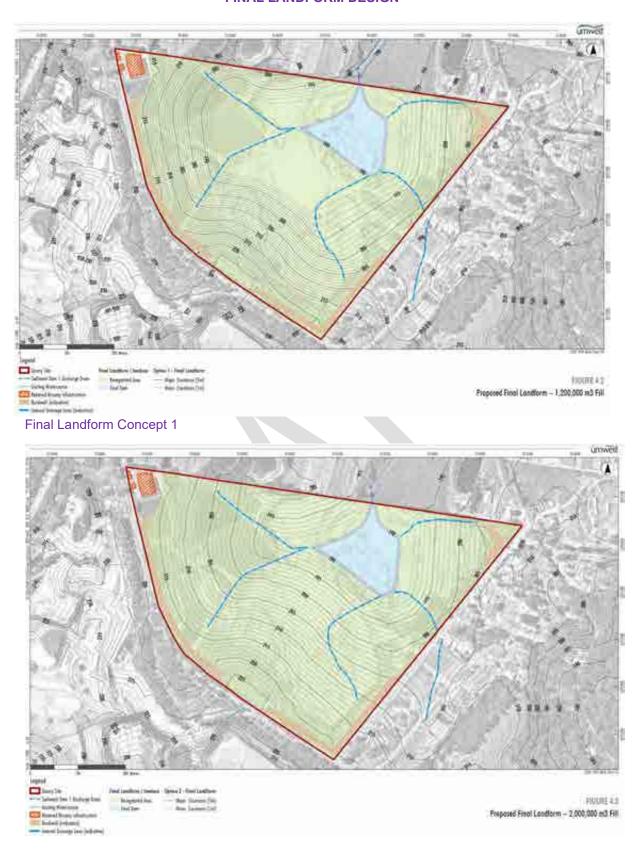
71. Within 6 weeks of the completion of this audit, unless the Secretary agrees otherwise, the Applicant shall submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report.

ACCESS TO INFORMATION

- 72. By 30 June 2016 the Applicant shall:
 - (a) make copies of the following publicly available on its website:
 - the documents identified in Condition 2(a) above;
 - current statutory approvals for the development;
 - approved strategies, plans and programs required under the conditions of this Consent;
 - a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this Consent, or any approved plans and programs;
 - a complaints register, which is to be updated monthly;
 - the annual reviews of the development (for the last 5 years, if applicable);
 - any independent environmental audit of the development, and the Applicant's response to the recommendations in any audit;
 - any other matter required by the Secretary; and
 - (b) keep this information up-to-date,

to the satisfaction of the Secretary.'

APPENDIX 1 FINAL LANDFORM DESIGN



Final Landform Concept 2

New South Wales

Department of Planning, Industry and Environment

APPENDIX 2 RECEIVER LOCATION PLAN





Appendix B Environmental **Protection Licence** 6535



Licence - 6535

Licence Details		
Number:	6535	
Anniversary Date:	12-March	

Licensee

HB MAROOTA PTY LTD

PO BOX 355

GLENORIE NSW 2157

Premises

HB MAROOTA PTY LTD

CNR ROBERTS & OLD NORTHERN ROADS

MAROOTA NSW 2756

Scheduled Activity

Crushing, grinding or separating

Extractive activities

Waste disposal (application to land)

Fee Based Activity	<u>Scale</u>
Crushing, grinding or separating	> 100000-500000 T annual processing capacity
Extractive activities	> 100000-500000 T annually extracted or processed
Waste disposal by application to land	Any capacity

Contact Us
NSW EPA
6 Parramatta Square
10 Darcy Street
PARRAMATTA NSW 2150
Phone: 131 555
Email: info@epa.nsw.gov.au
Locked Bag 5022
PARRAMATTA NSW 2124



Licence - 6535

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Licence - 6535

Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).



Licence - 6535

The EPA publication "A Guide to Licensing" contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

HB MAROOTA PTY LTD
PO BOX 355
GLENORIE NSW 2157

subject to the conditions which follow.



Licence - 6535

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Crushing, grinding or separating	Crushing, grinding or separating	> 100000 - 500000 T annual processing capacity
Extractive activities	Extractive activities	> 100000 - 500000 T annually extracted or processed
Waste disposal (application to land)	Waste disposal by application to land	Any capacity

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
HB MAROOTA PTY LTD
CNR ROBERTS & OLD NORTHERN ROADS
MAROOTA
NSW 2756
LOT 1 DP 228308, LOT 2 DP 228308, LOT 2 DP 312327

A2.2 The premises location is shown on the map below.



Licence - 6535



A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.
- 2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

- P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.
- P1.2 The following points referred to in the table below are identified in this licence for the purposes of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises.

Noise/Weather



Licence - 6535

EPA identi- fication no.	Type of monitoring point	Location description
1	Noise monitoring	100 Old telegraph Road, Maroota
2	Noise monitoring	35 Roberts Road, Maroota
3	Noise monitoring	4471 Northern Road, Maroota
4	Noise monitoring	11 Roberts Road, Maroota
5	Noise monitoring	4460 Old Northern Road, Maroota
6	Noise monitoring	59 Roberts Road, Maroota
7	Noise monitoring	45 Roberts Road, Maroota

3 Limit Conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Waste

- L2.1 The licensee must not:
 - (a) receive more than 320,000 tonnes of VENM and ENM (in total) at the site in any calendar year;
 - (b) import more than 3 million tonnes of VENM and ENM to the site;
 - (c) import VENM and ENM beyond 31 May 2030.
- L2.2 No other materials classified as waste under the NSW EPA's Waste Classification Guidelines 2009 (or its latest version) may be received or processed on the site, except as expressly permitted in this licence or a specific resource recovery order or exemption under the Protection of the Environment Operations (Waste) Regulation 2014.

L3 Noise limits

L3.1 Noise generated at the premises that is measured at each noise monitoring point established under this licence must not exceed the noise levels specified in Column 4 of the table below for that point during the corresponding time periods specified in Column 1 when measured using the corresponding measurement parameters listed in Column 2.

POINT 1,3,4,5,6,7



Licence - 6535

Time period	Measurement parameter	Measurement frequency	Noise level dB(A)
Day	LAeq (15 minute)	-	43

POINT 2

Time period	Measurement parameter	Measurement frequency	Noise level dB(A)
Day	LAeq (15 minute)	-	44

L3.2 For the purpose of condition L3.1:

- a) Day means the period from 7am to 7pm Monday to Saturday and the period from 8am to 6pm Sunday and public holidays.
- L3.3 a) The noise limits set out in Condition L3.1 apply under the meteorological conditions shown in the table below
 - b) For those meteorological conditions not referred to in Condition L3.3(a), the noise limits that apply are the noise limits in Condition L3.1 plus 5dB.

Assessment Period	Meteorological Conditions
Day	Stability Categories A, B, C, D and E with wind speeds up to and including 3m/s at 10m above ground level.

L3.4 For the purpose of condition L3.3:

- a) The meteorological conditions are to be determined from meteorological data obtained from a meteorological weather station.
- b) Stability category shall be determined using the following method from fact Sheet D of the Noise Policy for Industry (NSW EPA, 2017):
 - i. Pasquill-Gifford stability classification scheme (section D1.3.1).

L3.5 To assess compliance:

- a) with LAeq (15 minutes) noise limits in condition L3.1, the noise measurement equipment must be located:
- (i) approximately on the property boundary, where any residence is situated 30 metres or less from the property boundary closest to premises: or where applicable,
- (ii) in an area within 30 metres of a residence facade, but not closer than 3 metres where any residence on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable,
- (iii) in an area within 50 metres of the boundary of a National Park or Nature Reserve,
- (iv) at any other location identified in condition L3.1
- b) with the LAeq (15 minutes) noise limits in condition L3.1, the noise measurement equipment must be located:
- (i) at the reasonably most affected point at a location where there is no residence at the location; or,
- (ii) at the reasonably most affected point within an area at a location prescribed by condition L3.5(a).



Licence - 6535

- L3.6 A non-compliance of Condition L3.1 will still occur where noise generated from the premises is measured in excess of the noise limit at a point other than the reasonably most affected point at the locations referred to in condition L3.5 (a) or L3.5 (b).
 - **Notes to L3.5 and L3.6:** The reasonably most affected point is a point at a location or within an area at a location experiencing or expected to experience the highest sound pressure level from the premises.
- L3.7 For the purpose of determining the noise generated from the premises, the modifying factor corrections in Table C1 in Fact Sheet C of the
 - *Noise Policy for Industry* (NSW EPA, 2017) may be applied, if appropriate, to the noise measurements by the noise monitoring equipment.
- L3.8 Noise measurement must not be undertaken where rain or wind speed at microphone level will affect the acquisition of valid measurements.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

- O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
 - a) must be maintained in a proper and efficient condition; and
 - b) must be operated in a proper and efficient manner.

O3 Dust

- O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.
- O3.2 All loaded trucks entering or leaving the premises must have their loads covered.

O4 Other operating conditions



Licence - 6535

O4.1 The licensee must prevent any tracking of mud on to public roads by vehicles leaving the premises.

5 Monitoring and Recording Conditions

M1 Monitoring records

- M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.
- M1.2 All records required to be kept by this licence must be:
 - a) in a legible form, or in a form that can readily be reduced to a legible form;
 - b) kept for at least 4 years after the monitoring or event to which they relate took place; and
 - c) produced in a legible form to any authorised officer of the EPA who asks to see them.
- M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
 - a) the date(s) on which the sample was taken;
 - b) the time(s) at which the sample was collected;
 - c) the point at which the sample was taken; and
 - d) the name of the person who collected the sample.

M2 Recording of pollution complaints

- M2.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.
- M2.2 The record must include details of the following:
 - a) the date and time of the complaint;
 - b) the method by which the complaint was made;
 - c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
 - d) the nature of the complaint;
 - e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
 - f) if no action was taken by the licensee, the reasons why no action was taken.
- M2.3 The record of a complaint must be kept for at least 4 years after the complaint was made.
- M2.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M3 Telephone complaints line

M3.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.



Licence - 6535

- M3.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.
- M3.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

6 Reporting Conditions

R1 Annual return documents

- R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
 - 1. a Statement of Compliance,
 - 2. a Monitoring and Complaints Summary,
 - 3. a Statement of Compliance Licence Conditions,
 - 4. a Statement of Compliance Load based Fee,
 - 5. a Statement of Compliance Requirement to Prepare Pollution Incident Response Management Plan,
 - 6. a Statement of Compliance Requirement to Publish Pollution Monitoring Data; and
 - 7. a Statement of Compliance Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

- R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.
- R1.3 Where this licence is transferred from the licensee to a new licensee:
 - a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
 - b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.
- R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
 - a) in relation to the surrender of a licence the date when notice in writing of approval of the surrender is given; or
 - b) in relation to the revocation of the licence the date from which notice revoking the licence operates.
- R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').
- R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.
- R1.7 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints



Licence - 6535

Summary must be signed by:

- a) the licence holder; or
- b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R2 Notification of environmental harm

- R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.
- R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which they became aware of the incident.
- Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R3 Written report

- R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
 - a) where this licence applies to premises, an event has occurred at the premises; or
 - b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
 - and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.
- R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.
- R3.3 The request may require a report which includes any or all of the following information:
 - a) the cause, time and duration of the event;
 - b) the type, volume and concentration of every pollutant discharged as a result of the event;
 - c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
 - d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort:
 - e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
 - f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event: and
 - g) any other relevant matters.
- R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not



Licence - 6535

satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

7 General Conditions

- G1 Copy of licence kept at the premises or plant
- G1.1 A copy of this licence must be kept at the premises to which the licence applies.
- G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.
- G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.



Licence - 6535

Dictionary

General Dictionary

3DGM [in relation to a concentration limit] Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples

Act Means the Protection of the Environment Operations Act 1997

activity Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment

Operations Act 1997

actual load Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009

AM Together with a number, means an ambient air monitoring method of that number prescribed by the

Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.

AMG Australian Map Grid

anniversary date The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a

licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the

commencement of the Act.

annual return Is defined in R1.1

Approved Methods Publication Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009

assessable pollutants

Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009

BOD Means biochemical oxygen demand

CEM Together with a number, means a continuous emission monitoring method of that number prescribed by

the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.

COD Means chemical oxygen demand

composite sample Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples

collected at hourly intervals and each having an equivalent volume.

cond. Means conductivity

environment Has the same meaning as in the Protection of the Environment Operations Act 1997

environment protection legislation Has the same meaning as in the Protection of the Environment Administration Act 1991

EPA Means Environment Protection Authority of New South Wales.

fee-based activity classification

Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.

(Contract) (Contract) (Contract)

general solid waste Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act

(non-putrescible) 199



Licence - 6535

Licence - 6535			
flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.		
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997		
grab sample	Means a single sample taken at a point at a single time		
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997		
licensee	Means the licence holder described at the front of this licence		
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009		
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997		
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997		
MBAS	Means methylene blue active substances		
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997		
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997		
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997		
O&G	Means oil and grease		
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.		
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.		
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997		
premises	Means the premises described in condition A2.1		
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997		
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence		
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.		
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997		
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997		

Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act

Sampling and Analysis of Air Pollutants in New South Wales.

Together with a number, means a test method of that number prescribed by the Approved Methods for the

special waste

TM



Licence - 6535

TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste
Wellhead	Has the same meaning as in Schedule 1 to the Protection of the Environment Operations (General) Regulation 2021.

Mr Nigel Sargent

Environment Protection Authority

(By Delegation)

Date of this edition: 14-June-2000

Licence varied by notice 1627580 issued on 16-Jun-2023



Licence - 6535

End	Notes
1	Licence varied by change to Common Name field, issued on 15-Oct-2001, which came into effect on 15-Oct-2001.
2	Licence transferred through application 140865, approved on 29-Oct-2001, which came into effect on 24-Sep-2001.
3	Licence varied by notice 1012523, issued on 21-May-2002, which came into effect on 15-Jun-2002.
4	Licence varied by correction to EPA Sub Region data record, issued on 20-Sep-2002, which came into effect on 20-Sep-2002.
5	Licence transferred through application 141899, approved on 23-Apr-2003, which came into effect on 21-Apr-2003.
6	Licence varied by notice 1034428, issued on 13-Dec-2004, which came into effect on 07-Jan-2005.
7	Licence varied by notice 1081877, issued on 10-Mar-2008, which came into effect on 10-Mar-2008.
8	Licence varied by Change to schedule 1, issued on 07-May-2008, which came into effect on 07-May-2008.
9	Condition A1.3 Not applicable varied by notice issued on <issue date=""> which came into effect on <effective date=""></effective></issue>
10	Licence varied by notice 1111632, issued on 01-Apr-2010, which came into effect on 01-Apr-2010.
11	Licence varied by notice 1527501 issued on 09-Mar-2015
12	Licence varied by notice 1529566 issued on 03-Jun-2015
13	Licence varied by notice 1603067 issued on 26-Nov-2020



Appendix C

Water Licence Conditions

NSW Office of Water

sydney South Coast Region Po Box 3720 10 Valentine Avenue Parramatta NSW 2124

Phone: (02

) 82817777

BORE LICENSE CERTIFICATE UNDER SECTION 115 OF THE WATER ACT, 1912

10BL158808



Maroota Super Fund Pty Ltd P O Box 1778 Gosford NSW 2250

LICENSE NUMBER
10BL158808
DATE LICENSE VALID FROM
12-Nov-1998
DATE LICENSE VALID TO
PERPETUITY
FEE
\$0.00
ABN 47661556763 GST NIL

	LOCATION OF WORKS		
Portion(s) or Lot/Section/DP	PARISH	COUNTY	
1//228308	Maroota	Cumberland	

PT84MW1 & PT84MW5

TYPE OF WORKS PURPOSE(S) FOR WHICH WATER MAY BE USED

Bore Monitoring Bore

CONDITIONS APPLYING TO THIS LICENSE ARE

As shown on the attached Condition Statement

NSW Office of Water

CONDITIONS STATEMENT REFERRED TO ON 10BL158808 ISSUED UNDER PART V OF THE WATER ACT, 1912 ON 12-Nov-1998

- (1) THE LICENCE SHALL LAPSE IF THE WORK IS NOT COMMENCED AND COMPLETED WITHIN THREE YEARS OF THE DATE OF THE ISSUE OF THE LICENCE.
- (2) THE LICENSEE SHALL WITHIN TWO MONTHS OF COMPLETION OR AFTER THE ISSUE OF THE LICENSE IF THE WORK IS EXISTING, FURNISH TO NSW OFFICE OF WATER:-
- (A) DETAILS OF THE WORK SET OUT IN THE ATTACHED FORM "A" (MUST BE COMPLETED BY A DRILLER).
- (B) A PLAN SHOWING ACCURATELY THE LOCATION OF THE WORK, IN RELATION TO PORTION AND PROPERTY BOUNDARIES.
- (C) A ONE LITRE WATER SAMPLE FOR ALL LICENCES OTHER THAN THOSE FOR STOCK, DOMESTIC, TEST BORES AND FARMING PURPOSES.
- (D) DETAILS OF ANY WATER ANALYSIS AND/OR PUMPING TESTS.
- (3) THE LICENSEE SHALL ALLOW NSW OFFICE OF WATER OR ANY PERSON AUTHORISED BY IT, FULL AND FREE ACCESS TO THE WORKS, EITHER DURING OR AFTER CONSTRUCTION, FOR THE PURPOSE OF CARRYING OUT INSPECTION OR TEST OF THE WORKS AND ITS FITTINGS AND SHALL CARRY OUT ANY WORK OR ALTERATIONS DEEMED NECESSARY BY THE DEPARTMENT FOR THE PROTECTION AND PROPER MAINTENANCE OF THE WORKS, OR THE CONTROL OF THE WATER EXTRACTED AND FOR THE PROTECTION OF THE QUALITY AND THE PREVENTION FROM POLLUTION OR CONTAMINATION OF SUB-SURFACE WATER.
- (4) IF DURING THE CONSTRUCTION OF THE WORK, SALINE OR POLLUTED WATER IS ENCOUNTERED ABOVE THE PRODUCING AQUIFER, SUCH WATER SHALL BE SEALED OFF BY:-
- (A) INSERTING THE APPROPRIATE LENGTH(S) OF CASING TO A DEPTH SUFFICIENT TO EXCLUDE THE SALINE OR POLLUTED WATER FROM THE WORK.
- (B) CEMENTING BETWEEN THE CASING(S) AND THE WALLS OF THE BORE HOLE FROM THE BOTTOM OF THE CASING TO GROUND LEVEL.

ANY DEPARTURE FROM THESE PROCEDURES MUST BE APPROVED BY THE DEPARTMENT BEFORE UNDERTAKING THE WORK.

- (5) (A) THE LICENSEE SHALL NOTIFY NSW OFFICE OF WATER IF A FLOWING SUPPLY OF WATER IS OBTAINED. THE BORE SHALL THEN BE LINED WITH CASING AND CEMENTED AND A SUITABLE CLOSING GEAR SHALL BE ATTACHED TO THE BOREHEAD AS SPECIFIED BY NSW OFFICE OF WATER.
- (B) IF A FLOWING SUPPLY OF WATER IS OBTAINED FROM THE WORK, THE LICENSEE SHALL ONLY DISTRIBUTE WATER FROM THE BORE HEAD BY A SYSTEM OF PIPE LINES AND SHALL NOT DISTRIBUTE IT IN DRAINS, NATURAL OR ARTIFICIAL CHANNELS OR DEPRESSIONS.
- (6) IF A WORK IS ABANDONED AT ANY TIME THE LICENSEE SHALL NOTIFY NSW OFFICE OF WATER THAT THE WORK HAS BEEN ABANDONED AND SEAL OFF THE AQUIFER BY:-
- (A) BACKFILLING THE WORK TO GROUND LEVEL WITH CLAY OR CEMENT AFTER WITHDRAWING THE CASING (LINING); OR
- (B) SUCH METHODS AS AGREED TO OR DIRECTED BY NSW OFFICE OF WATER.

- (7) THE LICENSEE SHALL NOT ALLOW ANY TAILWATER/DRAINAGE TO DISCHARGE INTO OR ONTO:-
- ANY ADJOINING PUBLIC OR CROWN ROAD;
- ANY OTHER PERSONS LAND;
- ANY CROWN LAND;
- ANY RIVER, CREEK OR WATERCOURSE;
- ANY NATIVE VEGETATION AS DESCRIBED UNDER THE NATIVE VEGETATION CONSERVATION ACT
- ANY WETLANDS OF ENVIRONMENTAL SIGNIFICANCE.
- (8) WORKS USED FOR THE PURPOSE OF CONVEYING, DISTRIBUTING OR STORING WATER TAKEN BY MEANS OF THE LICENSED WORK SHALL NOT BE CONSTRUCTED OR INSTALLED SO AS TO OBSTRUCT THE REASONABLE PASSAGE OF FLOOD WATERS FLOWING INTO OR FROM A RIVER.
- (9) IF THE BORE AUTHORISED BY THIS LICENSE IS LINED WITH STEEL OR PLASTIC CASING THE INSIDE DIAMETER OF THAT CASING SHALL NOT EXCEED 220 MM.
- (10) WATER SHALL NOT BE PUMPED FROM THE BORE AUTHORISED BY THIS LICENSE FOR ANY PURPOSE OTHER THAN GROUNDWATER INVESTIGATION.
- (11) SUBJECT TO CONDITION (12) THE LICENSEE SHALL WITHIN TWO MONTHS OF THE DATE OF COMPLETION OF THE BORE AUTHORISED BY THE LICENSE,
- (1) BACKFILL IT WITH CLAY OR CEMENT TO GROUND LEVEL, AFTER WITHDRAWING ANY CASING(LINING), OR:-
- (2) RENDER IT INEFFECTIVE BY ANY OTHER MEANS ACCEPTABLE TO THE DEPARTMENT.
- (12) CONDITION (11) SHALL HAVE NO FORCE OR EFFECT IF:-
- (1) AT THE RELEVANT TIME THERE IS WITH NSW OFFICE OF WATER, AN APPLICATION IN RESPECT OF WHICH THE DEPARTMENT HAS NOT MADE A DECISION TO CONVERT THE GROUNDWATER INVESTIGATION BORE INTO A PRODUCTION BORE; OR
- (2) THE LICENSEE HAS COMPLETED THE BORE FOR THE PURPOSE OF MEASURING WATER LEVELS OR WATER QUALITY BY THE ADDITION OF CASING WITH A DIAMETER NOT EXCEEDING 220MM.

End Of Conditions

Information about a water licence or approval

Use this tool to search for information about water licences and approvals issued under the *Water Act* 1912 or *Water Management Act* 2000.

Select the type of licence or approval and enter the licence or approval number:

- Water access licence (WAL): a WAL number starts with the letters 'WAL' followed by several numbers; a WAL also has a reference number that starts with a two digit number, followed by 'AL' and then several numbers.
- **1912 water licence:** a water licence number starts with a two digit number, followed by a two letter code and then several numbers. Note: a PT reference number cannot be entered.
- Approval: an approval number starts with a two digit number, followed by a two letter code (WA, UA, CA or FW) and then several numbers.

Search for information about either a:

- Water access licence (WAL) issued under the Water Management Act 2000
- Approval issued under the Water Management Act 2000

Find out if a Water Act 1912 licence has been converted

Water licence conversion status

Nater Licence Number	10 ▼	BL ▼	158808
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Notes:

Water Act 1912 licences and authorities are being converted to water access licences and approvals under the Water Management Act 2000 as water sharing plans commence (see <u>licence conversion</u>).

If a *Water Act 1912* licence has been converted, the search results will display the water access licences and approvals that have been created. Water access licences are registered in the <u>Water Access Licence Register</u> administered by Land and Property Information. Those water access licences that do not display a WAL number in the search results are still to have their licence details confirmed and completed.

Due to privacy laws very little information on *Water Act 1912* licence and authorities can be made freely available. Full information for a particular licence or authority can be obtained if required for conveyancing by applying to the NSW Office of Water. See <u>legal searches for water related interests</u>.

≪Previous Search Print Export

Search Results

The licence 10BL158808 has not been converted and is not subject to a water sharing plan.

Disclaimer: The NSW Office of Water does not warrant the data is current nor does it warrant that the data or the data capturing processes are free from corruption or error.

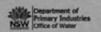
Privacy: The information provided is limited to meet the requirements of section 57 of the *Privacy and Personal Information Act 1998*.

Exporting and printing: Search results show a maximum of 50 rows per page. Search results can only be printed page by page.

More information: Should you require further information or technical assistance, please submit your request to water.enquiries@dpi.nsw.gov.au or contact 1800 353 104.

Sydney South Coast Region Po Box 3720 10 Valentine Avenue Parramatta NSW 2124

BORE LICENSE CERTIFICATE UNDER SECTION 115 OF THE WATER ACT, 1912 10BL605696



Phone: (02) 82817777

Maroota Super Fund Pty Ltd P O Box 1778 Gosford NSW 2250

LICENSE NUMBER	
10BL605696	
DATE LICENSE VALID FROM	
13-Jan-2015	
DATE LICENSE VALID TO	10
PERPETUITY	
FEE	
\$0.00	
RN 47661 SS6763 CST NII	

Portion(s) or Lot/Section/DP 1//228308 LOCATION OF WORKS PARISH

Maroota

COUNTY Cumberland

TYPE OF WORKS

PURPOSE(S) FOR WHICH WATER MAY BE USED

Bore

Monitoring Bore

PT84MW6

CONDITIONS APPLYING TO THIS LICENSE ARE

As shown on the attached Condition Statement

CONDITIONS STATEMENT REFERRED TO ON 10BL605696 ISSUED UNDER PART V OF THE WATER ACT, 1912 ON 13-Jan-2015

- THE LICENCE SHALL LAPSE IF THE WORK IS NOT COMMENCED AND COMPLETED WITHIN THREE YEARS OF THE DATE OF THE ISSUE OF THE LICENCE.
- (2) THE LICENSEE SHALL WITHIN TWO MONTHS OF COMPLETION OR AFTER THE ISSUE OF THE LICENSE IF THE WORK IS EXISTING, FURNISH TO NSW OFFICE OF WATER:-
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- ANY CROWN LAND;
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Information about a water licence or approval

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Select the type of licence or approval and enter the licence or approval number:

- Water access licence (WAL): a WAL number starts with the letters 'WAL' followed by several numbers; a WAL also has a reference number that starts with a two digit number, followed by 'AL' and then several numbers.
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- Approval: an approval number starts with a two digit number, followed by a two letter code (WA, UA, CA or FW) and then several numbers.

Search for information about either a:

- Water access licence (WAL) issued under the Water Management Act 2000
- Approval issued under the Water Management Act 2000

Find out if a Water Act 1912 licence has been converted

Water licence conversion status

Water Licence Number	10 ▼	BL ▼	605696
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Notes:

Water Act 1912 licences and authorities are being converted to water access licences and approvals under the Water Management Act 2000 as water sharing plans commence (see <u>licence conversion</u>).

If a *Water Act 1912* licence has been converted, the search results will display the water access licences and approvals that have been created. Water access licences are registered in the <u>Water Access Licence Register</u> administered by Land and Property Information. Those water access licences that do not display a WAL number in the search results are still to have their licence details confirmed and completed.

Due to privacy laws very little information on *Water Act 1912* licence and authorities can be made freely available. Full information for a particular licence or authority can be obtained if required for conveyancing by applying to the NSW Office of Water. See <u>legal searches for water related</u> interests.

≪Previous Search Print Export

Search Results

The licence 10BL605696 has not been converted and is not subject to a water sharing plan.

Disclaimer: The NSW Office of Water does not warrant the data is current nor does it warrant that the data or the data capturing processes are free from corruption or error.

Privacy: The information provided is limited to meet the requirements of section 57 of the *Privacy and Personal Information Act 1998*.

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More information: Should you require further information or technical assistance, please submit your request to water.enquiries@dpi.nsw.gov.au or contact 1800 353 104.

Sydney South Coast Region
Locked Bag 5123
Level 11, 10 Valentine Avenue
Parramatta NSW 2124
Phone: (18)00353104

BORE LICENSE CERTIFICATE UNDER SECTION 115 OF THE WATER ACT, 1912

10BL605795



Maroota Super Fund Pty Ltd P O Box 1778 Gosford NSW 2250 LICENSE NUMBER

10BL605795

DATE LICENSE VALID FROM

29-Aug-2016

DATE LICENSE VALID TO

PERPETUITY

FEE

\$0.00

LOCATION OF WORKS

Permission of Let-Septemble 1//228308

PARISH Maroota COUNTY Cumberland

MW 8, 9, 13

TYPE OF WORKS

PERFORMAGE WHILE WATER MAY BE USED.

Bore

Monitoring Bore

CONDITIONS APPLYING TO THIS LICENSE ARE

As shown on the attached Condition Statement

CONDITIONS STATEMENT REFERRED TO ON 10BL605795 ISSUED UNDER PART V OF THE WATER ACT, 1912 ON 29-Aug-2016

- (1) THE LICENCE SHALL LAPSE IF THE WORK IS NOT COMMENCED AND COMPLETED WITHIN THREE YEARS OF THE DATE OF THE ISSUE OF THE LICENCE.
- (2) THE LICENSEE SHALL WITHIN TWO MONTHS OF COMPLETION OR AFTER THE ISSUE OF THE LICENSE IF THE WORK IS EXISTING, FURNISH TO NSW OFFICE OF WATER:-
- (A) DETAILS OF THE WORK SET OUT IN THE ATTACHED FORM "A" (MUST BE COMPLETED BY A DRILLER).
- (B) A PLAN SHOWING ACCURATELY THE LOCATION OF THE WORK, IN RELATION TO PORTION AND PROPERTY BOUNDARIES.
- (C) A ONE LITRE WATER SAMPLE FOR ALL LICENCES OTHER THAN THOSE FOR STOCK, DOMESTIC, TEST BORES AND FARMING PURPOSES.
- (D) DETAILS OF ANY WATER ANALYSIS AND/OR PUMPING TESTS.
- (3) THE LICENSEE SHALL ALLOW NSW OFFICE OF WATER OR ANY PERSON AUTHORISED BY IT, FULL AND FREE ACCESS TO THE WORKS, EITHER DURING OR AFTER CONSTRUCTION, FOR THE PURPOSE OF CARRYING OUT INSPECTION OR TEST OF THE WORKS AND ITS FITTINGS AND SHALL CARRY OUT ANY WORK OR ALTERATIONS DEEMED NECESSARY BY THE DEPARTMENT FOR THE PROTECTION AND PROPER MAINTENANCE OF THE WORKS, OR THE CONTROL OF THE WATER EXTRACTED AND FOR THE PROTECTION OF THE QUALITY AND THE PREVENTION FROM POLLUTION OR CONTAMINATION OF SUB-SURFACE WATER.
- (4) IF DURING THE CONSTRUCTION OF THE WORK, SALINE OR POLLUTED WATER IS ENCOUNTERED ABOVE THE PRODUCING AQUIFER, SUCH WATER SHALL BE SEALED OFF BY:-
- (A) INSERTING THE APPROPRIATE LENGTH(S) OF CASING TO A DEPTH SUFFICIENT TO EXCLUDE THE SALINE OR POLLUTED WATER FROM THE WORK.
- (B) CEMENTING BETWEEN THE CASING(S) AND THE WALLS OF THE BORE HOLE FROM THE BOTTOM OF THE CASING TO GROUND LEVEL.

ANY DEPARTURE FROM THESE PROCEDURES MUST BE APPROVED BY THE DEPARTMENT BEFORE UNDERTAKING THE WORK.

- (5) (A) THE LICENSEE SHALL NOTIFY NSW OFFICE OF WATER IF A FLOWING SUPPLY OF WATER IS OBTAINED. THE BORE SHALL THEN BE LINED WITH CASING AND CEMENTED AND A SUITABLE CLOSING GEAR SHALL BE ATTACHED TO THE BOREHEAD AS SPECIFIED BY NSW OFFICE OF WATER.
- (B) IF A FLOWING SUPPLY OF WATER IS OBTAINED FROM THE WORK, THE LICENSEE SHALL ONLY DISTRIBUTE WATER FROM THE BORE HEAD BY A SYSTEM OF PIPE LINES AND SHALL NOT DISTRIBUTE IT IN DRAINS, NATURAL OR ARTIFICIAL CHANNELS OR DEPRESSIONS.
- (6) IF A WORK IS ABANDONED AT ANY TIME THE LICENSEE SHALL NOTIFY NSW OFFICE OF WATER THAT THE WORK HAS BEEN ABANDONED AND SEAL OFF THE AQUIFER BY:-
- (A) BACKFILLING THE WORK TO GROUND LEVEL WITH CLAY OR CEMENT AFTER WITHDRAWING THE CASING (LINING); OR
- (B) SUCH METHODS AS AGREED TO OR DIRECTED BY NSW OFFICE OF WATER.

- (7) THE LICENSEE SHALL NOT ALLOW ANY TAILWATER/DRAINAGE TO DISCHARGE INTO OR ONTO:-
- ANY ADJOINING PUBLIC OR CROWN ROAD;
- ANY OTHER PERSONS LAND;
- ANY CROWN LAND;
- ANY RIVER, CREEK OR WATERCOURSE:
- ANY NATIVE VEGETATION AS DESCRIBED UNDER THE NATIVE VEGETATION CONSERVATION ACT 1997:
- ANY WETLANDS OF ENVIRONMENTAL SIGNIFICANCE.
- (8) WORKS USED FOR THE PURPOSE OF CONVEYING, DISTRIBUTING OR STORING WATER TAKEN BY MEANS OF THE LICENSED WORK SHALL NOT BE CONSTRUCTED OR INSTALLED SO AS TO OBSTRUCT THE REASONABLE PASSAGE OF FLOOD WATERS FLOWING INTO OR FROM A RIVER.
- (9) IF THE BORE AUTHORISED BY THIS LICENSE IS LINED WITH STEEL OR PLASTIC CASING THE INSIDE DIAMETER OF THAT CASING SHALL NOT EXCEED 220 MM.
- (10) WATER SHALL NOT BE PUMPED FROM THE BORE AUTHORISED BY THIS LICENSE FOR ANY PURPOSE OTHER THAN GROUNDWATER INVESTIGATION.
- (11) SUBJECT TO CONDITION (12) THE LICENSEE SHALL WITHIN TWO MONTHS OF THE DATE OF COMPLETION OF THE BORE AUTHORISED BY THE LICENSE,
- (1) BACKFILL IT WITH CLAY OR CEMENT TO GROUND LEVEL, AFTER WITHDRAWING ANY CASING(LINING), OR:-
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Sydney South Coast Region
Locked Bag 5123
Level 11, 10 Valentine Avenue
Parramatta NSW 2124
Phone: (18) 00353104

BORE LICENSE CERTIFICATE
UNDER SECTION 115 OF THE WATER ACT, 1912

10BL605797



Hitchcock, Noelene Joyce 100 Old Telegraph Road Maroota NSW 2756

LICENSE NUMBER
10BL605797
DATE LICENSE VALID FROM
29-Aug-2016
DATE LICENSE VALID TO
PERPETUITY
FEE FEE
\$0.00

B//356946

LOCATION OF WORKS
PARISH
Maroota

COUNTY Cumberland

MW11

TYPE OF WORKS

PURPOSE(S) FOR WHICH WATER MAY BE USED

Bore

Monitoring Bore

CONDITIONS APPLYING TO THIS LICENSE ARE

As shown on the attached Condition Statement

CONDITIONS STATEMENT REFERRED TO ON 10BL605797 ISSUED UNDER PART V OF THE WATER ACT, 1912 ON 29-Aug-2016

- (1) THE LICENCE SHALL LAPSE IF THE WORK IS NOT COMMENCED AND COMPLETED WITHIN THREE YEARS OF THE DATE OF THE ISSUE OF THE LICENCE.
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Sydney South Coast Region
Locked Bag 5123
Level 11, 10 Valentine Avenue
Parramatta NSW 2124
Phone: (18)00353104

BORE LICENSE CERTIFICATE UNDER SECTION 115 OF THE WATER ACT, 1912

10BL605798



Martin, Glin 16 Bay Rd Arcadia NSW 2159

LICENSE NUMBER
10BL605798
DATE LICENSE VALID FROM
29-Aug-2016
DATE LICENSE VALID TO
PERPETUITY
FEE
\$0.00
THE RESERVE OF THE PERSON NAMED IN COLUMN TWO

	LOCATION OF WORKS		
Particula of Lookeston/D2	PARISH	COUNTY	
2//312327	Maroota	Cumberland	

TYPE OF WORKS

THE POSITION OF WHICH WATER MAY BE USED

Bore

Monitoring Bore

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CONDITIONS STATEMENT REFERRED TO ON 10BL605798 ISSUED UNDER PART V OF THE WATER ACT, 1912 ON 29-Aug-2016

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Sydney South Coast Region
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Parramatta NSW 2124
Phone: (18) 00353104

BORE LICENSE CERTIFICATE UNDER SECTION 115 OF THE WATER ACT, 1912

10BL605799



Martin, Leonard Stanley 16 Bay St Arcadia NSW 2159

LICENSE NUMBER
10BL605799
DATE LICENSE VALID FROM
29-Aug-2016
DATE LICENSE VALID TO
PERPETUITY
FEE
\$0.00
NAME AND ADDRESS OF THE PARTY O

LOCATION OF WORKS
PARISH
2//228308
PARISH
Maroota

MW7, 12

TYPE OF WORKS

PURPOSE(S) FOR WHICH WATER MAY BE USED

Bore

Monitoring Bore

CONDITIONS APPLYING TO THIS ENTERS ARE

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Pumping Bore Licence

COPY

NEW SOUTH WALES

CERTIFICATE OF TITLE

WATER MANAGEMENT ACT, 2000



This certificate is issued under s87B of the Water Management Act, 2000.

WARNING NOTE: INFORMATION ON THIS REGISTER IS NOT GUARANTEED

TENURE TYPE: CONTINUING

PT84PB1

HOLDER (S)

LEONARD STANLEY MARTIN

(DW AG357440)

ENCUMBRANCES

1. TERM TRANSFER: NIL

ACCESS LICENCE DETAILS

CATEGORY: AQUIFER

SHARE COMPONENT:

SHARE - 45 UNITS

WATER SOURCE - MAROOTA TERTIARY SANDS GROUNDWATER SOURCE WATER SHARING PLAN - GREATER METROPOLITAN REGION GROUNDWATER SOURCES

EXTRACTION COMPONENT:

TIMES/RATES/CIRCUMSTANCES - SUBJECT TO THE CONDITIONS OF THE WATER ACCESS LICENCE

EXTRACTION FROM - AQUIFER

EXTRACTION ZONE - WHOLE WATER SOURCE

NOMINATED WORKS:

WORK APPROVAL NUMBER(S) - 10WA114817 INTERSTATE TAGGING ZONE - NIL

CONDITIONS

LICENCE CONDITIONS FORM A PART OF THIS LICENCE AND AFFECT THE SHARE AND EXTRACTION COMPONENTS. CONDITION STATEMENTS ARE AVAILABLE FROM THE NSW OFFICE OF WATER (NOW).

NOTES

A WATER LICENCE INFORMATION SHEET IS AVAILABLE FROM THE NSW OFFICE OF WATER (NOW) AND SHOULD BE REFERRED TO IN INTERPRETING THIS LICENCE. NOW WEBSITE WWW.WATER.NSW.GOV.AU, PHONE 1800 353 104, EMAIL INFORMATION@WATER.NSW.GOV.AU

NOW REFERENCE NUMBER: 10AL114816

PREVIOUS WATER ACT LICENCE NUMBER(S): 10PT901430, 10BL159748.

**** END OF CERTIFICATE ****

Information about a water licence or approval

Use this tool to search for information about water licences and approvals issued under the *Water Act* 1912 or *Water Management Act* 2000.

Select the type of licence or approval and enter the licence or approval number:

- Water access licence (WAL): a WAL number starts with the letters 'WAL' followed by several numbers; a WAL also has a reference number that starts with a two digit number, followed by 'AL' and then several numbers.
- **1912 water licence:** a water licence number starts with a two digit number, followed by a two letter code and then several numbers. Note: a PT reference number cannot be entered.
- Approval: an approval number starts with a two digit number, followed by a two letter code (WA, UA, CA or FW) and then several numbers.

Search for information about either a:

- Water access licence (WAL) issued under the Water Management Act 2000
- Approval issued under the Water Management Act 2000

Find out if a Water Act 1912 licence has been converted

Water licence conversion status

Water Licence Number 10 ▼ BL ▼ 159748

Notes:

Water Act 1912 licences and authorities are being converted to water access licences and approvals under the Water Management Act 2000 as water sharing plans commence (see <u>licence conversion</u>).

If a *Water Act 1912* licence has been converted, the search results will display the water access licences and approvals that have been created. Water access licences are registered in the <u>Water Access Licence Register</u> administered by Land and Property Information. Those water access licences that do not display a WAL number in the search results are still to have their licence details confirmed and completed.

Due to privacy laws very little information on *Water Act 1912* licence and authorities can be made freely available. Full information for a particular licence or authority can be obtained if required for conveyancing by applying to the NSW Office of Water. See <u>legal searches for water related</u> interests.

≪Previous Search Print Export

Search Results

Access licenses created for '10BL159748'

WAL No. Water Source Status

24163 Maroota Tertiary Sands Groundwater Source Current

Category Status Water Source Tenure Management Share

[Subcategory] Type Zone Components

(units or ML)

Aquifer Current Maroota Tertiary Sands Continuing 45.00

Groundwater Source

Extraction Times or Rates

Subject to conditions water may be taken at any time or rate

Nominated Work Approval(s)

10WA114817

- Conditions

Plan Conditions

Water sharing plan **Greater Metropolitan Region Groundwater Sources**

Take of water

MW0929-

From 1 July 2018, if the water supply work nominated on this access licence is located at or less than 40 m from the top of the high bank of a river then:

A. water must not be taken in this groundwater source when flows are in the Very Low Flow Class for an unregulated river access licence in that river.

B. This restriction will only apply when the system that confirms when water can be taken is available on DPI Water website.

C. DPI Water will inform the licence holder in writing of the applicable restrictions and how to access the information on its website when this system becomes operative.

MW0604-00001 Water allocations remaining in the account for this access licence must not be carried over from one water year to the next water year.

MW0605-00001 Water must be taken in compliance with the conditions of the approval for the nominated work on this access licence through which water is to be taken.

MW0603-00001 The total volume of water taken under this access licence in any water year must not exceed a

volume equal to:

A. the sum of water in the account from the available water determination for the current year, plus

B. the net amount of water assigned to or from the account under a water allocation assignment, plus

C. any water re-credited by the Minister to the account.

Monitoring and recording

MW2338-00001 The completed logbook must be retained for five (5) years from the last date recorded in the logbook.

MW2336-00001 The purpose or purposes for which water is taken, as well as details of the type of crop, area cropped, and dates of planting and harvesting, must be recorded in the logbook each time water is taken.

MW2337-00001 The following information must be recorded in the logbook for each period of time that water is taken:

A. date, volume of water, start and end time when water was taken as well as the pump capacity per unit of time, and

- B. the access licence number under which the water is taken, and
- C. the approval number under which the water is taken, and
- D. the volume of water taken for domestic consumption and/or stock watering.

MW0606-00001 The volume of water taken in the water year must be recorded in the logbook at the end of each water year. The maximum volume of water permitted to be taken in that water year must also be recorded in the logbook.

MW2339-00001 A logbook must be kept, unless the work is metered and fitted with a data logger. The logbook must be produced for inspection when requested by DPI Water.

Reporting

MW0051-00002 Once the licence holder becomes aware of a breach of any condition on this access licence, the licence holder must notify the Minister as soon as practicable. The Minister must be notified by:

A. email: water.enquiries@dpi.nsw.gov.au,

or

B. telephone: 1800 353 104. Any notification by telephone must also be confirmed in writing within seven (7) business days of the telephone call.

Other Conditions

NIL

Approvals created for '10BL159748'

Approval No. Water Source Status

10WA114817 Maroota Tertiary Sands Groundwater Source Current

Kind of Issue Expiry Approval Status Water Source

Approval Date Date Number

Water Supply 01-JUL- 14-JUN- 10WA114817 Current Marcota Tertiary Sands
Works 2011 2025 Groundwater Source

Work Type Description No of Works Location (Lot/DP)

Extraction Works Gw Bore 1 Lot 1, DP 228308

Water Access Licences nominating these works

Reference Number WAL Number

10AL114816 24163

- Conditions

Plan Conditions

Water sharing plan **Greater Metropolitan Region Groundwater Sources**

Take of water

MW0655-

Any water supply work authorised by this approval must take water in compliance with the conditions of the access licence under which water is being taken.

Water management works

MW0097-

If contaminated water is found above the production aquifer during the construction of the water supply work authorised by this approval, the licensed driller must:

A. notify DPI Water in writing within 48 hours of becoming aware of the contaminated water, and

B. adhere to the Minimum Construction Requirements for Water Bores in Australia (2012), as amended or replaced from time to time.

MW0487-00001

The water supply work authorised by this approval must be constructed within three (3) years from the date this approval is granted.

MW0044-

When a water supply work authorised by this approval is to be abandoned or replaced, the approval holder must contact DPI Water in writing to verify whether the work must be decommissioned.

The work is to be decommissioned, unless the approval holder receives notice from the Minister not to do so.

When decommissioning the work the approval holder must:

A. comply with the minimum requirements for decommissioning bores prescribed in the Minimum Construction Requirements for Water Bores in Australia (2012), as amended or replaced from time to time, and

B. notify DPI Water in writing within sixty (60) days of decommissioning that the work has been decommissioned.

Monitoring and recording

MW0481-00001

A logbook must be kept and maintained at the authorised work site or on the property for each water supply work authorised by this approval, unless the work is metered and fitted with a data logger.

MW0482-00001

Where a water meter is installed on a water supply work authorised by this approval, the meter reading must be recorded in the logbook before taking water. This reading must be recorded every time water is to be taken.

Reporting

MW0051-00001

Once the approval holder becomes aware of a breach of any condition on this approval, the approval holder must notify the Minister as soon as practicable. The Minister must be notified by:

A. email: water.enquiries@dpi.nsw.gov.au,

or

B. telephone: 1800 353 104. Any notification by telephone must also be confirmed in writing within seven (7) business days of the telephone call.

MK0485-00001

Within sixty (60) days of completing construction of the water supply work authorised by this approval, the approval holder must provide a completed Form A for that work to DPI Water.

Other Conditions

Take of water

DK0316-00128 The approval holder must not take water from the approved work at a rate that exceeds 3.0 L/second.

Water management works

DK1363-00001

The approval holder must not construct or install works used for the purpose of conveying, distributing or storing water from the works authorised by this approval, that obstruct the reasonable passage of floodwaters flowing in, to, or from a river or lake.

DK1202-00001

The approval holder must allow DPI Water or any person authorised by it, full and free access to the approved works, either during or after construction, for the purpose of carrying out inspection or test of the approved works and its fittings and must carry out any work or alterations deemed necessary by the department for the protection or proper maintenance of the approved works, or the control of the water extracted and for the protection of the quality and the prevention from pollution or contamination of sub-surface water.

Land to which the converted entitlement previously related.

	Lot/DP	Description
	Lot 1, DP 228308	Work Location
	Lot 1, DP 228308	Land Benefited
	Lot 2, DP 228308	Land Benefited
	Lot 2, DP 312327	Land Benefited
.1		

Disclaimer: The NSW Office of Water does not warrant the data is current nor does it warrant that the data or the data capturing processes are free from corruption or error.

Privacy: The information provided is limited to meet the requirements of section 57 of the *Privacy and Personal Information Act 1998*.

Exporting and printing: Search results show a maximum of 50 rows per page. Search results can only be printed page by page.

More information: Should you require further information or technical assistance, please submit your request to water.enguiries@dpi.nsw.gov.au or contact 1800 353 104.

Dam Licences

Information about a water licence or approval

Use this tool to search for information about water licences and approvals issued under the Water Act 1912 or Water Management Act 2000.

Select the type of licence or approval and enter the licence or approval number:

- Water access licence (WAL): a WAL number starts with the letters 'WAL' followed by several numbers; a WAL also has a reference number that starts with a two digit number, followed by 'AL' and then several numbers.
- 1912 water licence: a water licence number starts with a two digit number, followed by a two letter code and then several numbers. Note: a PT reference number cannot be entered.
- Approval: an approval number starts with a two digit number, followed by a two letter code (WA, UA, CA or FW) and then several numbers.

Search for information about either a:

Water Access Licence (WAL) Number

Water	access licence	(WAL)	issu ed	under	the	Water	Manageme	nt Act	2000

A WAL number starts with the letters 'WAL' followed by several numbers

Can't find your WAL number? Do you have a reference number? A reference number starts with a two digit number, followed by 'AL' and then several numbers. Use the following tool to find your WAL by entering your reference number. Enter the reference number to find the WAL number.

WAL 26163

Notes:

The search results will list the conditions imposed on the water access licence. Any approved water supply work/s nominated on the water access licence are identified by the approval number/s for the work/s.

The information about a water access licence provided in the search results is a summary and may not always be up to date. If you require full and up to date details about a particular water access licence (including current holders, share and extraction component details, encumbrances and notations) you should search the Water Access Licence Register administered by Land and Property Information.

- Water Act 1912 Licences and Authorities
- Approval issued under the Water Management Act 2000

Find out if a Water Act 1912 licence has been converted

Water licence conversion status

≪ Previous Search Print Export

Search Results

Category [Subcategory] Status Water Source

Tenure Type Management Zone

Share Components (units or ML) Unregulated River Current Hawkesbury And Lower Nepean Rivers Water Source Continuing Lower Hawkesbury River Management

Zone

264.00

Extraction Times or Rates

Subject to conditions water may be taken at any time or rate

Nominated Work Approval(s)

10CA104888

- Conditions

Plan Conditions

Water sharing plan Greater Metropolitan Region Unregulated River Water Sources

Take of water

MW0112-00001

The maximum water allocation that may be carried over in the account for this access licence from one water year to the next water year is:

A. a volume equal to 100 % of the share component of the licence, or

B. 1 ML/unit share of the share component of the licence.

MW0036-00002

The volume of water taken in any three (3) consecutive water years from 1 July 2012 must be recorded in the logbook at the end of those three water years. The maximum volume of water permitted to be taken in those years must also be recorded in the logbook.

MW0605-00001

Water must be taken in compliance with the conditions of the approval for the nominated work on this access licence through which water is to be taken.

MW0670-00001

Water must only be taken if there is visible flow in the water source at the location where water is to be taken.

This restriction does not apply if water is to be taken:

A. from an off-river pool, an in-river pool, a runoff harvesting dam or an in-river dam pool, or B. from the following Weirs: Maldon, Douglas Park, Menangle, Camden, Sharpes, Cobbity, Mount Hunter Rivulet, Brownlow Hill, Theresa Park and Wallacia.

MW0013-00002

- A. Water must not be taken from the Lower Hawkesbury River Management Zone of Hawkesbury and Lower Nepean Rivers Water Source when flows are in the Very Low Flow Class.
- B. This restriction will only apply when the system that confirms when water can be taken is available on the relevant licensor website.
- C. the relevant licensor will inform the licence holder in writing of the applicable restrictions and how to access the information on its website when this system becomes operative.

This restriction does not apply if water is to be taken from a runoff harvesting dam or an in-river dam pool.

MW0004-00002

From 1 July 2012, the total volume of water taken in any three (3) consecutive water years under this access licence must not exceed a volume which is equal to the lesser of either:

A. the sum of:

- i. water in the account from the available water determinations in those 3 consecutive water years, plus
- ii. water in the account carried over from the water year prior to those 3 consecutive water years, plus
- iii. any net amount of water assigned to or from this account under a water allocation assignment in those 3 consecutive water years, plus
- iv. any water re-credited by the Minister to the account in those 3 consecutive water years,

- B. the sum of:
- i. the share component of this licence at the beginning of the first year in those 3 consecutive water years, plus
- ii. the share component of this licence at the beginning of the second year in those 3 consecutive water years, plus
- iii. the share component of this licence at the beginning of the third year in those 3 consecutive water years, plus
- iv. any net amount of water assigned to or from this account under a water allocation assignment in those 3 consecutive water years, plus
- v. any water re-credited by the Minister to the account in those 3 consecutive water years.

Monitoring and recording

MW2338-00001

The completed logbook must be retained for five (5) years from the last date recorded in the logbook.

MW2337-00001

The following information must be recorded in the logbook for each period of time that water is taken:

- A. date, volume of water, start and end time when water was taken as well as the pump capacity per unit of time, and
- B. the access licence number under which the water is taken, and
- C. the approval number under which the water is taken, and
- D. the volume of water taken for domestic consumption and/or stock watering.

MW2339-00001

A logbook must be kept, unless the work is metered and fitted with a data logger. The logbook must be produced for inspection when requested by the relevant licensor.

Reporting

MW0051-00002

Once the licence holder becomes aware of a breach of any condition on this access licence, the licence holder must notify the Minister as soon as practicable. The Minister must be notified by: A. email: water.enquiries@dpi.nsw.gov.au,

٥r

B. telephone: 1800 353 104. Any notification by telephone must also be confirmed in writing within seven (7) business days of the telephone call.

Other Conditions

NIL

Disclaimer: The NSW Office of Water does not warrant the data is current nor does it warrant that the data or the data capturing processes are free from corruption or error.

Privacy: The information provided is limited to meet the requirements of section 57 of the Privacy and Personal Information Act 1998.

Exporting and printing: Search results show a maximum of 50 rows per page. Search results can only be printed page by page.

More information: Should you require further information or technical assistance, please submit your request to water.enquiries@dpi.nsw.gov.au or contact 1800 353 104.



Statement of Approval

Water Management Act 2000

Approval details

Approval number

10CA104888

Status

CURRENT*

Approval kind

Water Supply Works

Water Use

Water sharing plan

GREATER METROPOLITAN REGION UNREGULATED RIVER WATER SOURCES

Date of effect

01/Jul/2011

Expiry date

16/Feb/2026

Approval holder(s)

Schedule 1

Water supply works

Schedule 2

Water use

Schedule 3

Conditions

Schedule 4

Contact for service of documents

Name

Martin, Leonard Stanley

Address

16 Bay Rd ARCADIA NSW 2159

* Note: An approval has effect for such period as is specified in the approval, or if the period is extended under section 105, that extended period. If an application for extension of an approval is lodged before the approval expires, the term of the expiring approval is extended until either the date of the final decision on the application, or a date fixed by the Minister for the approval, whichever is the later date. An approval which has expired can be the subject of an application to extend it but it needs to be accompanied by a statutory declaration of the reasons for the delay in making the application. If the Minister accepts these reasons the term of the approval is taken to have been extended, and the application may be dealt with, as if the application had been made before the approval expired.

It is an offence under the Water Management Act 2000 to breach a term or condition of the approval or to construct and use works to which the approval does not relate. It is also an offence to use works the subject of an approval if the approval has expired, been surrendered or cancelled.

Schedule 1 - Approval holders

The holders of this approval are:

Approval holder(s)

ACN (if applicable)

Leonard Stanley Martin

Maroota Super Fund Pty Ltd

Important notice - change of landholder or contact

Please advise the Office in the event of any of the following, as soon as practicable:

- If there is a change in the ownership or occupation of the land benefited by this approval (see Schedule 2). Under the Water Management Act 2000, an approval is typically held by the owner or lawful occupier of the benefited land. Consequently, a change in occupation may cause a change in your legal obligations as an approval holder.*
- If there is a change to the contact person. You will be required to lodge a written statement signed by all the holders.*
- If there is a change to the mailing address for the nominated contact person. This should be done by the contact person in writing.

^{*} An updated Statement of Approval will be issued free of charge

Schedule 2 - Water supply works

Part A: Authorised water supply works

Subject to the conditions of this approval, in relation to each numbered work in the table, the holders of this approval are authorised to construct and use a water supply work of the type shown at the location specified:

Work 1

Specified work BYWASH DAM x 2

Specified location 2//228308 Whole Lot

Management zone (if applicable) LOWER HAWKESBURY RIVER MANAGEMENT ZONE

Water source HAWKESBURY AND LOWER NEPEAN RIVERS WATER SOURCE

Water sharing plan GREATER METROPOLITAN REGION UNREGULATED RIVER WATER SOURCES

Work 2

Specified work 65MM CENTRIFUGAL PUMP x 2

Specified location 2//228308 Whole Lot

Management zone (if applicable) LOWER HAWKESBURY RIVER MANAGEMENT ZONE

Water source HAWKESBURY AND LOWER NEPEAN RIVERS WATER SOURCE

Water sharing plan GREATER METROPOLITAN REGION UNREGULATED RIVER WATER SOURCES

Schedule 3 - Water Use

Subject to the conditions of this approval, the holder(s) of this approval is authorised to use water for the following purpose(s) and location(s):

Purpose 1

Specified purpose

IRRIGATION

Specified location

1//228308 2//228308

Schedule 4 - Conditions

The approval is subject to the following conditions:

Plan conditions

Water sharing plan

Greater Metropolitan Region Unregulated River Water Sources

Take of water

MW0655-00001

Any water supply work authorised by this approval must take water in compliance with the conditions of the access licence under which water is being taken.

Water management works

MW0491-00001

When a water supply work authorised by this approval is to be abandoned or replaced, the approval holder must contact DPI Water in writing to verify whether the work must be decommissioned.

The work is to be decommissioned, unless the approval holder receives notice from the Minister not to do so.

Within sixty (60) days of decommissioning, the approval holder must notify DPI Water in writing that the work has been decommissioned.

Monitoring and recording

MW0481-00001

A logbook must be kept and maintained at the authorised work site or on the property for each water supply work authorised by this approval, unless the work is metered and fitted with a data logger.

MW2338-00001

The completed logbook must be retained for five (5) years from the last date recorded in the logbook.

MW0482-00001

Where a water meter is installed on a water supply work authorised by this approval, the meter reading must be recorded in the logbook before taking water. This reading must be recorded every time water is to be taken.

Reporting

MW0051-00001

Once the approval holder becomes aware of a breach of any condition on this approval, the approval holder must notify the Minister as soon as practicable. The Minister must be notified by:

A. email: water.enquiries@dpi.nsw.gov.au,

or

B. telephone: 1800 353 104. Any notification by telephone must also be confirmed in writing within seven (7) business days of the telephone call.

Other conditions

Water management works

DS2349-00001

The approval holder must make all reasonable efforts not to allow any used water to discharge, by any means including surface or subsurface drains or pipes, into or onto:

- any adjoining public or crown road;
- any other person's land;any Crown land;
- any river, creek or watercourse or aquifer.

DK0888-00001

Any water supply work authorised by this approval used for the purpose of conveying, diverting or storing water must be constructed or installed to allow free passage of floodwaters flowing into or from a river or lake.

DK0871-00001

The water supply work authorised by this approval must be constructed and maintained in a way that will: A. ensure the work's safe construction and operation, and B. prevent the possibility of damage being caused by the work, or resulting from the work, to any public or private interest.

DK0878-00001

A. The construction, installation or use of the water supply work authorised by this approval must not cause or increase erosion to the channel or bank of the watercourse. B. If erosion is observed, the area must be stabilised with grass cover, stone pitching or any other material that will prevent any further occurrence of erosion.

DK1217-00001

The location of the dam(s) as shown on a plan retained in the office of DPI Water shall not be altered.

DK0261-00571

When a flow is entering the storage of the dam, the pipe must be operated so as to maintain a flow in the watercourse downstream of the said dam equivalent to the flow entering the storage of the dam for the time being or the capacity of the said pipe, whichever is the lesser.

DK0243-00224

When a flow is entering the storage of the dam the pipe shall be so operated as to maintain a flow in the watercourse downstream of the said dam equivalent to the flow entering the storage of the dam for the time being or the capacity of the said pipe, which ever is the lesser.

Additional conditions

NS17761

The level of the crest of the bywash of the upstream dam on the Unnamed Watercourse shall be fixed at not higher than 6.90 m above the level of a bench mark established on a concrete weir below the upstream dam of the watercourse near the work and particulars of which are retained in the office of DPI Water.

NS17762

A pipe with a diameter of not less than 50 mm, fitted with a stop valve or other control device, shall be constructed through the dam to the satisfaction of DPI Water. The level of the invert of the said pipe shall be fixed at not higher than 0.05 m above the level of the established benchmark or, alternatively the licensee shall provide a 50 mm diameter pipe siphon or other approved device, for passing flows through the storage of the dam.

NS17763

The level of the crest of the bywash of the downstream dam on the unnamed watercourse shall be fixed at not higher than 0.88 m below the level of a bench mark established on the bank of the watercourse near the work and particulars of which are retained in the office of DPI Water.

NS17764

- (a) a concrete rock weir shall be constructed on the unnamed watercourse upstream of the dam to the satisfaction of DPI Water. The level of the crest of the said weir shall be fixed at no lower than the level of the established benchmark.
- (b) the holder of the license shall install a bypass channel or pipeline with a diameter of not less than 150 mm to the satisfaction of DPI Water in respect of location, type and construction, so as to pass flows from the weir above into the unnamed watercourse downstream from the dam.
- (c) the holder of the license shall install through the weir two 150 mm diameter pipes to the satisfaction of DPI Water. One of the said pipes shall discharge into the diversion channel or pipeline and the other shall discharge into the course of the unnamed watercourse upstream of the dam.

Glossary

cease to take - Cease to take conditions means any condition on this approval, or on the access licence under which water is proposed to be taken, that prohibits the taking of water in a particular circumstance.

 ${\it logbook}$ - A logbook is a document, electronic or hard copy, that records specific required information.

metered water supply work - A metered water supply work is a water supply work fitted with a data logger and a water meter that complies with Australian Standard AS 4747: Meters for non-urban water supply.

water meter - A water meter is a device that measures the volume of water
that is extracted over a known period of time. Examples of a water meter
may include a mechanical meter, electromagnetic meter, channel meter with
mobile phone, or an authorised meter equivalent.

General Notes

All conditions on an approval require compliance. An appeal to the Land and Environment Court against a decision to impose certain conditions on an approval can be made within 28 days after the date the decision is made. Conditions identified with the first letter ${}^{\mathbf{p}}$ are those that can be appealed during the appeal period.

The words in this approval have the same meaning as in the Water ${\it Management\ Act\ 2000}$

Note: The words in this approval have the same meaning as in the WMA

END OF STATEMENT

Nursery Bore Licence





NEW SOUTH WALES

CERTIFICATE OF TITLE

WATER MANAGEMENT ACT, 2000



This certificate is issued under s87B of the Water Management Act, 2000.



WARNING NOTE: INFORMATION ON THIS REGISTER IS NOT GUARANTEED

TENURE TYPE: CONTINUING

HOLDER (S)

LEONARD STANLEY MARTIN

(DW AG357440)

ENCUMBRANCES

TERM TRANSFER: NIL

ACCESS LICENCE DETAILS

-----CATEGORY: AQUIFER

SHARE COMPONENT:

SHARE - 6 UNITS

WATER SOURCE - MAROOTA TERTIARY SANDS GROUNDWATER SOURCE

WATER SHARING PLAN - GREATER METROPOLITAN REGION GROUNDWATER SOURCES

EXTRACTION COMPONENT:

TIMES/RATES/CIRCUMSTANCES - SUBJECT TO THE CONDITIONS OF THE WATER ACCESS LICENCE

EXTRACTION FROM - AQUIFER

EXTRACTION ZONE - WHOLE WATER SOURCE

NOMINATED WORKS:

WORK APPROVAL NUMBER(S) - 10CA114819

INTERSTATE TAGGING ZONE - NIL

CONDITIONS

LICENCE CONDITIONS FORM A PART OF THIS LICENCE AND AFFECT THE SHARE AND EXTRACTION COMPONENTS. CONDITION STATEMENTS ARE AVAILABLE FROM THE NSW OFFICE OF WATER (NOW).

NOTES

A WATER LICENCE INFORMATION SHEET IS AVAILABLE FROM THE NSW OFFICE OF WATER (NOW) AND SHOULD BE REFERRED TO IN INTERPRETING THIS LICENCE.

NOW WEBSITE WWW.WATER.NSW.GOV.AU, PHONE 1800 353 104, EMAIL

INFORMATION@WATER.NSW.GOV.AU

NOW REFERENCE NUMBER: 10AL114818

PREVIOUS WATER ACT LICENCE NUMBER(S): 10PT901431, 10BL157595.

**** END OF CERTIFICATE ****

Information about a water licence or approval

Use this tool to search for information about water licences and approvals issued under the Water Act 1912 or Water Management Act 2000.

Select the type of licence or approval and enter the licence or approval number:

- Water access licence (WAL): a WAL number starts with the letters 'WAL' followed by several numbers; a WAL also has a reference number that starts with a two digit number, followed by 'AL' and then several numbers.
- 1912 water licence: a water licence number starts with a two digit number, followed by a two letter code and then several numbers. Note: a PT reference number cannot be entered.
- Approval: an approval number starts with a two digit number, followed by a two letter code (WA, UA, CA or FW) and then several numbers.

Search for information about either a:

- Water access licence (WAL) issued under the Water Management Act 2000
- Approval issued under the Water Management Act 2000

Find out if a Water Act 1912 licence has been converted

Water licence conversion status

Water Licence Number 10 ▼ BL ▼ 157595

Notes:

Water Act 1912 licences and authorities are being converted to water access licences and approvals under the Water Management Act 2000 as water sharing plans commence (see <u>licence conversion</u>).

If a Water Act 1912 licence has been converted, the search results will display the water access licences and approvals that have been created. Water access licences are registered in the <u>Water Access Licence Register</u> administered by Land and Property Information. Those water access licences that do not display a WAL number in the search results are still to have their licence details confirmed and completed.

Due to privacy laws very little information on Water Act 1912 licence and authorities can be made freely available. Full information for a particular licence or authority can be obtained if required for conveyancing by applying to the NSW Office of Water. See Legal searches for water related interests.

≪ Previous Search Print Export

Search Results

Access licenses created for '10BL157595'

WAL No. Water Source Status

<u>24157</u> Maroota Tertiary Sands Groundwater Source Current

Category Status Water Source Tenure Management Share

[Subcategory] Type Zone Components

(units or ML)

Aquifer Current Maroota Tertiary Sands Continuing 6.00

Groundwater Source

Extraction Times or Rates

Subject to conditions water may be taken at any time or rate

Nominated Work Approval(s)

10CA114819

- Conditions

Plan Conditions

Water sharing plan Greater Metropolitan Region Groundwater Sources

Take of water

MW0929-00001 From 1 July 2018, if the water supply work nominated on this access licence is located at or less than 40 m from the top of the high bank of a river then:

A. water must not be taken in this groundwater source when flows are in the Very Low Flow Class for an unregulated river access licence in that river.

B. This restriction will only apply when the system that confirms when water can be taken is available on DPI Water website.

C. DPI Water will inform the licence holder in writing of the applicable restrictions and how to access the information on its website when this system becomes operative.

MW0604-00001 Water allocations remaining in the account for this access licence must not be carried over from one water year to the next water year.

MW0605-00001 Water must be taken in compliance with the conditions of the approval for the nominated work on this access licence through which water is to be taken.

MW0603-

The total volume of water taken under this access licence in any water year must not exceed a

volume equal to:

A. the sum of water in the account from the available water determination for the current year, plus

B. the net amount of water assigned to or from the account under a water allocation assignment, plus

C. any water re-credited by the Minister to the account.

Monitoring and recording

MW2338-00001 The completed logbook must be retained for five (5) years from the last date recorded in the logbook.

MW2336-00001 The purpose or purposes for which water is taken, as well as details of the type of crop, area cropped, and dates of planting and harvesting, must be recorded in the logbook each time

water is taken.

MW0606-00001 The volume of water taken in the water year must be recorded in the logbook at the end of each water year. The maximum volume of water permitted to be taken in that water year must also be recorded in the logbook.

MW2337-00001 The following information must be recorded in the logbook for each period of time that water is taken:

A. date, volume of water, start and end time when water was taken as well as the pump capacity per unit of time, and

 $\ensuremath{\mathsf{B}}.$ the access licence number under which the water is taken, and

C. the approval number under which the water is taken, and

D. the volume of water taken for domestic consumption and/or stock watering.

MW2339-00001 A logbook must be kept, unless the work is metered and fitted with a data logger. The logbook must be produced for inspection when requested by DPI Water.

Reporting

MW0051-00002 Once the licence holder becomes aware of a breach of any condition on this access licence, the licence holder must notify the Minister as soon as practicable. The Minister must be notified by:

A. email: water.enquiries@dpi.nsw.gov.au,

or

B. telephone: 1800 353 104. Any notification by telephone must also be confirmed in writing within seven (7) business days of the telephone call.

Other Conditions

NIL

Approvals created for '10BL157595'

Approval No. Water Source Status

<u>10CA114819</u> Maroota Tertiary Sands Groundwater Source

Kind of Approval Issue Expiry Approval Status Water Source

Date Date Number

Water Supply Works And 01-JUL- 14-JUN- 10CA114819 Current Maroota Tertiary Sands Water Use 2011 2025 Groundwater Source

Work Type Description No of Works Location (Lot/DP)

Extraction Works Gw Bore 1 Lot 2, DP 228308

Use Purpose(s) Location(s)

Industrial Lot 2, DP 228308
Irrigation Lot 2, DP 228308

Water Access Licences nominating these works

Reference Number WAL Number

10AL114818 24157

- Conditions

Plan Conditions

Current

Water sharing plan Greater Metropolitan Region Groundwater Sources

Take of water

MW0655-00001

Any water supply work authorised by this approval must take water in compliance with the conditions of the access licence under which water is being taken.

Water management works

MW0097-00001

If contaminated water is found above the production aquifer during the construction of the water supply work authorised by this approval, the licensed driller must:

A. notify DPI Water in writing within 48 hours of becoming aware of the contaminated water, and

B. adhere to the Minimum Construction Requirements for Water Bores in Australia (2012), as amended or replaced from time to time.

MW0487-00001

The water supply work authorised by this approval must be constructed within three (3) years from the date this approval is granted.

MW0044-00001

When a water supply work authorised by this approval is to be abandoned or replaced, the approval holder must contact DPI Water in writing to verify whether the work must be decommissioned.

The work is to be decommissioned, unless the approval holder receives notice from the Minister not to do so.

When decommissioning the work the approval holder must:

A. comply with the minimum requirements for decommissioning bores prescribed in the Minimum Construction Requirements for Water Bores in Australia (2012), as amended or replaced from time to time, and

B. notify DPI Water in writing within sixty (60) days of decommissioning that the work has been decommissioned.

Monitoring and recording

MW0481-00001

A logbook must be kept and maintained at the authorised work site or on the property for each water supply work authorised by this approval, unless the work is metered and fitted with a data logger.

MW0482-00001

Where a water meter is installed on a water supply work authorised by this approval, the meter reading must be recorded in the logbook before taking water. This reading must be recorded every time water is to be taken.

Reporting

MW0051-00001

Once the approval holder becomes aware of a breach of any condition on this approval, the approval holder must notify the Minister as soon as practicable. The Minister must be notified by:

A. email: water.enquiries@dpi.nsw.gov.au,

or

B. telephone: 1800 353 104. Any notification by telephone must also be confirmed in writing within seven (7) business days of the telephone call.

MK0485-00001

Within sixty (60) days of completing construction of the water supply work authorised by this approval, the approval holder must provide a completed Form A for that work to DPI Water.

Other Conditions

Water management works

DK1363-00001

The approval holder must not construct or install works used for the purpose of conveying, distributing or storing water from the works authorised by this approval, that obstruct the reasonable passage of floodwaters flowing in, to, or from a river or lake.

DK1202-00001

The approval holder must allow DPI Water or any person authorised by it, full and free access to the approved works, either during or after construction, for the purpose of carrying out inspection or test of the approved works and its fittings and must carry out any work or alterations deemed necessary by the department for the protection or proper maintenance of the approved works, or the control of the water extracted and for the protection of the quality and the prevention from pollution or contamination of sub-surface water.

Land to which the converted entitlement previously related.

Lot/ DP Description

Lot 2, DP 228308 Work Location
Lot 2, DP 228308 Land Benefited

Disclaimer: The NSW Office of Water does not warrant the data is current nor does it warrant that the data or the data capturing processes are free from corruption or error.

Privacy: The information provided is limited to meet the requirements of section 57 of the Privacy and Personal Information Act 1998.

Exporting and printing: Search results show a maximum of 50 rows per page. Search results can only be printed page by page.

More information: Should you require further information or technical assistance, please submit your request to water.enguiries@dpi.nsw.gov.au or contact 1800 353 104.



Appendix D

Complaints Register

Hodgson Quarries Complaint Register 2024

	А	В	С	D	Е	F	G	Н
1	Date Received	Site Complaint Regarding	Air	Water	Noise	Waste	Traffic	Other
2	January	Nil						
3	February	Nil						
4	March	Nil						
5	April	Nil						
6	May	Nil						
7	June	Nil						
8	July	Nil						
9	August	Nil						
10	September	Nil						
11	October	Nil						
12	November	Nil						
13	December	Nil						



Appendix E

Environmental Monitoring Summaries



Report Period

6/01/2025

3/02/2025

Monthly Monitoring Summary for Hodgson Quarries and Plant Pty Ltd Roberts Road Sand Quarry, Maroota, NSW

Report Date: 14/02/2025

Site Monitoring Locations



Groundwater Levels

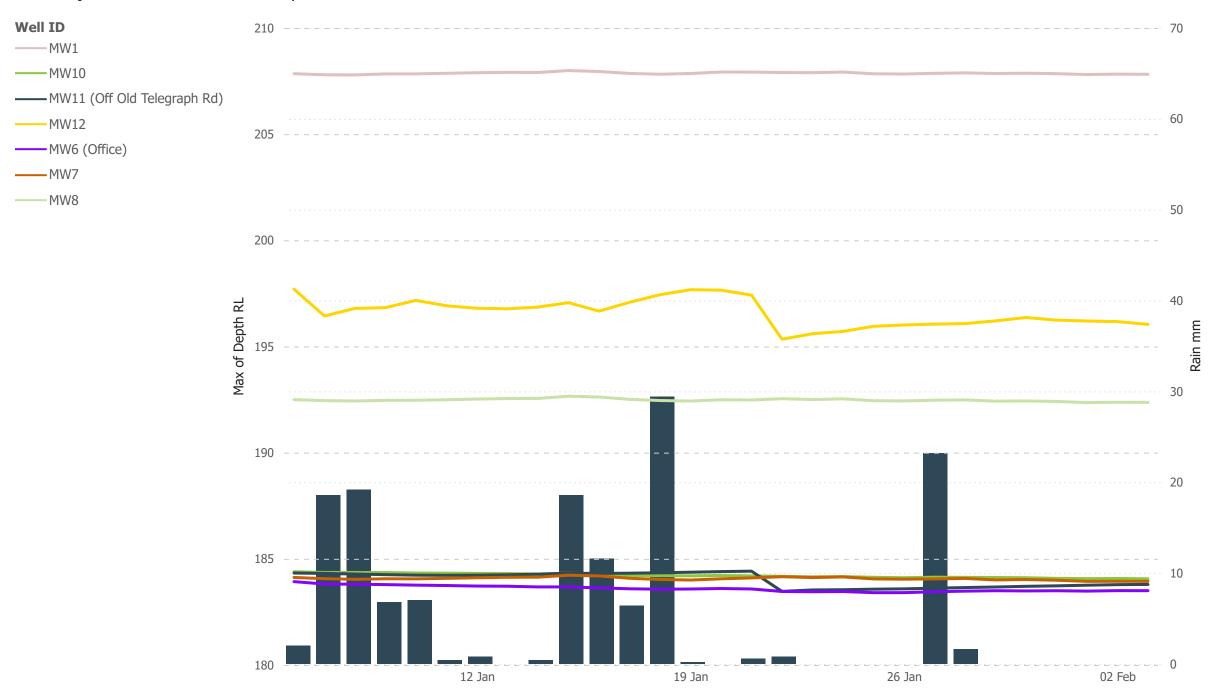
Groundwater levels are currently monitored in nine boreholes located on the site. Groundwater levels are manually measured for depth each month using a groundwater dipper. Data is downloaded from groundwater loggers where present. MW1 logger was installed prior to 2015; the remaining loggers were installed in 2017.

Graph 1 displays the depths as of January 2017. Graph 2 shows depths in the past month. Following anomalous readings from the MW5 logger, the bore was investigated and discovered to have collapsed. The logger was relocated to a functioning bore and the bore abandoned and replaced by nearby MW8.

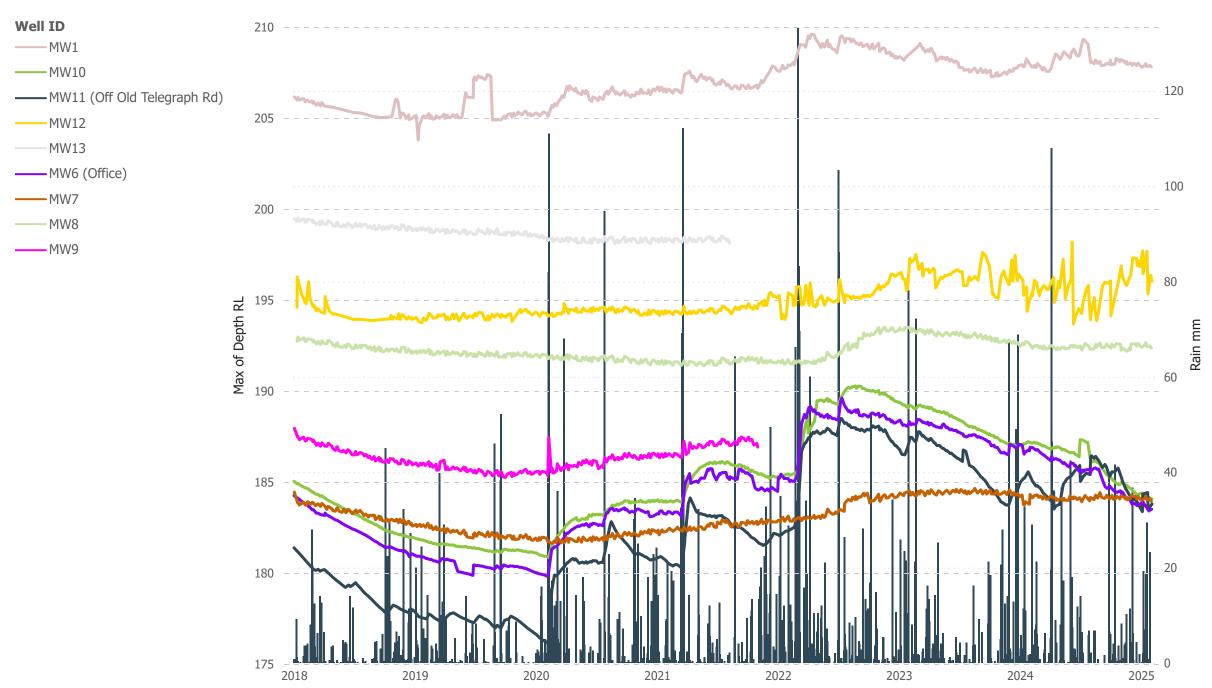
MW1 and MW12 were taken away for repairs during April 2018 and returned in October 2018, hence the gap in reporting on the following graphs.

Due to rain gauge malfunctions, rainfall was not recorded in 2020 until a new weather station was installed onsite 29th May 2020. Where available, daily rainfall received in the interim was been sourced from the Bureau of Meteorology.

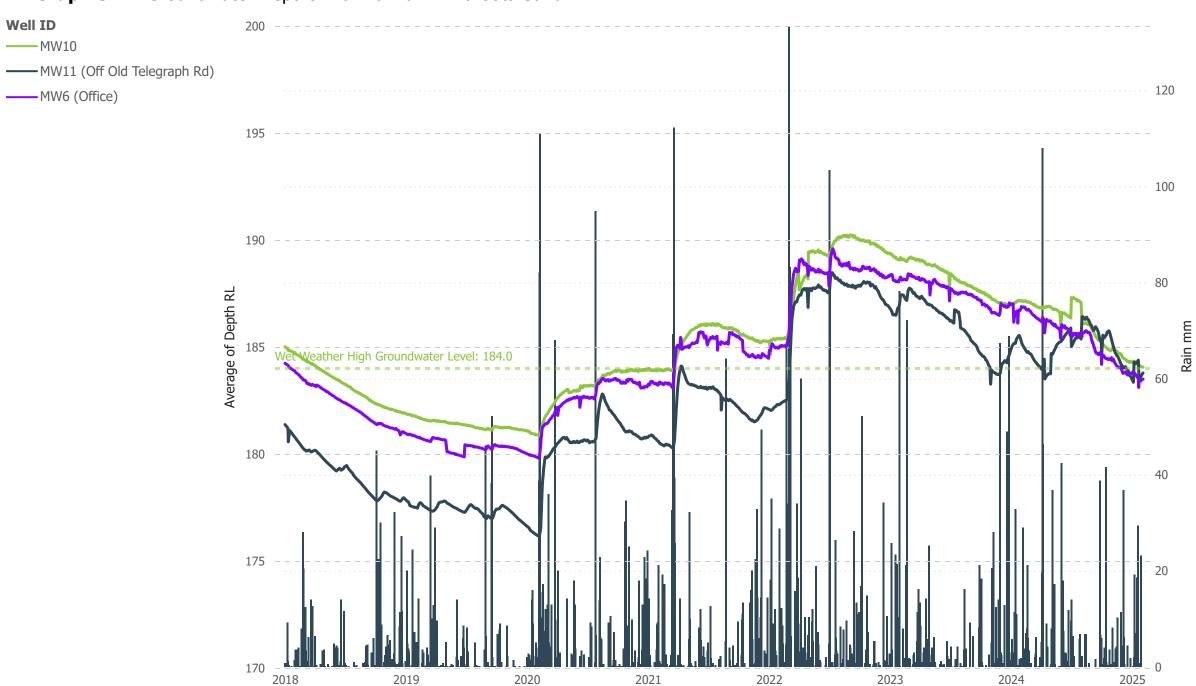
Graph 2: All Groundwater Depths with Rainfall this month



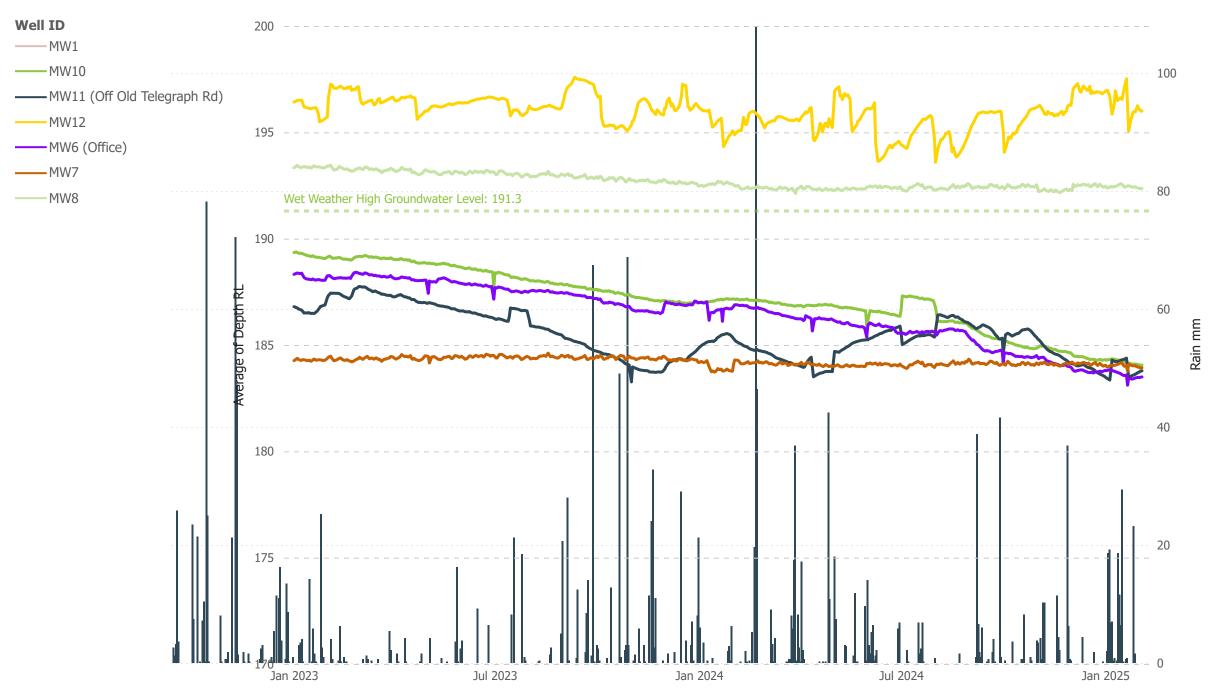
Graph 1: All Groundwater Depths with Rainfall from 1/1/2017



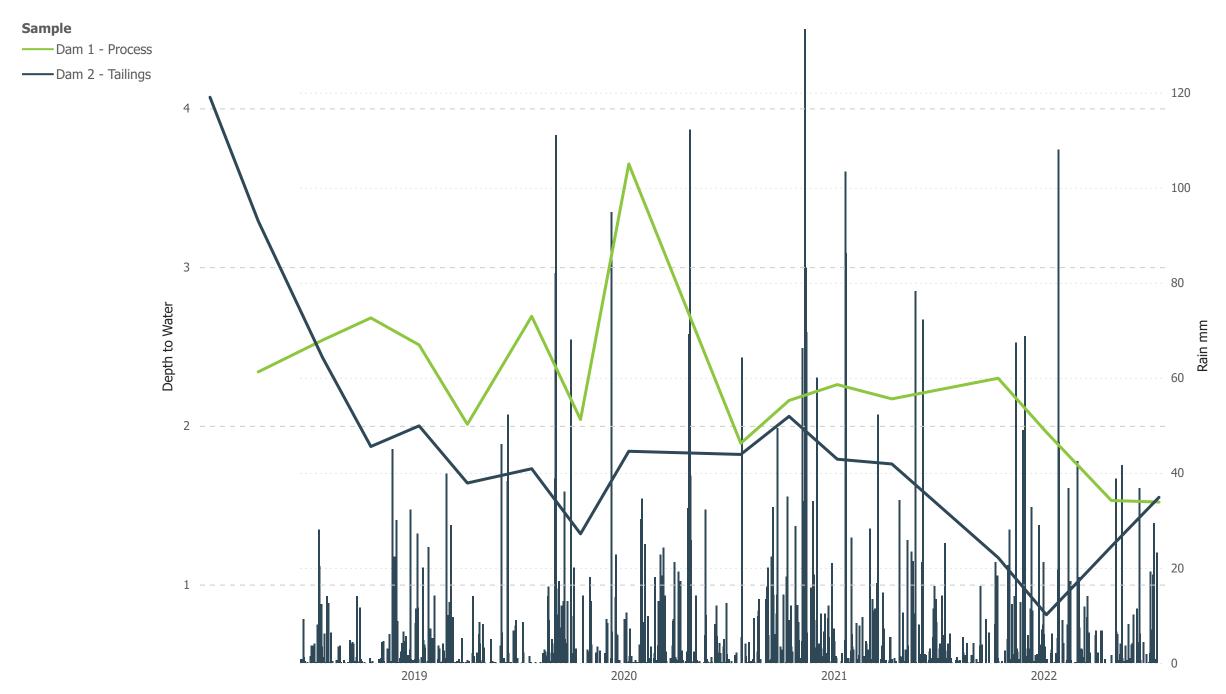
Graph 3: All Groundwater Depths with Rainfall in Maroota Sand



Graph 4: All Groundwater Depths with Rainfall in Hawkesbury Sandstone

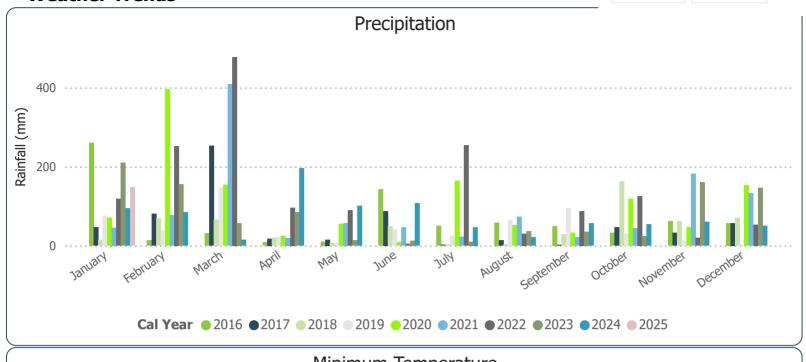


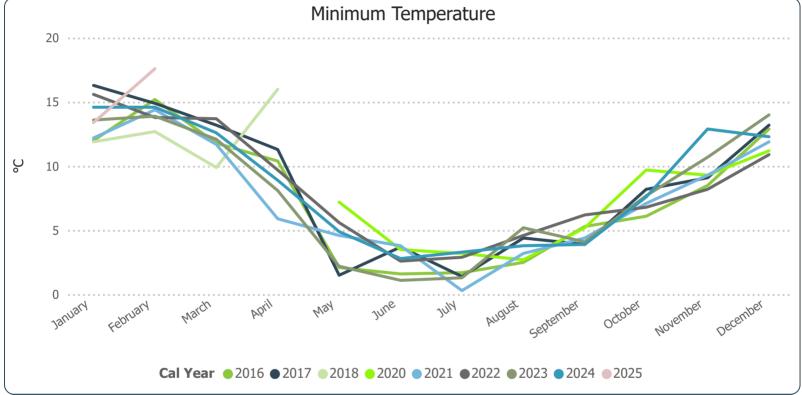
Graph 5: Surface Water Depths with Rainfall

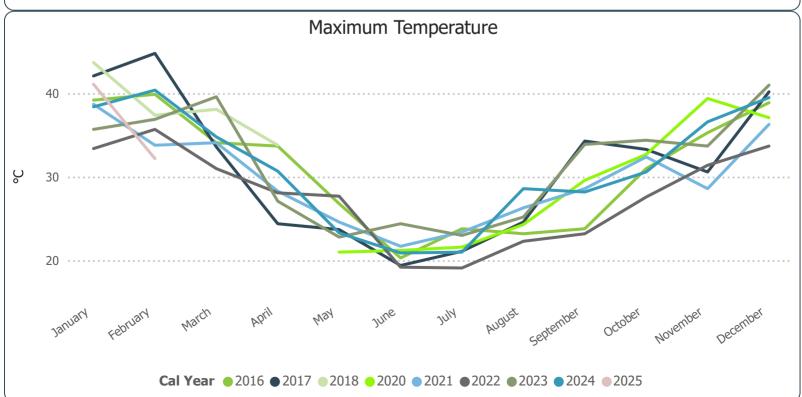


Weather Station Monitoring

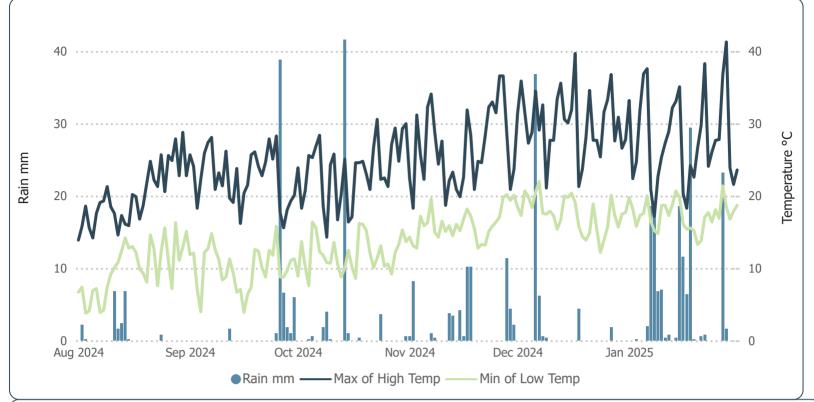
Due to gauge malfunctions, rainfall was not recorded in 2020 until a new weather station was installed onsite 29th May 2020. Where available, daily rainfall received in the interim was been sourced from the Bureau of Meteorology. Temperature monitoring during that period also shows gaps in the data. For modelling and reporting, Bureau of Meteorology averages were used







Weather Detail for last 6 months



					Precip	oitation m	nm
Cal Year	January	August	September	October	November	December	Total
2024		21.0	56.8	54.0	60.6	50.2	242.6
2025	147.8						147.8
Total	147.8	21.0	56.8	54.0	60.6	50.2	390.4

	Minimum Temperature °C									
Cal Year	January	August	September	October	November	December	Total			
2024		3.8	3.9	7.6	12.9	12.3	3.8			
2025	13.4						13.4			
Total	13.4	3.8	3.9	7.6	12.9	12.3	3.8			

					Average	Tempera	ture °C	,
Cal Year	January	August	September	October	November	December	Total	
2024		14.6	16.0	17.0	20.7	22.8	18.2	
2025	21.5						21.5	
Total	21.5	14.6	16.0	17.0	20.7	22.8	18.8	

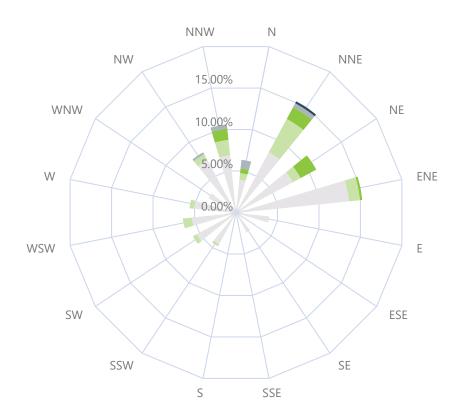
	Maximum Temperature °C											
Cal Year	January	August	September	October	November	December	Total					
2024		28.6	28.2	30.6	36.6	39.5	39.5					
2025	41.1						41.1					
Total	41.1	28.6	28.2	30.6	36.6	39.5	41.1					
	'											

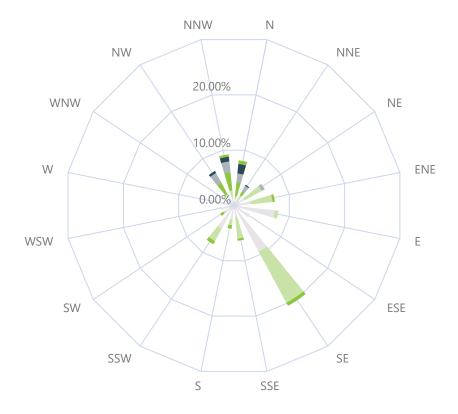
Wind Rose for Last 6 Months

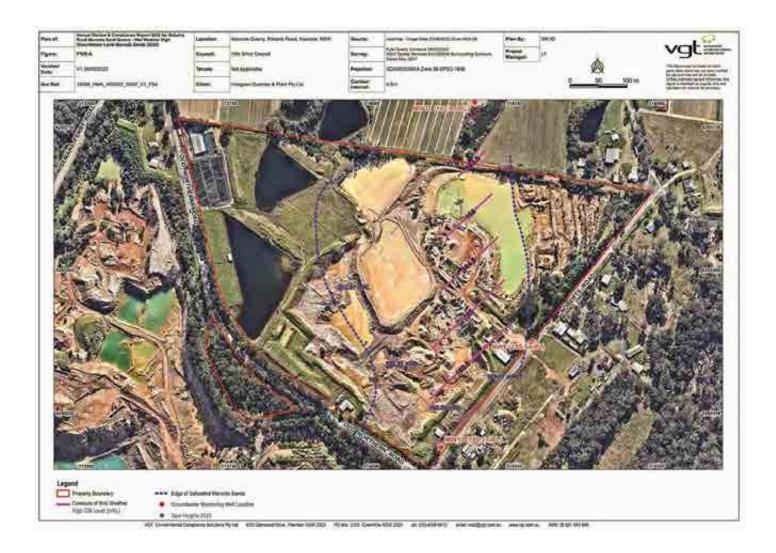
9 am 3 pm

Wind Speed Groups







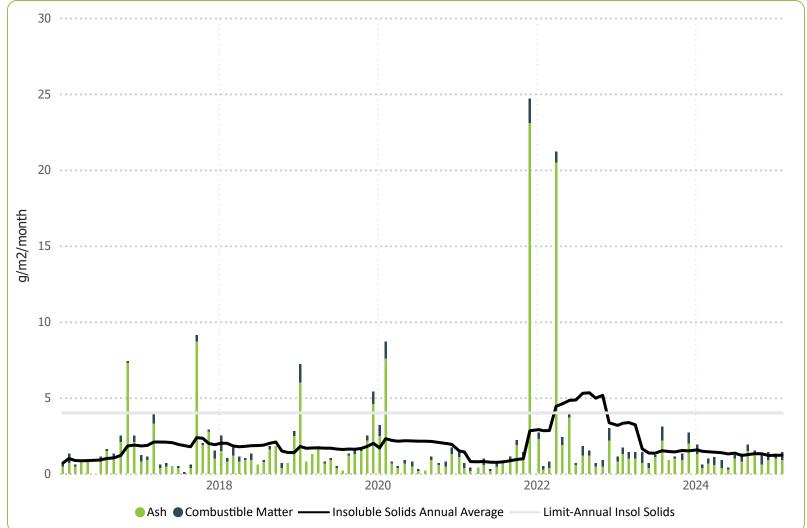


Depositional Dust and Particulate Matter Monitoring

D1 Gate

Insoluble Solids Annual Average g/m2/month





Combustible Calculated

Rain

82

18

115

107

109

48

26

62

58

65

59

114

Matter

0.3

0.5

0.5

0.1

0.2

0.5

0.4

0.1

0.6

0.5

0.3

0.5

Ash

0.7

0.6

0.4

0.3

1.0

0.8

1.5

1.4

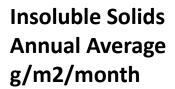
0.6

0.9

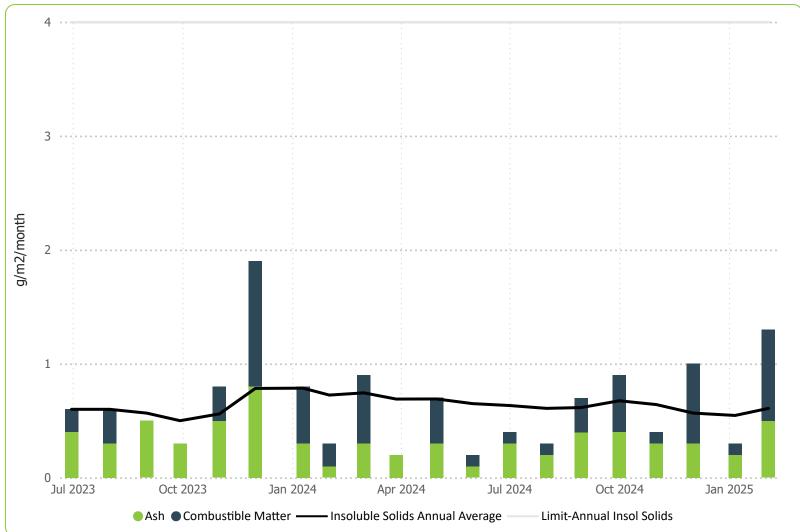
1.0

0.9

1/02/24 1/3/24 30 1.0 1/03/24 28/3/24 29 1.1 28/03/24 1/5/24 34 0.9 1/05/24 31/5/24 31 0.4 31/05/24 1/7/24 31 1.2 1/07/24 1/8/24 31 1.3 1/08/24 30/8/24 29 1.9 30/08/24 1/10/24 32 1.5 1/10/24 1/11/24 31 1.2 1/11/24 31 1.2 1/11/24 31 1.4 2/12/24 6/1/25 35 1.3 6/01/25 Rottle full of water 3/2/25 28 1.4	Date On	Comments	Date Sampled	Days On	Insoluble Solids
28/03/24 1/5/24 34 0.9 1/05/24 31/5/24 31 0.4 31/05/24 1/7/24 31 1.2 1/07/24 1/8/24 31 1.3 1/08/24 30/8/24 29 1.9 30/08/24 1/10/24 32 1.5 1/10/24 31 1.2 1/11/24 31 1.2 1/11/24 2/12/24 31 1.4 2/12/24 35 1.3	1/02/24		1/3/24	30	1.0
1/05/24 31/5/24 31 0.4 31/05/24 1/7/24 31 1.2 1/07/24 1/8/24 31 1.3 1/08/24 30/8/24 29 1.9 30/08/24 29 1.9 1/10/24 32 1.5 1/10/24 31 1.2 1/11/24 31 1.2 1/11/24 2/12/24 31 1.4 2/12/24 35 1.3	1/03/24		28/3/24	29	1.1
31/05/24 1/7/24 31 1.2 1/07/24 1/8/24 31 1.3 1/08/24 30/8/24 29 1.9 30/08/24 1/10/24 32 1.5 1/10/24 31 1.2 1/11/24 31 1.2 1/11/24 31 1.4 2/12/24 31 1.4 2/12/24 35 1.3	28/03/24		1/5/24	34	0.9
1/07/24 1/8/24 31 1.3 1/08/24 30/8/24 29 1.9 30/08/24 1/10/24 32 1.5 1/10/24 31 1.2 1/11/24 31 1.2 1/11/24 2/12/24 31 1.4 2/12/24 35 1.3	1/05/24		31/5/24	31	0.4
1/08/24 30/8/24 29 1.9 30/08/24 1/10/24 32 1.5 1/10/24 1/11/24 31 1.2 1/11/24 2/12/24 31 1.4 2/12/24 5 35 1.3	31/05/24		1/7/24	31	1.2
30/08/24 1/10/24 32 1.5 1/10/24 1/11/24 31 1.2 1/11/24 2/12/24 31 1.4 2/12/24 6/1/25 35 1.3	1/07/24		1/8/24	31	1.3
1/10/24 1/11/24 31 1.2 1/11/24 2/12/24 31 1.4 2/12/24 6/1/25 35 1.3	1/08/24		30/8/24	29	1.9
1/11/24 2/12/24 31 1.4 2/12/24 6/1/25 35 1.3	30/08/24		1/10/24	32	1.5
2/12/24 6/1/25 35 1.3	1/10/24		1/11/24	31	1.2
	1/11/24		2/12/24	31	1.4
6/01/25 Rottle full of water 3/2/25 28 1.4	2/12/24		6/1/25	35	1.3
5/2/25 Edition water 5/2/25 20 1.4	6/01/25	Bottle full of water	3/2/25	28	1.4





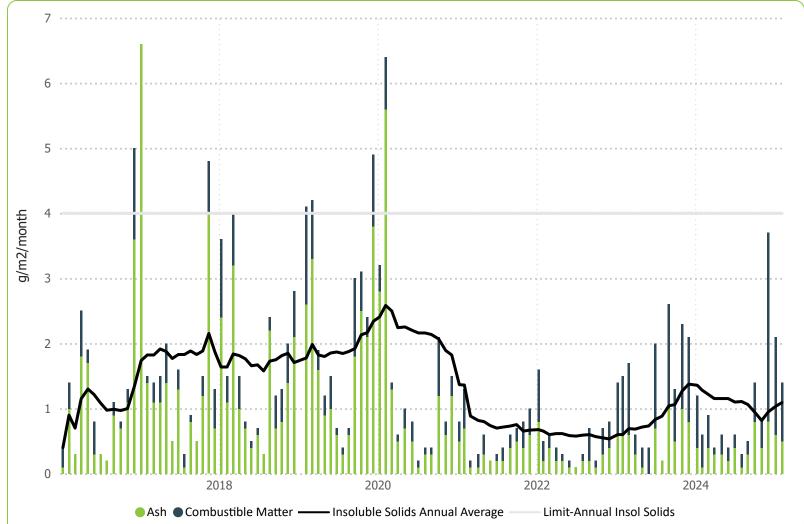


Date On	Comments
10/01/24	
1/02/24	
1/03/24	
28/03/24	
1/05/24	
31/05/24	
1/07/24	
1/08/24	
30/08/24	
1/10/24	
1/11/24	
2/12/24	
6/01/25	Bottle full of water

Date Sampled	Days On	Insoluble Solids	Ash	Combustible Matter	Calculated Rain
1/2/24	22	0.3	0.1	0.2	72
1/3/24	30	0.9	0.3	0.6	69
28/3/24	29	0.2	0.2	0.0	9
1/5/24	34	0.7	0.3	0.4	114
31/5/24	31	0.2	0.1	0.1	101
1/7/24	31	0.4	0.3	0.1	99
1/8/24	31	0.3	0.2	0.1	38
30/8/24	29	0.7	0.4	0.3	13
1/10/24	32	0.9	0.4	0.5	58
1/11/24	31	0.4	0.3	0.1	44
2/12/24	31	1.0	0.3	0.7	44
6/1/25	35	0.3	0.2	0.1	24
3/2/25	28	1.3	0.5	0.8	114

Insoluble Solids Annual Average g/m2/month



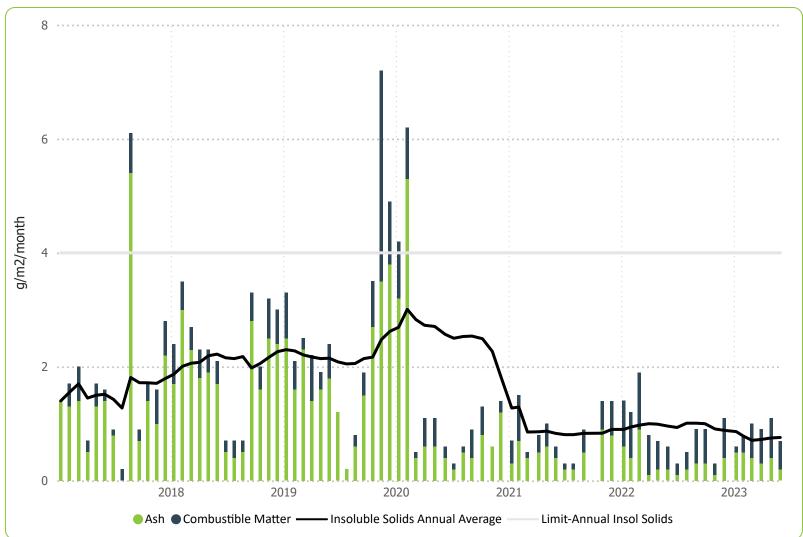


Date On	Comments
1/02/24	Vegetable farm adjacent recently ploughed
1/03/24	
28/03/24	
1/05/24	
31/05/24	
1/07/24	
1/08/24	
30/08/24	
1/10/24	
1/11/24	
2/12/24	
6/01/25	Bottle full of water

Date	Days	Insoluble	Ash	Combustible	
Sampled	On	Solids		Matter	Rain
1/3/24	30	0.9	0.4	0.5	79
28/3/24	29	0.4	0.3	0.1	16
1/5/24	34	0.6	0.3	0.3	110
31/5/24	31	0.4	0.2	0.2	129
1/7/24	31	0.6	0.4	0.2	95
1/8/24	31	0.3	0.1	0.2	46
30/8/24	29	0.5	0.3	0.2	23
1/10/24	32	1.4	0.8	0.6	60
1/11/24	31	0.8	0.4	0.4	59
2/12/24	31	3.7	0.8	2.9	62
6/1/25	35	2.1	0.6	1.5	31
3/2/25	28	1.4	0.5	0.9	116

Insoluble Solids Annual Average g/m2/month





Date On	Comments
1/06/22	Sampled by Melissa Mass
1/07/22	Sampled by Melissa Mass. Flooding rainfall event during July.
1/08/22	Sampled by Melissa Mass.
1/09/22	Sampled by Melissa Mass.
30/09/22	Sampled by Melissa Mass.
1/11/22	Sampled by Melissa Mass.
1/12/22	Sampled by Melissa Mass.
9/01/23	
1/02/23	Sampled by M.Mass
1/03/23	Sampled by M.Mass. Not compliant - Clear sky/ 10m from obstacle
31/03/23	Sampled by M.Mass.
2/05/23	Sampled by M.Mass.

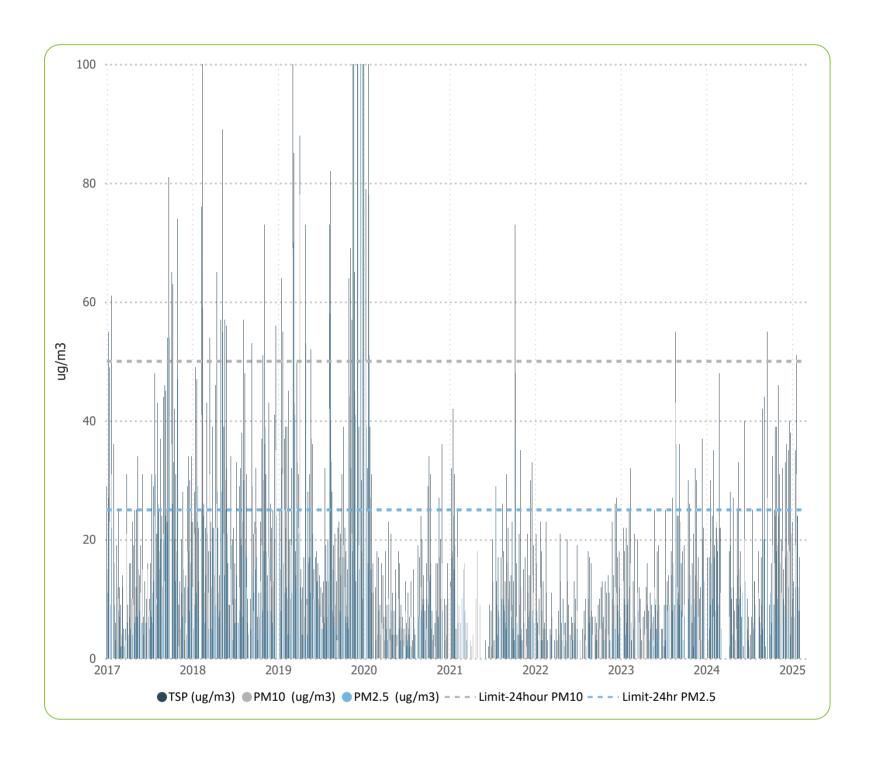
Date Sampled	Days On	Insoluble Solids	Ash	Combustible Matter	Calculated Rain
1/7/22	30	0.3	0.1	0.2	4
1/8/22	31	0.5	0.2	0.3	115
1/9/22	31	0.9	0.3	0.6	26
30/9/22	29	0.9	0.3	0.6	72
1/11/22	32	0.3	0.1	0.2	114
1/12/22	30	1.1	0.4	0.7	20
9/1/23	39	0.6	0.5	0.1	68
1/2/23	23	0.8	0.5	0.3	114
1/3/23	28	1.0	0.4	0.6	114
31/3/23	30	0.9	0.3	0.6	47
2/5/23	32	1.1	0.4	0.7	67
1/6/23	30	0.7	0.2	0.5	12

Particulate Matter Annual Averages (µg/m3)





Particulate Matter 24 Hour Averages (µg/m3)



PM10 24 hour exceedances (>50 µg/m3)
Date PM10 (ug/m3) Sampling Comments

PM2.5 24 hour exceedances (>25 μg/m3)
Date PM2.5 (ug/m3) Sampling Comments

Dam 1 - Process	
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Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
Dam 1 - Process	12/4/24	7.4	131	82	16	17	6.2	1.0	8	3.0
Dam 1 - Process	1/10/24	4.7	261	160	60	10	4.0	4.0	29	2.0
Dam 1 - Process	21/1/25	5.9	262	160	59	12	5.0	4.0	24	2.0
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
Dam 1 - Process	12/4/24	7.4	131	82	16	17	6.2	1.0	8	3.0
Dam 1 - Process	1/10/24	4.7	261	160	60	10	4.0	4.0	29	2.0
Dam 1 - Process	21/1/25	5.9	262	160	59	12	5.0	4.0	24	2.0
Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
Dam 1 - Process	12/4/24	7.4	131	82	16	17	6.2	1.0	8	3.0
Dam 1 - Process	1/10/24	4.7	261	160	60	10	4.0	4.0	29	2.0
Dam 1 - Process	21/1/25	5.9	262	160	59	12	5.0	4.0	24	2.0
Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
Dam 1 - Process	12/4/24	7.4	131	82	16	17	6.2	1.0	8	3.0
Dam 1 - Process	1/10/24	4.7	261	160	60	10	4.0	4.0	29	2.0
Dam 1 - Process	21/1/25	5.9	262	160	59	12	5.0	4.0	24	2.0

Dam	2	_	Tai	linas	
Duill	_		IUI	11119.	ú

Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium	
Dam 2 - Tailings	31/7/24	4.7	230	140	52	16	4.0	4.0	23	3.0	
Dam 2 - Tailings	1/10/24	4.3	244	150	57	7	2.0	4.0	27	3.0	
Dam 2 - Tailings	21/1/25	4.4	248	150	56	8	3.0	3.0	26	2.0	
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium	
Dam 2 - Tailings	31/7/24	4.7	230	140	52	16	4.0	4.0	23	3.0	
Dam 2 - Tailings	1/10/24	4.3	244	150	57	7	2.0	4.0	27	3.0	
Dam 2 - Tailings	21/1/25	4.4	248	150	56	8	3.0	3.0	26	2.0	
Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium	
Dam 2 - Tailings	31/7/24	4.7	230	140	52	16	4.0	4.0	23	3.0	
Dam 2 - Tailings	1/10/24	4.3	244	150	57	7	2.0	4.0	27	3.0	
Dam 2 - Tailings	21/1/25	4.4	248	150	56	8	3.0	3.0	26	2.0	
Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium	
Dam 2 - Tailings	31/7/24	4.7	230	140	52	16	4.0	4.0	23	3.0	
Dam 2 - Tailings	1/10/24	4.3	244	150	57	7	2.0	4.0	27	3.0	
Dam 2 - Tailings	21/1/25	4.4	248	150	56	8	3.0	3.0	26	2.0	

Dam 3 - Nursery

						•					
Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium	
Dam 3 - Nursery	12/4/24	7.1	155	97	28	6	3.0	2.0	12	5.7	
Dam 3 - Nursery	31/7/24	7.0	149	93	29	10	5.0	3.0	14	5.3	
Dam 3 - Nursery	1/10/24	7.3	159	99	30	8	5.0	3.0	16	4.0	
Dam 3 - Nursery	21/1/25	7.9	234	150	46	7	5.4	4.0	20	5.1	
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium	
Dam 3 - Nursery	12/4/24	7.1	155	97	28	6	3.0	2.0	12	5.7	
Dam 3 - Nursery	31/7/24	7.0	149	93	29	10	5.0	3.0	14	5.3	
Dam 3 - Nursery	1/10/24	7.3	159	99	30	8	5.0	3.0	16	4.0	
Dam 3 - Nursery	21/1/25	7.9	234	150	46	7	5.4	4.0	20	5.1	
Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium	
Dam 3 - Nursery	12/4/24	7.1	155	97	28	6	3.0	2.0	12	5.7	
Dam 3 - Nursery	31/7/24	7.0	149	93	29	10	5.0	3.0	14	5.3	
Dam 3 - Nursery	1/10/24	7.3	159	99	30	8	5.0	3.0	16	4.0	
Dam 3 - Nursery	21/1/25	7.9	234	150	46	7	5.4	4.0	20	5.1	
Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium	
Dam 3 - Nursery	12/4/24	7.1	155	97	28	6	3.0	2.0	12	5.7	
Dam 3 - Nursery	31/7/24	7.0	149	93	29	10	5.0	3.0	14	5.3	
D 2 N											
Dam 3 - Nursery	1/10/24	7.3	159	99	30	8	5.0	3.0	16	4.0	

Dam 4 - Farm

Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
Dam 4 - Farm	12/4/24	7.3	74	0	14	2	0.7	0.9	6	3.0
Dam 4 - Farm	31/7/24	7.1	72	0	11	5	2.0	2.0	7	3.0
Dam 4 - Farm	1/10/24	8.3	83	52	12	5	2.0	2.0	8	2.0
Dam 4 - Farm	21/1/25	9.8	148	92	23	10	3.0	2.0	11	4.0
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
Dam 4 - Farm	12/4/24	7.3	74	0	14	2	0.7	0.9	6	3.0
Dam 4 - Farm	31/7/24	7.1	72	0	11	5	2.0	2.0	7	3.0
Dam 4 - Farm	1/10/24	8.3	83	52	12	5	2.0	2.0	8	2.0
Dam 4 - Farm	21/1/25	9.8	148	92	23	10	3.0	2.0	11	4.0
Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
Dam 4 - Farm	12/4/24	7.3	74	0	14	2	0.7	0.9	6	3.0
Dam 4 - Farm	31/7/24	7.1	72	0	11	5	2.0	2.0	7	3.0
Dam 4 - Farm	1/10/24	8.3	83	52	12	5	2.0	2.0	8	2.0
Dam 4 - Farm	21/1/25	9.8	148	92	23	10	3.0	2.0	11	4.0
Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
Dam 4 - Farm	12/4/24	7.3	74	0	14	2	0.7	0.9	6	3.0
Dam 4 - Farm										
Daill 4 - Failli	31/7/24	7.1	72	0	11	5	2.0	2.0	7	3.0
Dam 4 - Farm		7.1 8.3	72 83	0 52	11 12	5 5	2.0 2.0	2.0 2.0	7 8	3.0 2.0

	Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW1		12/4/24	4.3	292	180	41	29	5.0	12.0	19	5.0
MW1		31/7/24	4.3	323	200	51	30	6.7	13.0	22	5.7
MW1		1/10/24	4.1	352	220	41	33	7.5	13.0	20	6.4
MW1		21/1/25	4.1	376	230	48	38	9.3	16.0	18	7.3
	Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
MW1		12/4/24	4.3	292	180	41	29	5.0	12.0	19	5.0
MW1		31/7/24	4.3	323	200	51	30	6.7	13.0	22	5.7
MW1		1/10/24	4.1	352	220	41	33	7.5	13.0	20	6.4
MW1		21/1/25	4.1	376	230	48	38	9.3	16.0	18	7.3
	Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
MW1		12/4/24	4.3	292	180	41	29	5.0	12.0	19	5.0
MW1		31/7/24	4.3	323	200	51	30	6.7	13.0	22	5.7
MW1		1/10/24	4.1	352	220	41	33	7.5	13.0	20	6.4
MW1		21/1/25	4.1	376	230	48	38	9.3	16.0	18	7.3
	Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
MW1		12/4/24	4.3	292	180	41	29	5.0	12.0	19	5.0
MW1		31/7/24	4.3	323	200	51	30	6.7	13.0	22	5.7
MW1		1/10/24	4.1	352	220	41	33	7.5	13.0	20	6.4
MW1		21/1/25	4.1	376	230	48	38	9.3	16.0	18	7.3

MW10

	Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW10		12/4/24	4.4	261	160	61	6	0.7	5.0	30	1.0
MW10		31/7/24	4.4	269	170	67	12	1.0	5.4	27	1.0
MW10		1/10/24	4.4	204	130	49	2	0.7	5.0	27	0.9
MW10		21/1/25	4.3	202	130	54	2	0.0	5.0	20	0.9
	Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
MW10		12/4/24	4.4	261	160	61	6	0.7	5.0	30	1.0
MW10		31/7/24	4.4	269	170	67	12	1.0	5.4	27	1.0
MW10		1/10/24	4.4	204	130	49	2	0.7	5.0	27	0.9
MW10		21/1/25	4.3	202	130	54	2	0.0	5.0	20	0.9
	Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
MW10		12/4/24	4.4	261	160	61	6	0.7	5.0	30	1.0
MW10		31/7/24	4.4	269	170	67	12	1.0	5.4	27	1.0
MW10		1/10/24	4.4	204	130	49	2	0.7	5.0	27	0.9
MW10		21/1/25	4.3	202	130	54	2	0.0	5.0	20	0.9
	Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
MW10		12/4/24	4.4	261	160	61	6	0.7	5.0	30	1.0
MW10		31/7/24	4.4	269	170	67	12	1.0	5.4	27	1.0
MW10		1/10/24	4.4	204	130	49	2	0.7	5.0	27	0.9
MW10		21/1/25	4.3	202	130	54	2	0.0	5.0	20	0.9

MW11	(Off	Old	Telegraph R	d

	Piwii (on old relegiapii ra)										
Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium	
MW11 (Off Old Telegraph Rd)	12/4/24	5.8	160	100	30	11	4.0	2.0	13	6.0	
MW11 (Off Old Telegraph Rd)	31/7/24	6.0	261	160	29	34	18.0	5.0	15	8.7	
MW11 (Off Old Telegraph Rd)	1/10/24	5.7	198	120	35	10	7.4	3.0	17	5.0	
MW11 (Off Old Telegraph Rd)	21/1/25	5.3	154	96	37	3	3.0	2.0	16	3.0	
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium	
MW11 (Off Old Telegraph Rd)	12/4/24	5.8	160	100	30	11	4.0	2.0	13	6.0	
MW11 (Off Old Telegraph Rd)	31/7/24	6.0	261	160	29	34	18.0	5.0	15	8.7	
MW11 (Off Old Telegraph Rd)	1/10/24	5.7	198	120	35	10	7.4	3.0	17	5.0	
MW11 (Off Old Telegraph Rd)	21/1/25	5.3	154	96	37	3	3.0	2.0	16	3.0	
Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium	
MW11 (Off Old Telegraph Rd)	12/4/24	5.8	160	100	30	11	4.0	2.0	13	6.0	
MW11 (Off Old Telegraph Rd)	31/7/24	6.0	261	160	29	34	18.0	5.0	15	8.7	
MW11 (Off Old Telegraph Rd)	1/10/24	5.7	198	120	35	10	7.4	3.0	17	5.0	
MW11 (Off Old Telegraph Rd)	21/1/25	5.3	154	96	37	3	3.0	2.0	16	3.0	
Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium	
MW11 (Off Old Telegraph Rd)	12/4/24	5.8	160	100	30	11	4.0	2.0	13	6.0	
MW11 (Off Old Telegraph Rd)	31/7/24	6.0	261	160	29	34	18.0	5.0	15	8.7	
MW11 (Off Old Telegraph Rd)	1/10/24	5.7	198	120	35	10	7.4	3.0	17	5.0	
MW11 (Off Old Telegraph Rd)	21/1/25	5.3	154	96	37	3	3.0	2.0	16	3.0	

MW12

MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 21/1/25 4.6 121 76 25 8 2.0 2.0 14 1.0 Sample Date Average of of pH Average of Electrical Conductivity Average of Total Dissolved Solids Average of Chloride Sulphate Average of Calcium Magnesium Average of Sodium Average of Potassium MW12 12/4/24 5.0 126 79 22 9 2.0 1.0 13 2.0 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 1/10/24 4.7 116 79 22 9												
MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 21/1/25 4.6 121 76 25 8 2.0 2.0 14 1.0 Sample Date Average of print Electrical Conductivity Average of Total Dissolved Solids Average of Chloride Sulphate Average of Calcium Magnesium Average of Sodium Average of Potassium MW12 12/4/24 5.0 126 79 22 9 2.0 1.0 13 2.0 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 1/24/24 5.0 126 79 22 9 2.0		Sample	Date	рН			Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW12	MW12		12/4/24	5.0	126	79	22	9	2.0	1.0	13	2.0
Sample Date Average of of pH Average of of pH Average of of pH Conductivity Average of of pH Sample Average of of pH Average of of the pissolved Solids of the office of the pissolved Solids of the office of	MW12		31/7/24	4.9	107	67	22	7	2.0	1.0	13	0.9
Sample Date Average of pH Electrical Dissolved Solids Chloride Sulphate Calcium Average of Calcium Dissolved Solids Chloride Sulphate Calcium Dissolved Solids Calcium Dissolved Sol	MW12		1/10/24	4.7	115	72	23	7	2.0	1.0	15	0.7
MW12	MW12		21/1/25	4.6	121	76	25	8	2.0	2.0	14	1.0
MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 21/1/25 4.6 121 76 25 8 2.0 2.0 14 1.0 Sample Date Min of pH Min of Electrical Conductivity Min of Total Dissolved Solids Min of Chloride Sulphate Min of Calcium Magnesium Min of Magnesium Sodium Min of Potassium MW12 12/4/24 5.0 126 79 22 9 2.0 1.0 13 2.0 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 Date Max of pH Max of Electrical Conductivity Max of Total Dissolved Solids <td< td=""><td></td><td>Sample</td><td>Date</td><td></td><td>Electrical</td><td>5</td><td></td><td></td><td></td><td>_</td><td></td><td>Average of Potassium</td></td<>		Sample	Date		Electrical	5				_		Average of Potassium
MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 21/1/25 4.6 121 76 25 8 2.0 2.0 14 1.0 Sample Date Min of pH Min of Electrical Conductivity Min of Total Dissolved Solids Min of Sulphate Calcium Min of Magnesium Magnesium Min of Potassium MW12 12/4/24 5.0 126 79 22 9 2.0 1.0 13 2.0 MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 21/1/25 4.6 121 76 25 8 2.0 2.0 14 1.0 Sample Date Max of pH Max of Electrical Conductivity Max of Total Dissolved Solids Chloride Sulphate	MW12		12/4/24	5.0	126	79	22	9	2.0	1.0	13	2.0
MW12	MW12		31/7/24	4.9	107	67	22	7	2.0	1.0	13	0.9
Sample Date Min of pH Min of Electrical Min of Total Min of Sulphate Sulphate Calcium Min of Magnesium Sodium Potassium	MW12		1/10/24	4.7	115	72	23	7	2.0	1.0	15	0.7
MW12 12/4/24 5.0 126 79 22 9 2.0 1.0 13 2.0 MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 2.0 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 21/1/25 4.6 121 76 25 8 2.0 2.0 14 1.0 Sample Date Max of pH Max of Electrical Conductivity Max of Total Dissolved Solids Max of Chloride Sulphate Max of Max of Magnesium Max of Magnesium Sodium Potassium MW12 12/4/24 5.0 126 79 22 9 2.0 1.0 13 2.0 MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0	MW12		21/1/25	4.6	121	76	25	8	2.0	2.0	14	1.0
MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 21/1/25 4.6 121 76 25 8 2.0 2.0 14 1.0 Sample Date Max of pH Max of Electrical Conductivity Max of Total Dissolved Solids Max of Chloride Sulphate Max of Calcium Calcium Magnesium Max of Max of Max of Potassium MW12 12/4/24 5.0 126 79 22 9 2.0 1.0 13 2.0 MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7		Sample	Date	Min of pH								
MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7 MW12 Date Max of pH Max of Electrical Conductivity Max of Total Dissolved Solids Max of Chloride Max of Sulphate Max of Calcium Calcium Max of Max of Max of Max of Calcium Max of Max of Max of Calcium Max of Max of Max of Calcium Max of Calcium Max of Calcium Max of Max of Calcium	MW12		12/4/24	5.0	126	79	22	9	2.0	1.0	13	2.0
MW12 Date Max of pH Max of Electrical Conductivity Max of Total Dissolved Solids Max of Chloride Sulphate Max of Calcium Magnesium Max of Max of Potassium MW12 12/4/24 5.0 126 79 22 9 2.0 1.0 13 2.0 MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7	MW12		31/7/24	4.9	107	67	22	7	2.0	1.0	13	0.9
Sample Date Max of pH Max of Electrical Conductivity Max of Total Dissolved Solids Max of Chloride Max of Sulphate Max of Calcium Max of Max of Max of Max of Calcium Max of Max of Calcium Max of Max of Calcium Max of Max of Max of Calcium Max of Calcium Max of Max of Max of Calcium Max of Calcium Max of Calcium Max of Max of Max of Calcium Max of Calcium Max of Calcium Max of Max of Calcium	MW12		1/10/24	4.7	115	72	23	7	2.0	1.0	15	0.7
MW12 12/4/24 5.0 126 79 22 9 2.0 1.0 13 2.0 MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7	MW12		21/1/25	4.6	121	76	25	8	2.0	2.0	14	1.0
MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7		Sample	Date	Max of pH								Max of Potassium
MW12 31/7/24 4.9 107 67 22 7 2.0 1.0 13 0.9 MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7	MW12		12/4/24	5.0	126	79	22	9	2.0	1.0	13	2.0
MW12 1/10/24 4.7 115 72 23 7 2.0 1.0 15 0.7												
·												
	MW12		21/1/25	4.6	121	76	25	8	2.0	2.0	14	1.0

MW6 (Office)	~

Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW6 (Office)	12/4/24	7.4	342	210	77	1	2.0	2.0	45	2.0
MW6 (Office)	31/7/24	7.8	354	220	82	0	4.0	3.0	43	2.0
MW6 (Office)	1/10/24	8.5	366	230	81	0	5.0	4.0	56	2.0
MW6 (Office)	21/1/25	7.3	342	210	81	0	4.0	3.0	54	2.0
Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
MW6 (Office)	12/4/24	7.4	342	210	77	1	2.0	2.0	45	2.0
MW6 (Office)	31/7/24	7.8	354	220	82	0	4.0	3.0	43	2.0
MW6 (Office)	1/10/24	8.5	366	230	81	0	5.0	4.0	56	2.0
MW6 (Office)	21/1/25	7.3	342	210	81	0	4.0	3.0	54	2.0
Sample				M: 67.1	N4: 6	Min of	Min of			
	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
MW6 (Office)	Date 12/4/24	Min of pH 7.4								
MW6 (Office) MW6 (Office)			Conductivity	Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW6 (Office)	12/4/24	7.4	Conductivity 342	Dissolved Solids 210	Chloride 77	Sulphate 1	Calcium 2.0	Magnesium 2.0	Sodium 45	Potassium 2.0
MW6 (Office) MW6 (Office) MW6 (Office) MW6 (Office)	12/4/24 31/7/24	7.4 7.8	Conductivity 342 354	Dissolved Solids 210 220	Chloride 77 82	Sulphate 1 0	Calcium 2.0 4.0	Magnesium 2.0 3.0	Sodium 45 43	Potassium 2.0 2.0
MW6 (Office) MW6 (Office)	12/4/24 31/7/24 1/10/24	7.4 7.8 8.5	342 354 366	Dissolved Solids 210 220 230	77 82 81	Sulphate 1 0 0	2.0 4.0 5.0	2.0 3.0 4.0	45 43 56	2.0 2.0 2.0 2.0
MW6 (Office) MW6 (Office) MW6 (Office)	12/4/24 31/7/24 1/10/24 21/1/25	7.4 7.8 8.5 7.3	Conductivity 342 354 366 342 Max of Electrical	Dissolved Solids 210 220 230 210 Max of Total	Chloride 77 82 81 81	Sulphate 1 0 0 0 Max of	2.0 4.0 5.0 4.0	2.0 3.0 4.0 3.0 Max of	45 43 56 54 Max of	2.0 2.0 2.0 2.0 2.0
MW6 (Office) MW6 (Office) MW6 (Office) Sample	12/4/24 31/7/24 1/10/24 21/1/25 Date	7.4 7.8 8.5 7.3 Max of pH	Conductivity 342 354 366 342 Max of Electrical Conductivity	Dissolved Solids 210 220 230 210 Max of Total Dissolved Solids	Chloride 77 82 81 81 Chloride	Sulphate 1 0 0 0 Max of Sulphate	2.0 4.0 5.0 4.0 Max of Calcium	2.0 3.0 4.0 3.0 Max of Magnesium	Sodium 45 43 56 54 Max of Sodium	2.0 2.0 2.0 2.0 2.0 Potassium
MW6 (Office) MW6 (Office) MW6 (Office) Sample MW6 (Office)	12/4/24 31/7/24 1/10/24 21/1/25 Date	7.4 7.8 8.5 7.3 Max of pH	Conductivity 342 354 366 342 Max of Electrical Conductivity 342	Dissolved Solids 210 220 230 210 Max of Total Dissolved Solids 210	Chloride 77 82 81 81 Max of Chloride 77	Sulphate 1 0 0 0 Max of Sulphate	2.0 4.0 5.0 4.0 Max of Calcium 2.0	2.0 3.0 4.0 3.0 Max of Magnesium 2.0	Sodium 45 43 56 54 Max of Sodium 45	Potassium 2.0 2.0 2.0 2.0 2.0 Max of Potassium 2.0

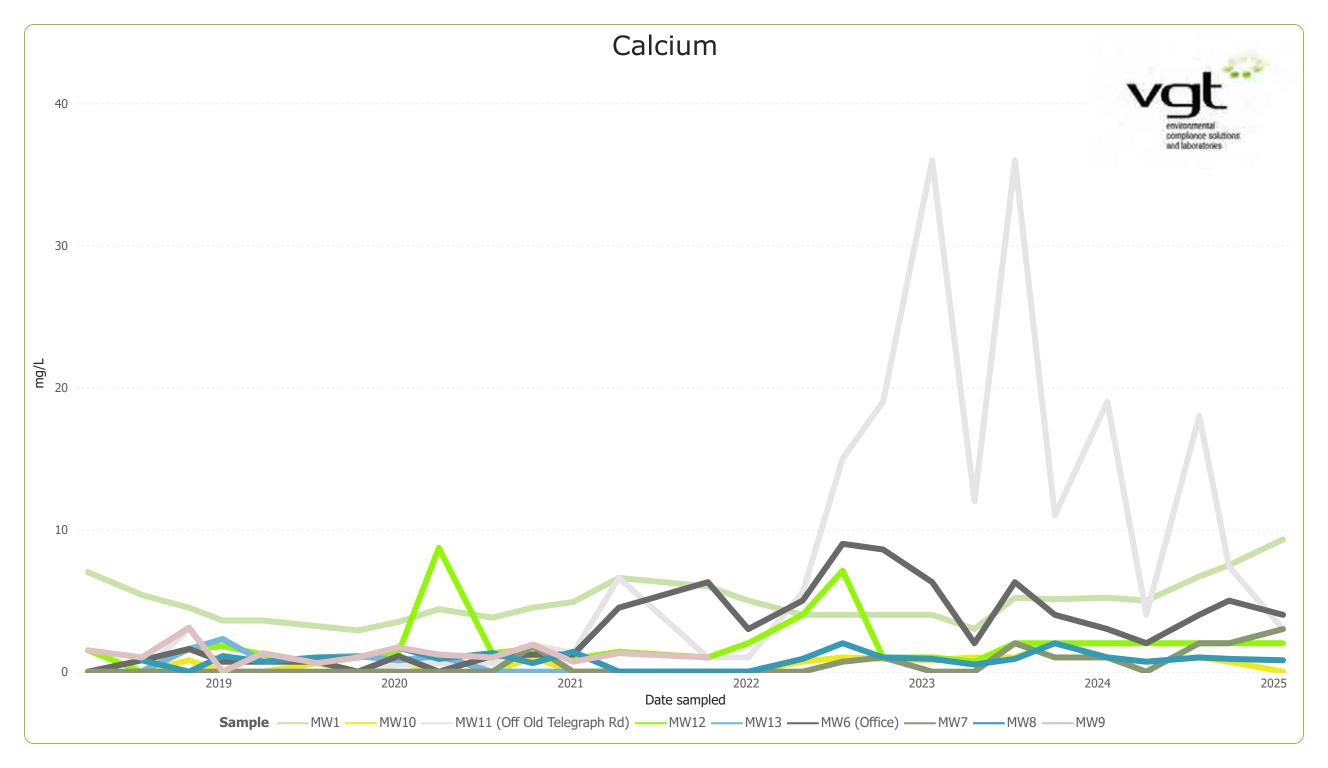
MW7	\vee
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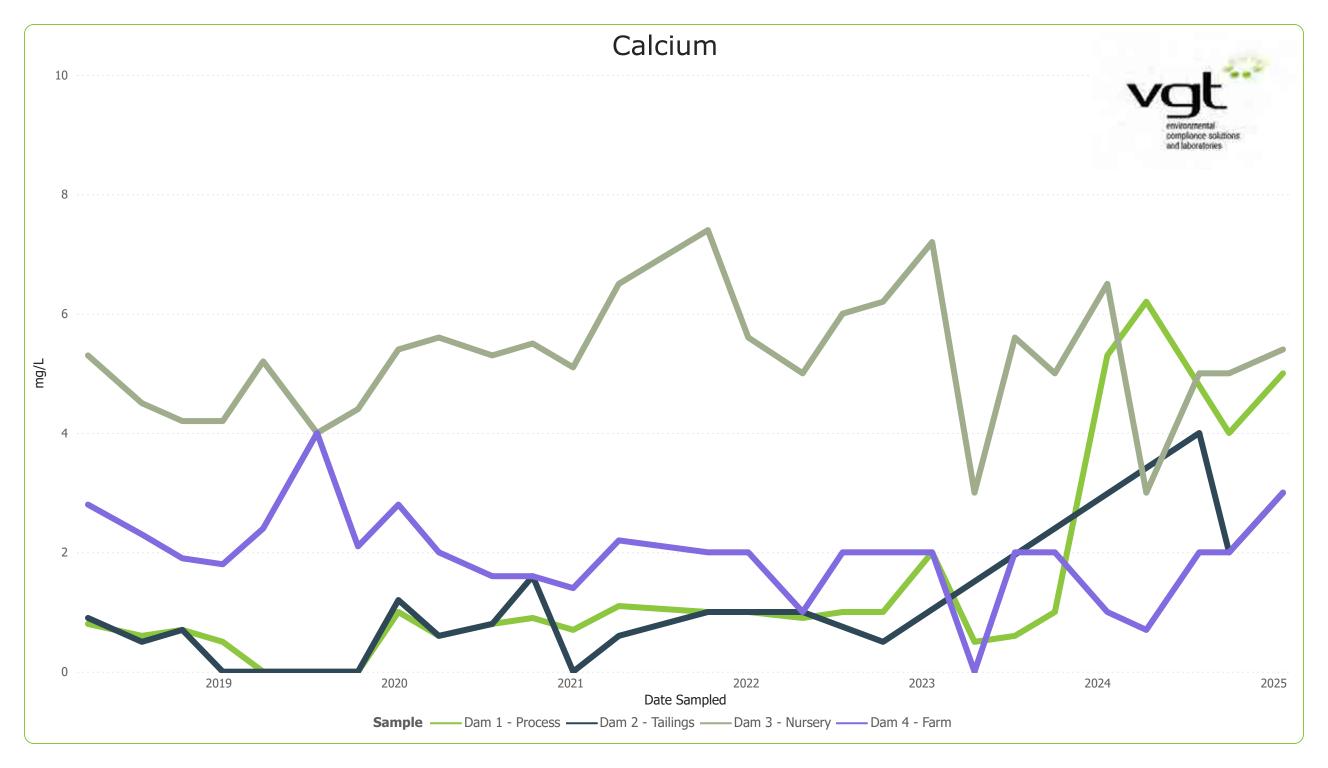
	Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW7		12/4/24	5.6	181	110	29	8	0.0	0.0	26	0.0
MW7		31/7/24	5.4	174	110	31	7	2.0	1.0	24	0.9
MW7		1/10/24	5.2	166	100	30	6	2.0	2.0	27	1.0
MW7		21/1/25	5.5	177	110	72	3	3.0	2.0	21	1.0
	Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
MW7		12/4/24	5.6	181	110	29	8	0.0	0.0	26	0.0
MW7		31/7/24	5.4	174	110	31	7	2.0	1.0	24	0.9
MW7		1/10/24	5.2	166	100	30	6	2.0	2.0	27	1.0
MW7		21/1/25	5.5	177	110	72	3	3.0	2.0	21	1.0
	Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
MW7		12/4/24	5.6	181	110	29	8	0.0	0.0	26	0.0
MW7		31/7/24	5.4	174	110	31	7	2.0	1.0	24	0.9
MW7		1/10/24	5.2	166	100	30	6	2.0	2.0	27	1.0
MW7		21/1/25	5.5	177	110	72	3	3.0	2.0	21	1.0
	Sample	Date	Max of pH	Max of Electrical Conductivity	Max of Total Dissolved Solids	Max of Chloride	Max of Sulphate	Max of Calcium	Max of Magnesium	Max of Sodium	Max of Potassium
MW7		12/4/24	5.6	181	110	29	8	0.0	0.0	26	0.0
MW7		31/7/24	5.4	174	110	31	7	2.0	1.0	24	0.9
MW7		1/10/24	5.2	166	100	30	6	2.0	2.0	27	1.0
1.1447		-/ -0/ - :	5.2	100	100	50	U	2.0	2.0	21	1.0

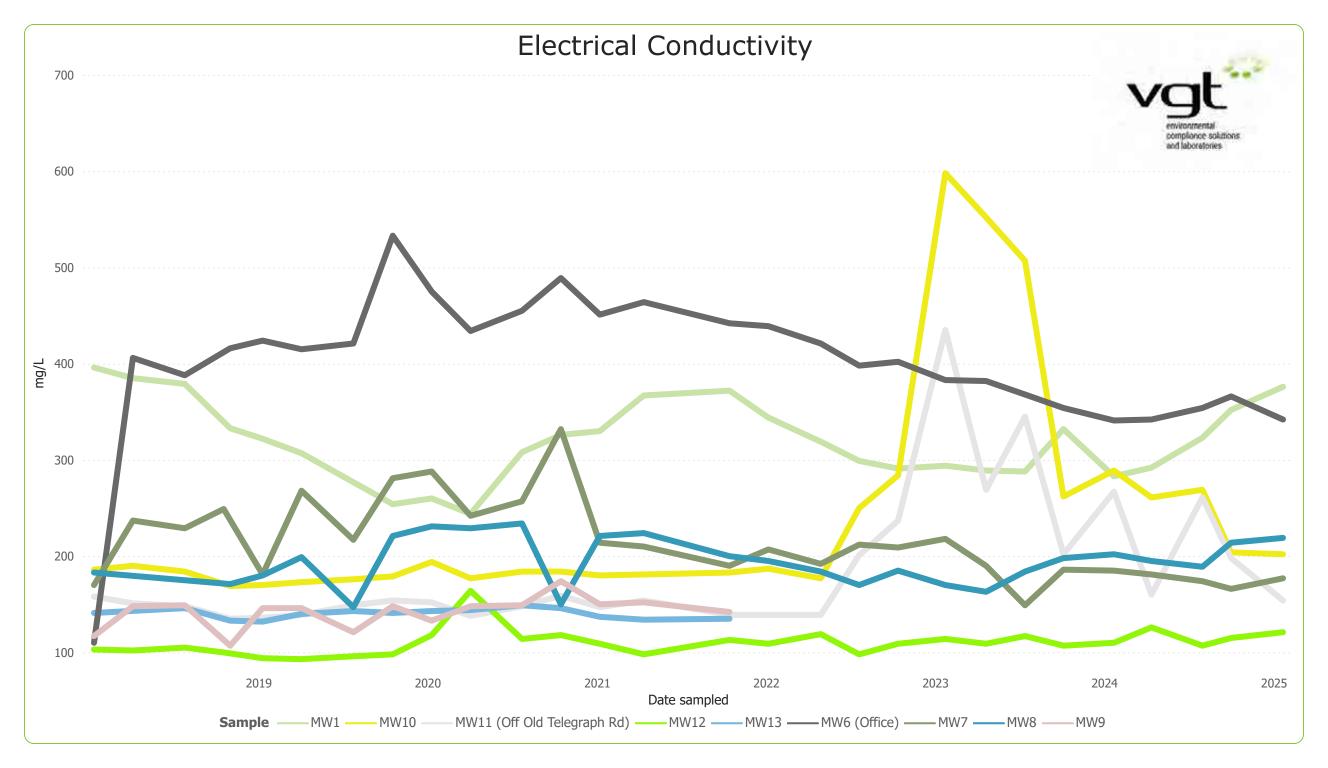
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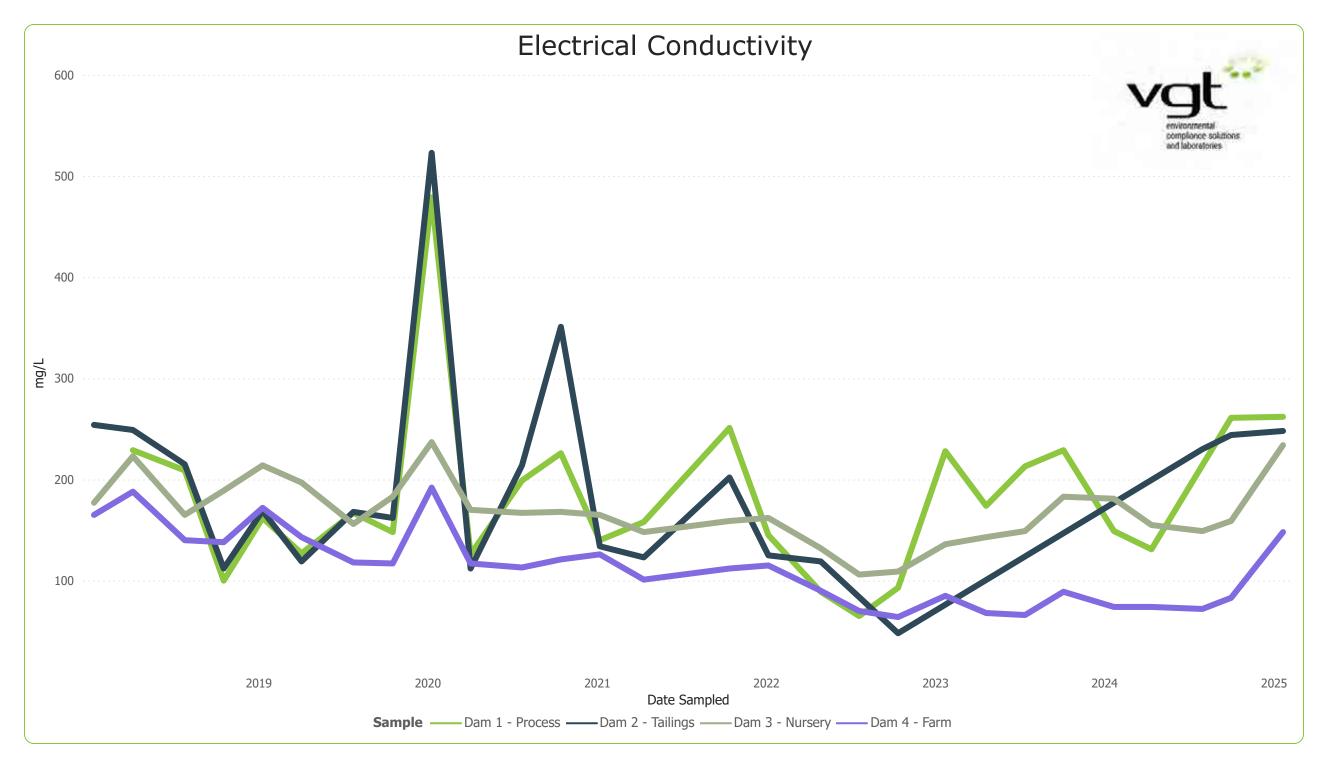
	Sample	Date	рН	Electrical Conductivity	Total Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
MW8		12/4/24	4.4	195	120	45	1	0.7	3.0	20	0.0
MW8		31/7/24	4.4	189	120	47	1	1.0	3.0	21	0.0
8WM		1/10/24	4.2	214	130	49	1	0.9	3.0	23	0.0
MW8		21/1/25	4.2	219	140	71	2	0.8	3.0	25	0.0
	Sample	Date	Average of pH	Average of Electrical Conductivity	Average of Total Dissolved Solids	Average of Chloride	Average of Sulphate	Average of Calcium	Average of Magnesium	Average of Sodium	Average of Potassium
MW8		12/4/24	4.4	195	120	45	1	0.7	3.0	20	0.0
MW8		31/7/24	4.4	189	120	47	1	1.0	3.0	21	0.0
MW8		1/10/24	4.2	214	130	49	1	0.9	3.0	23	0.0
MW8		21/1/25	4.2	219	140	71	2	0.8	3.0	25	0.0
	Sample	Date	Min of pH	Min of Electrical Conductivity	Min of Total Dissolved Solids	Min of Chloride	Min of Sulphate	Min of Calcium	Min of Magnesium	Min of Sodium	Min of Potassium
MW8		12/4/24	4.4	195	120	45	1	0.7	3.0	20	0.0
MW8		31/7/24	4.4	189	120	47	1	1.0	3.0	21	0.0
MW8		1/10/24	4.2	214	130	49	1	0.9	3.0	23	0.0
MW8		21/1/25	4.2	219	140	71	2	0.8	3.0	25	0.0
	Sample	Date	Max of pH	Max of Electrical	Max of Total	Max of	Max of	Max of	Max of	Max of	Max of
				Conductivity	Dissolved Solids	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium
8WM		12/4/24	4.4	195	120	45	1	0.7	3.0	20	0.0
MW8		31/7/24	4.4	189	120	47	1	1.0	3.0	21	0.0
8WM		1/10/24	4.2	214	130	49	1	0.9	3.0	23	0.0
8WM		21/1/25	4.2	219	140	71	2	0.8	3.0	25	0.0

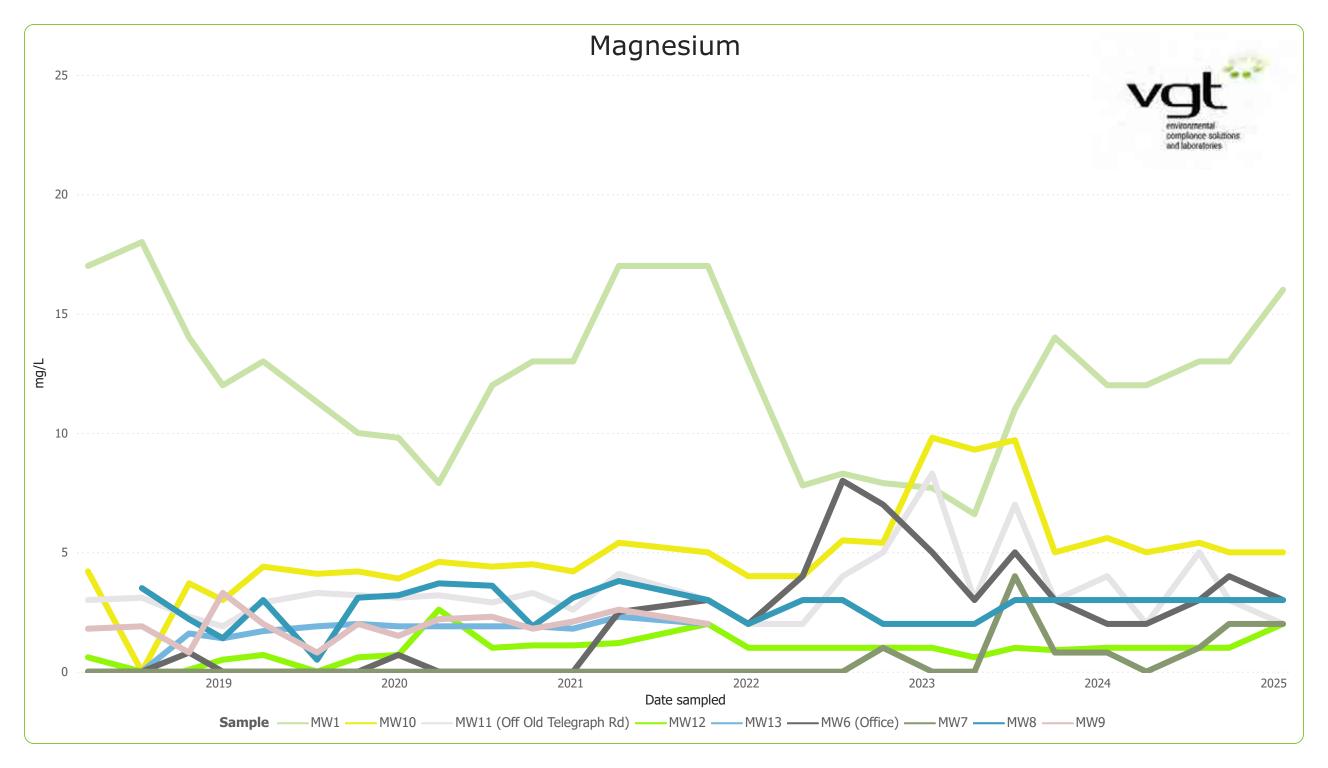
Water Quality Trends

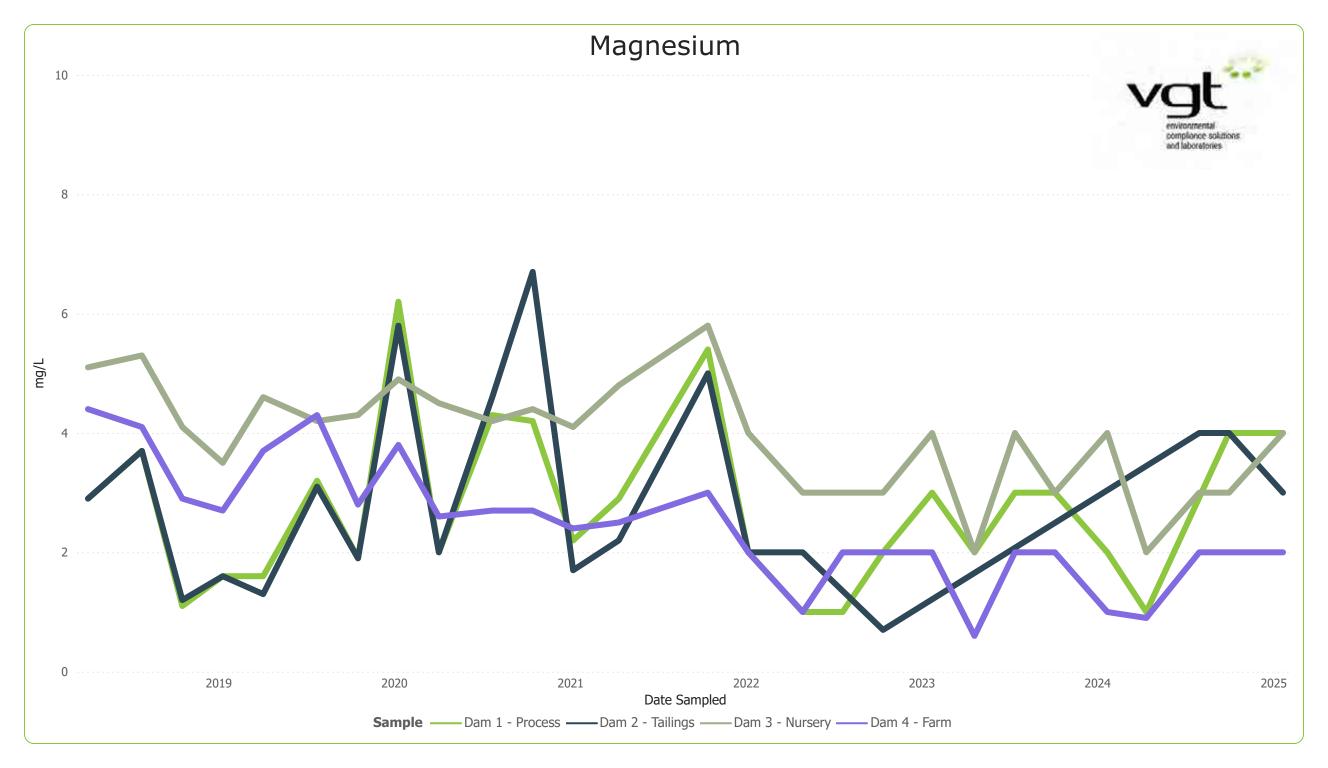


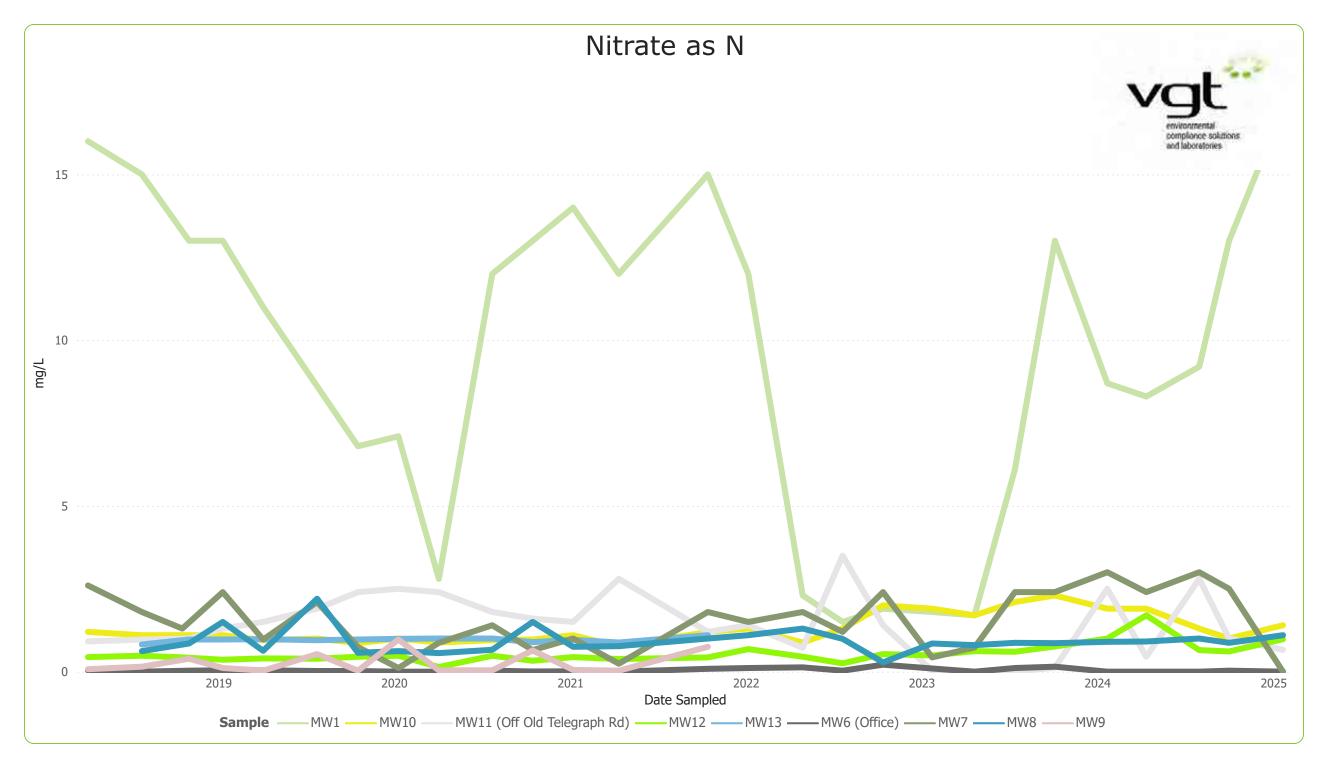


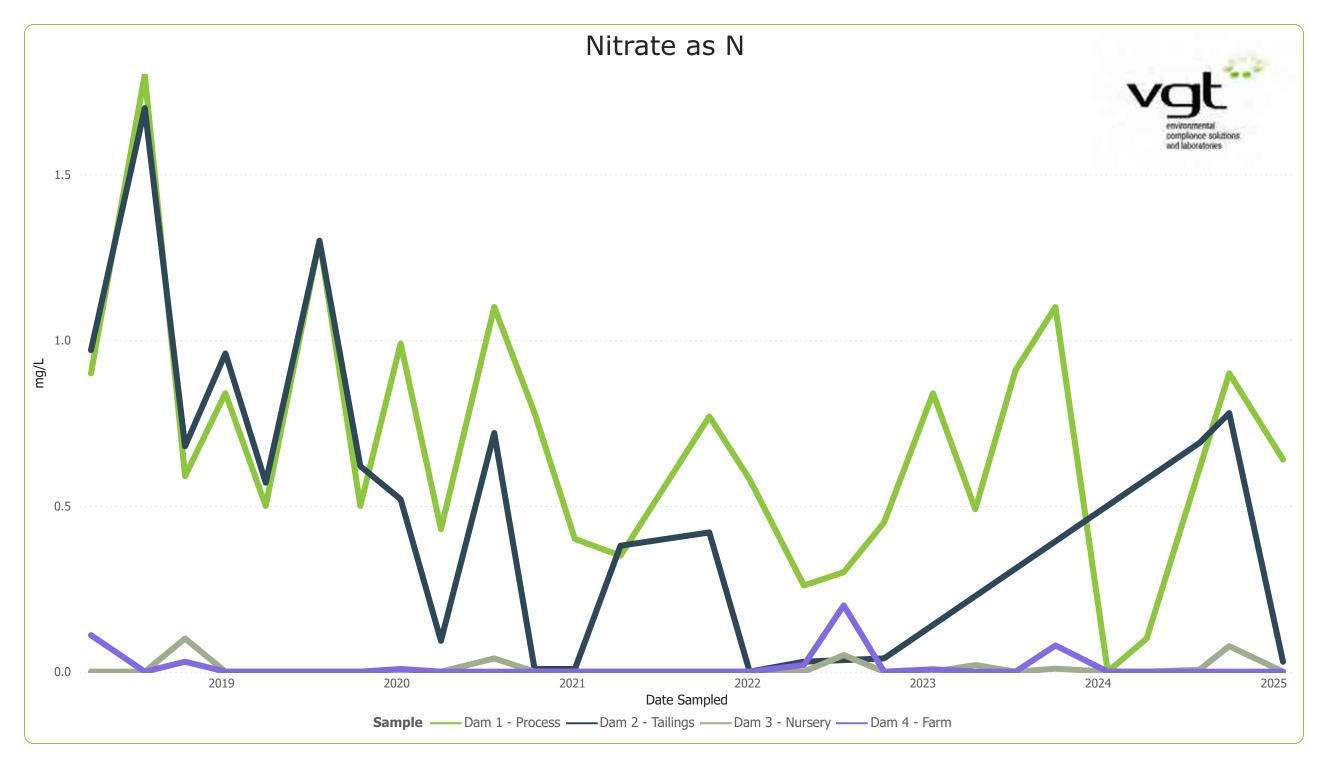


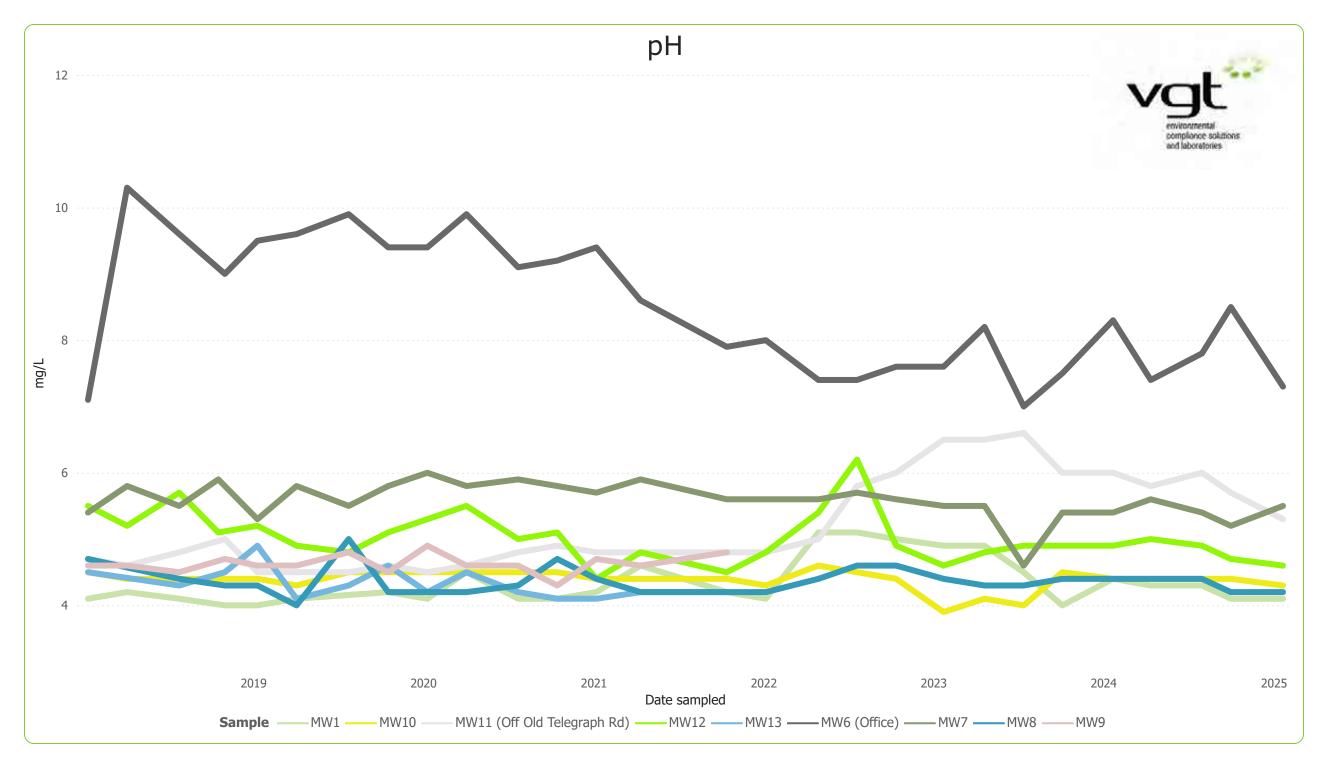


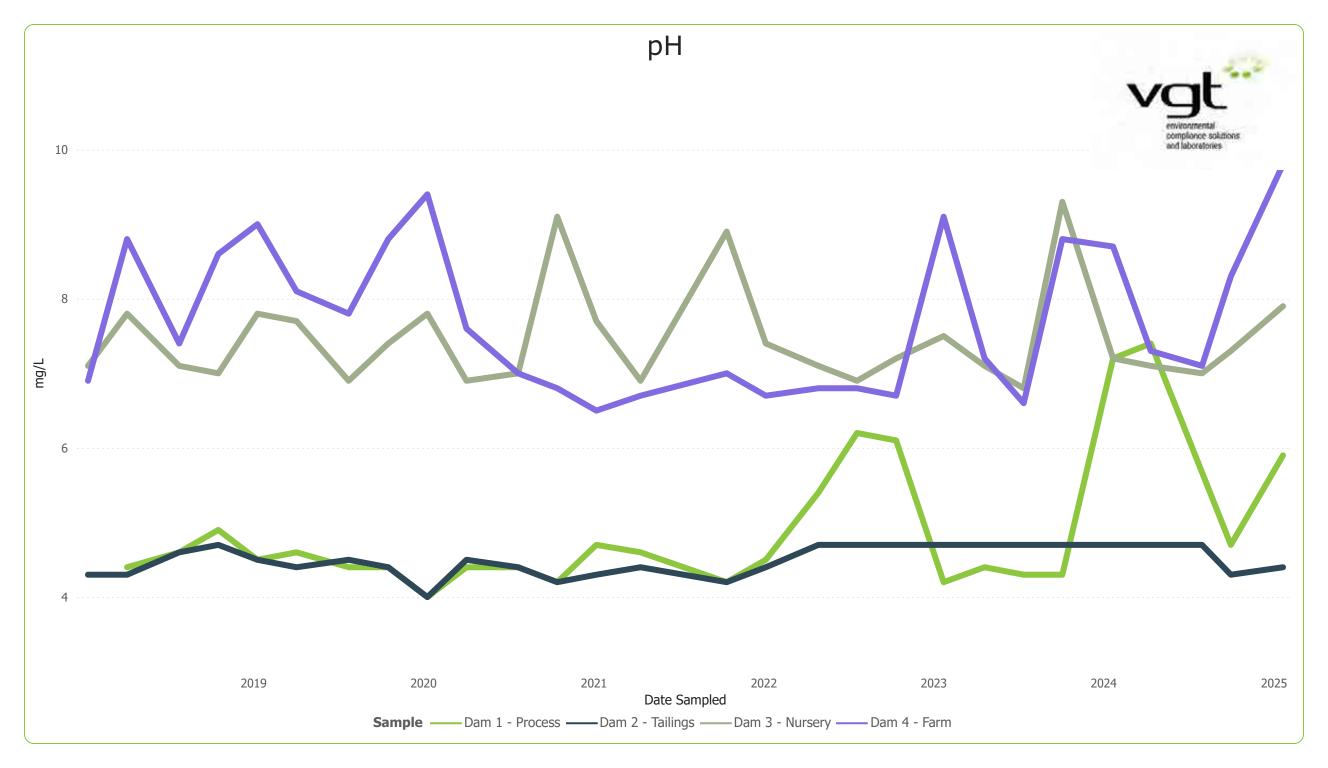


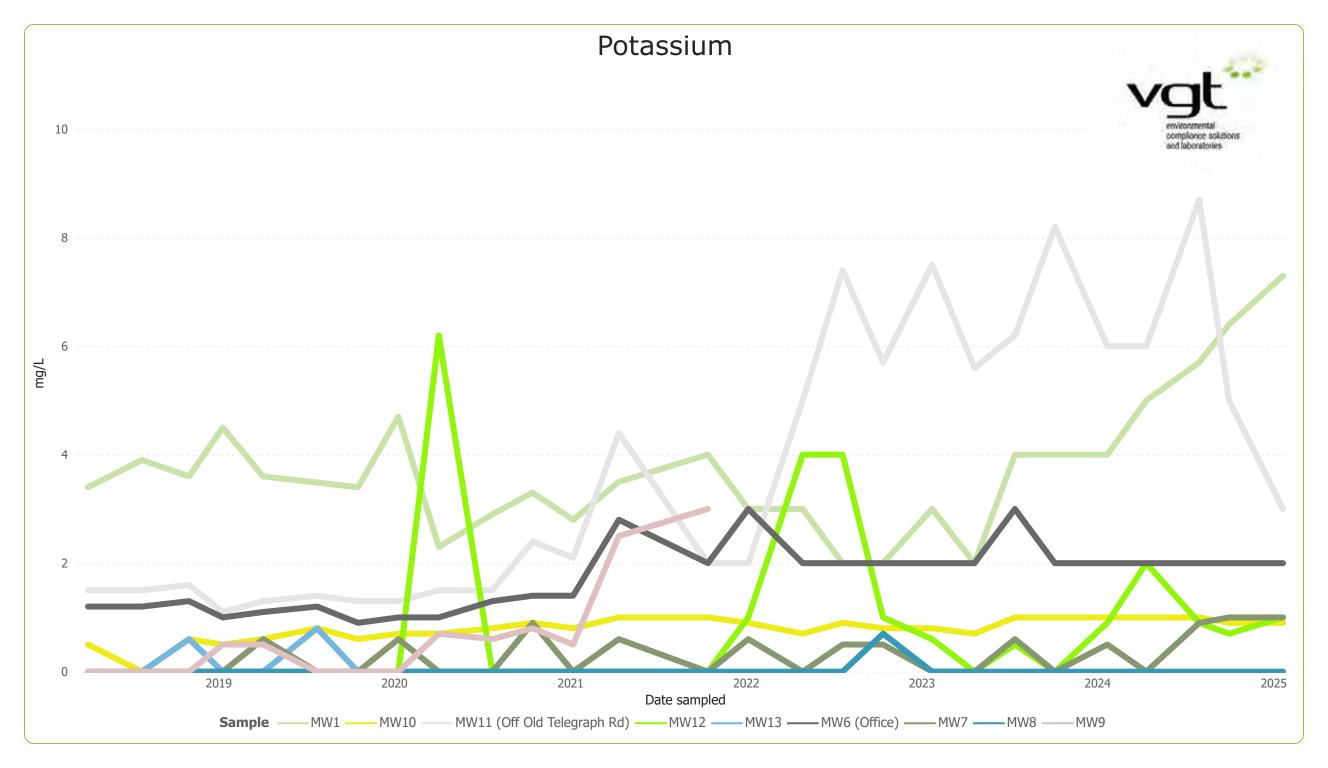


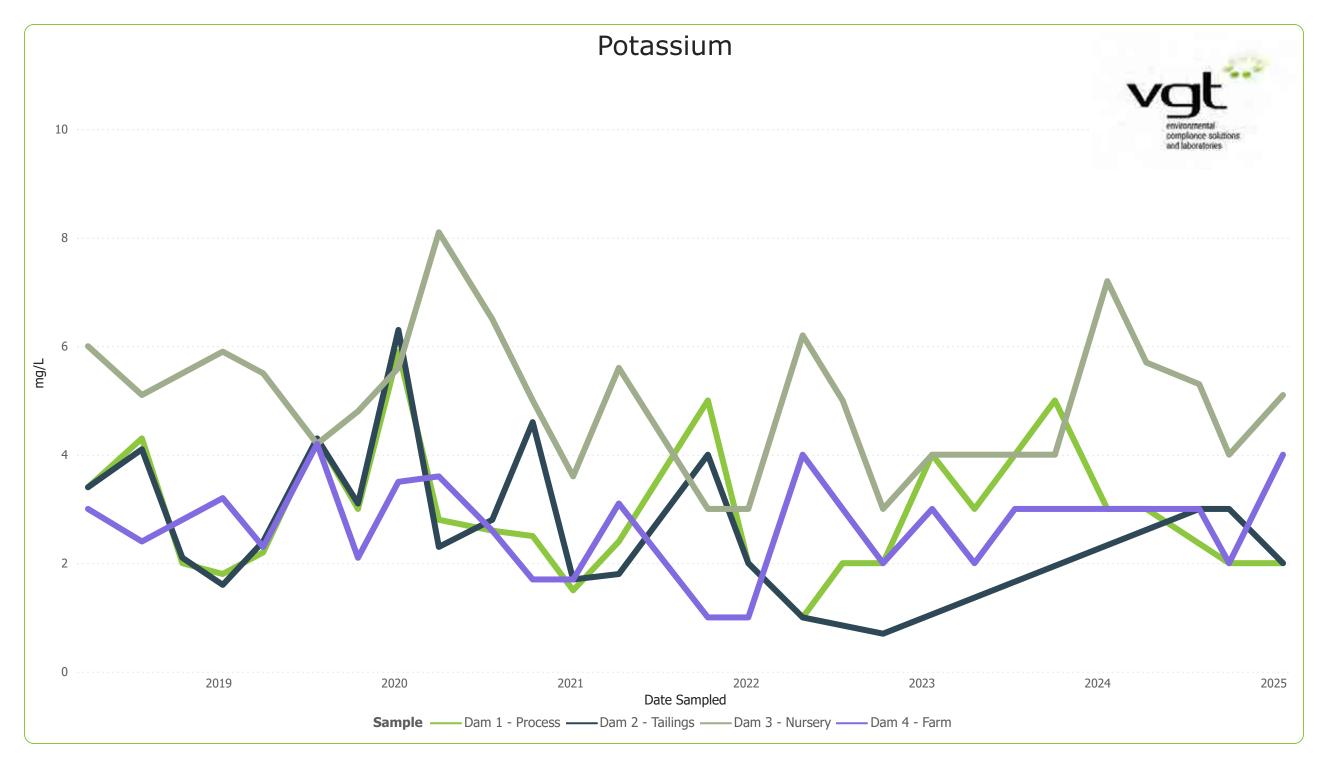


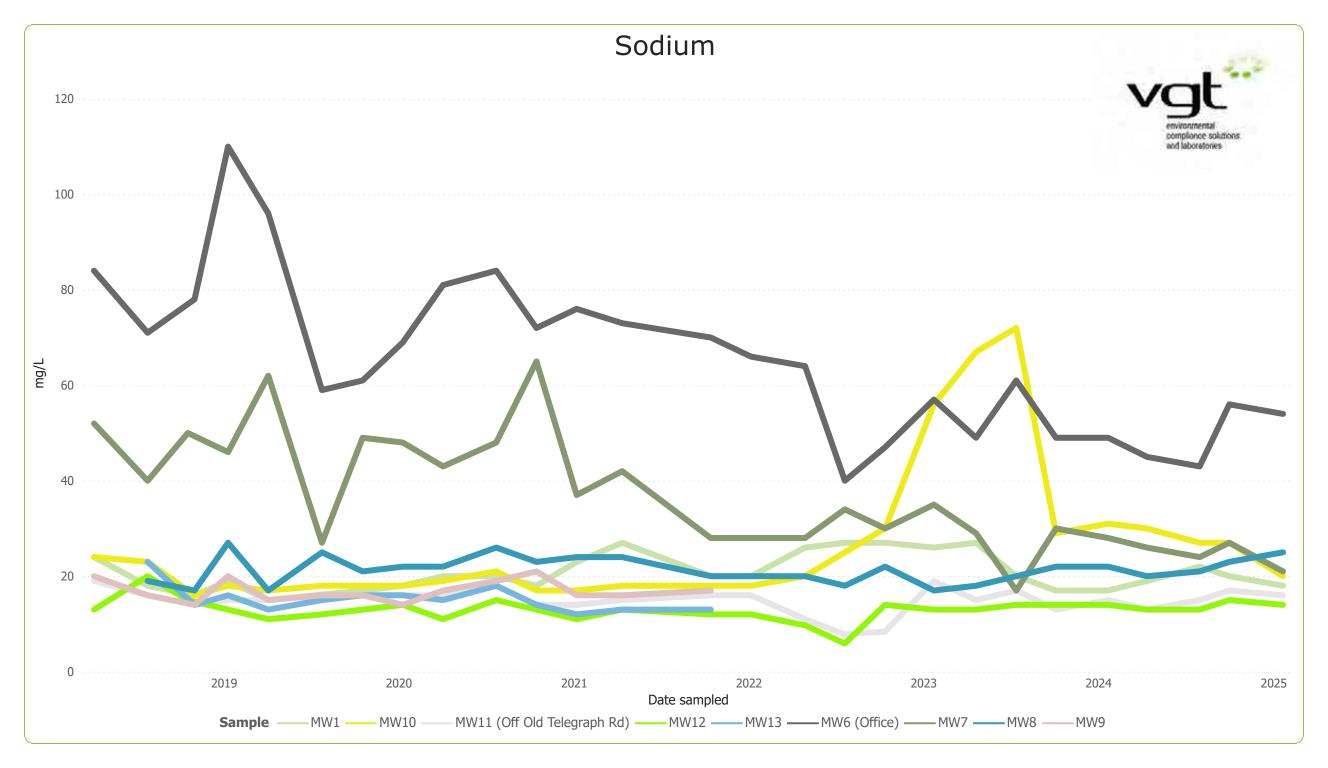


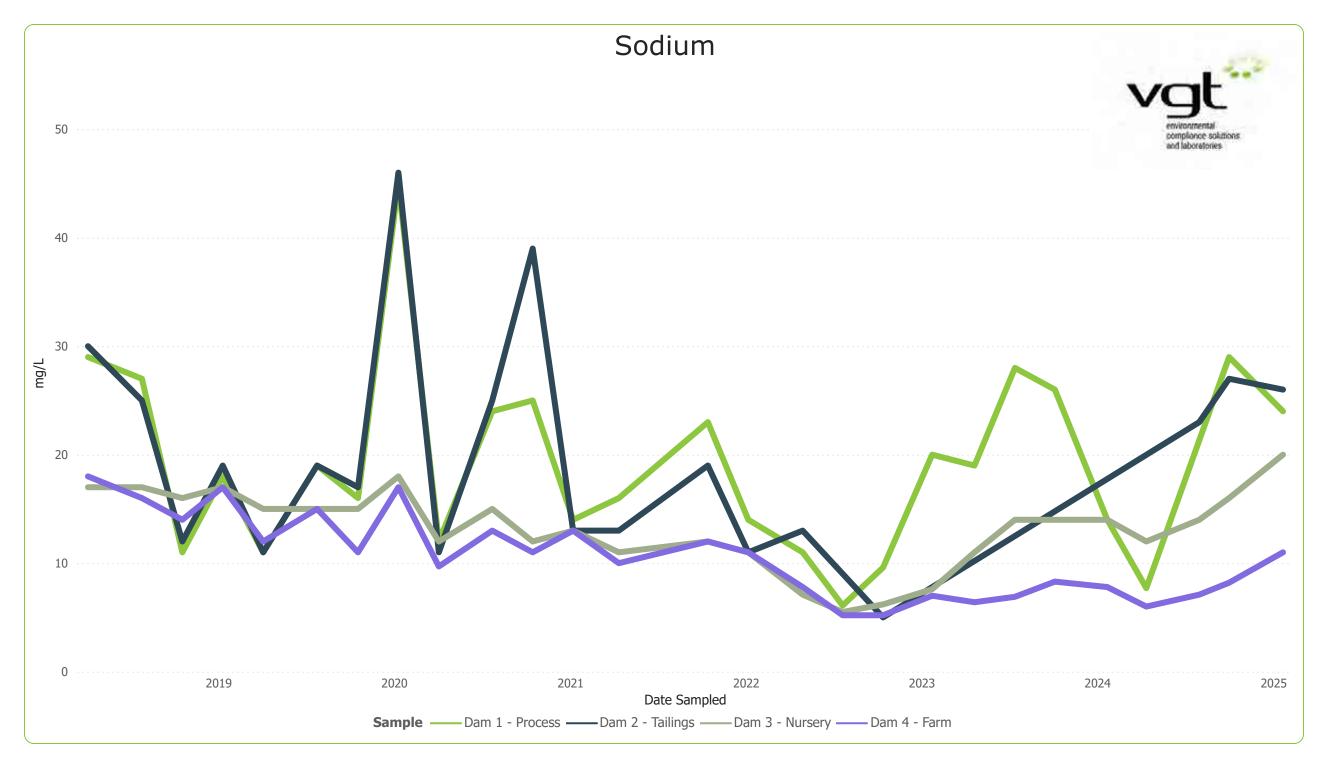


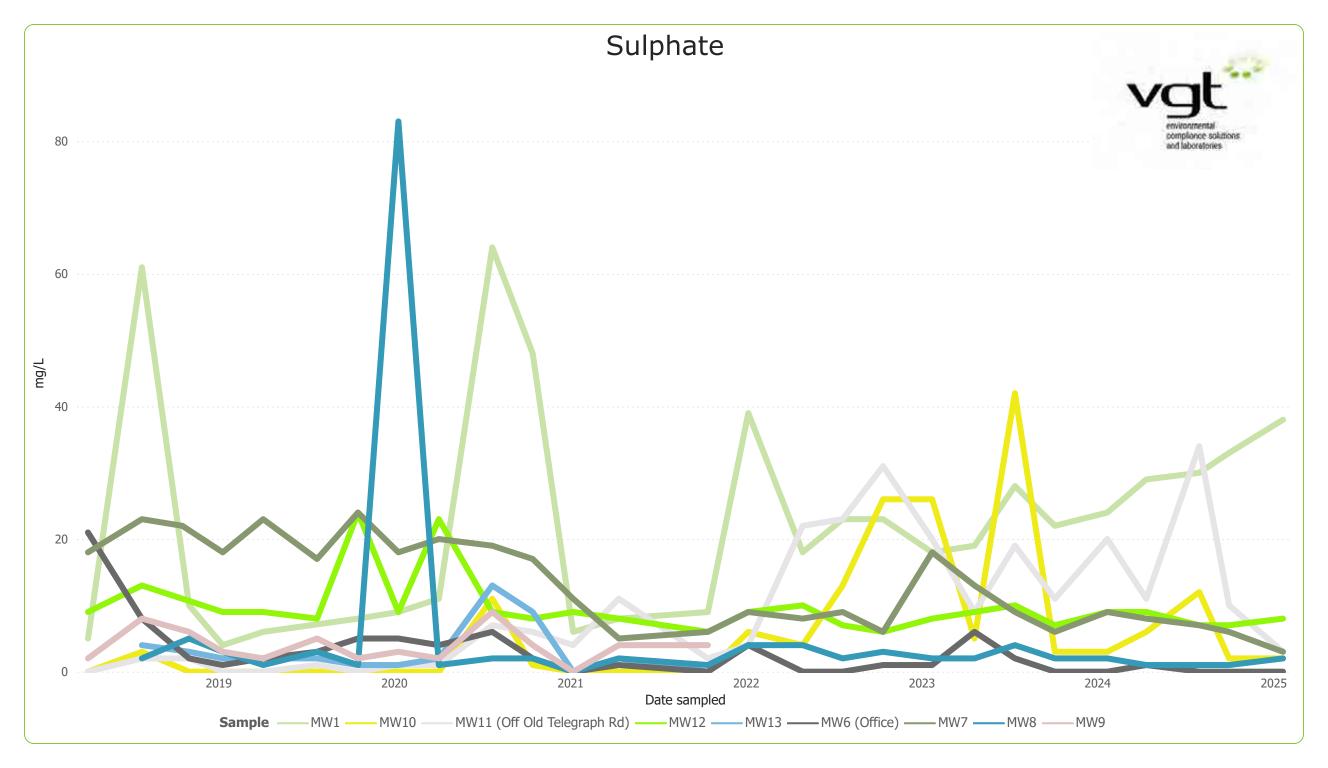


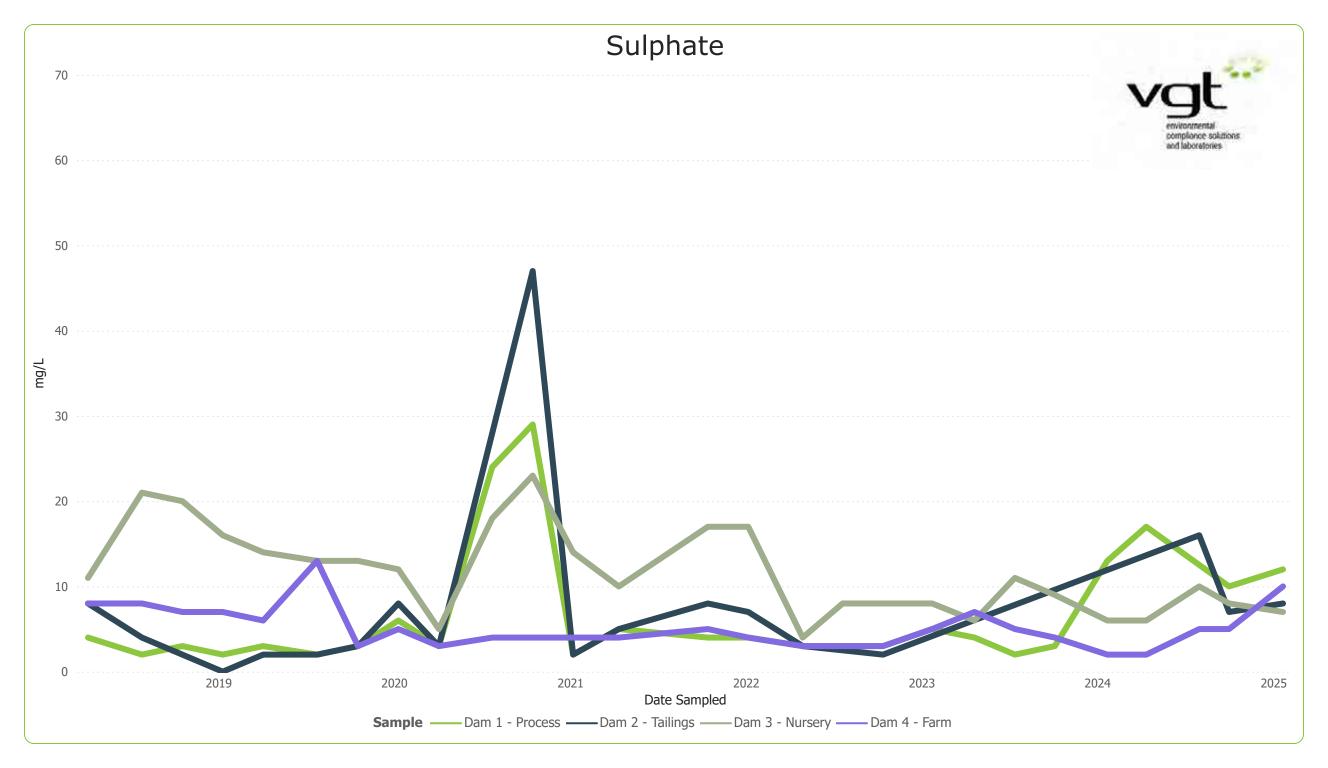


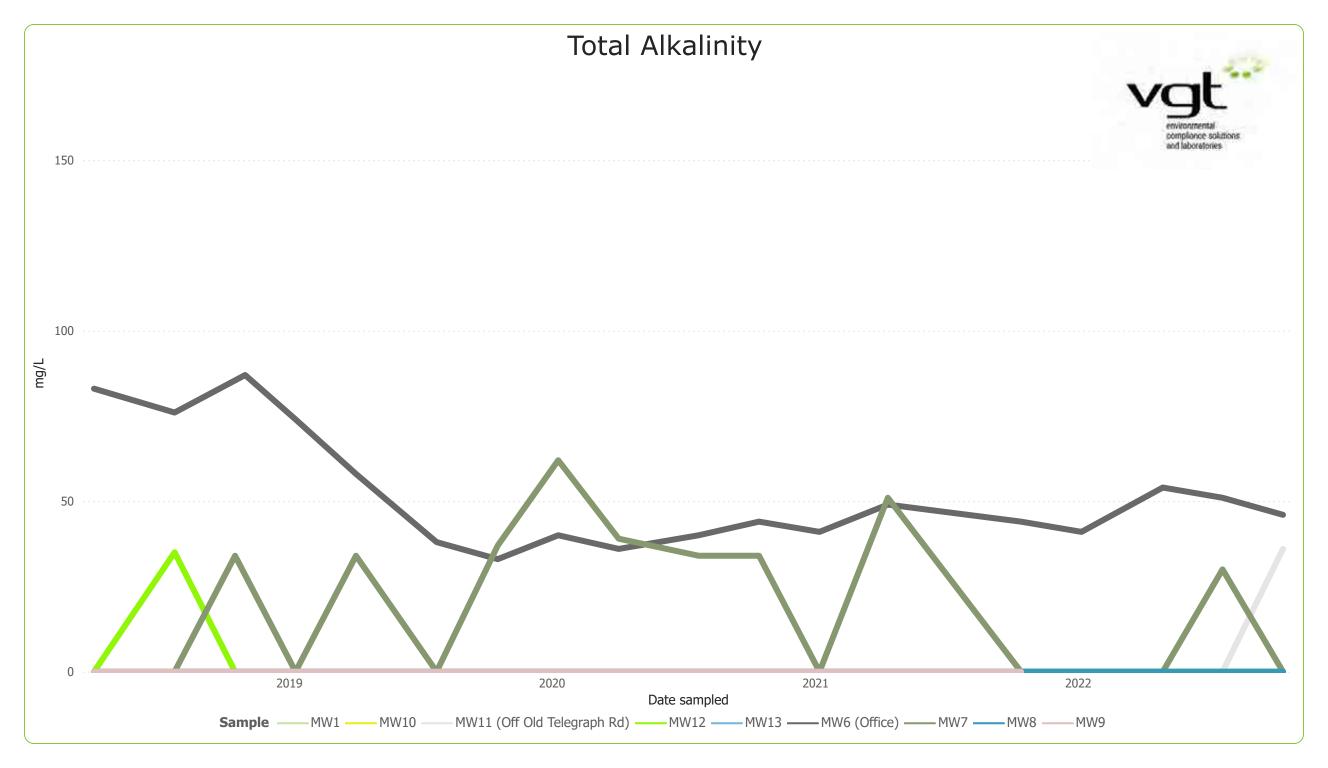


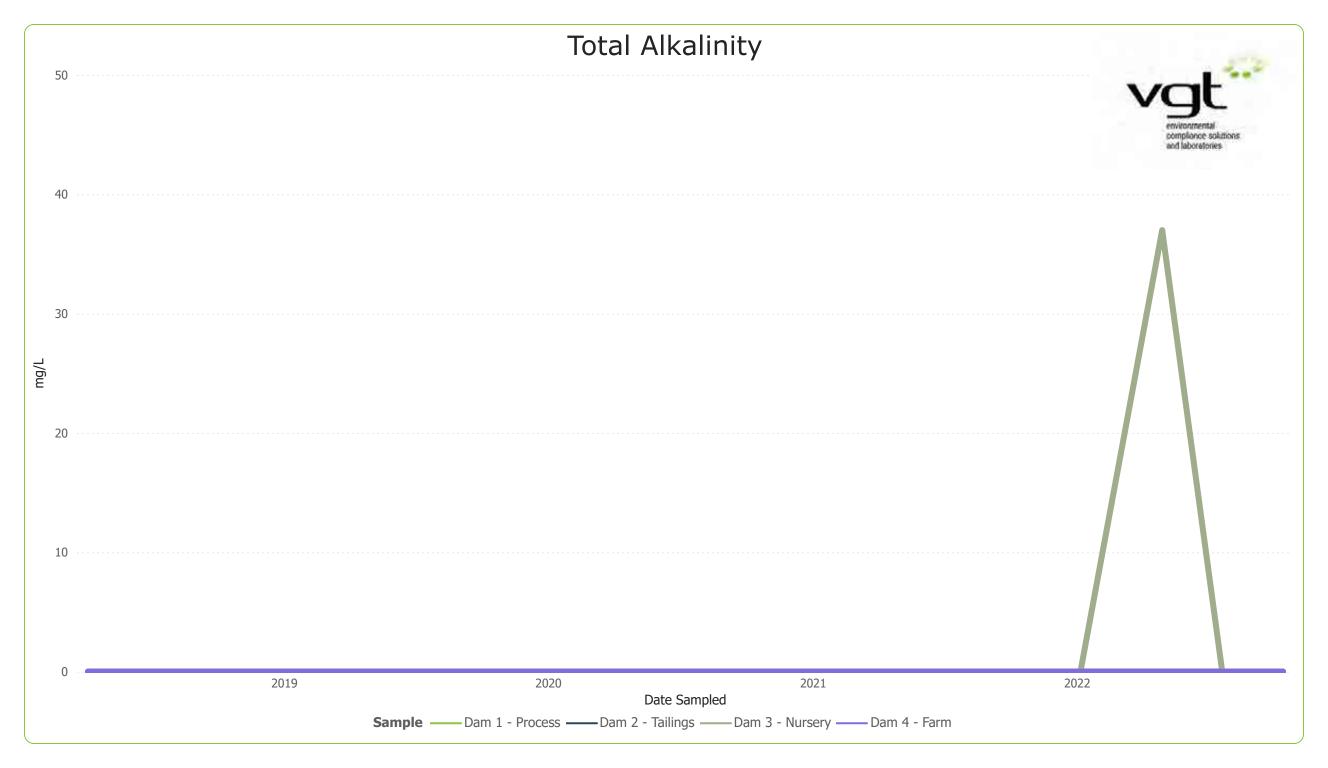


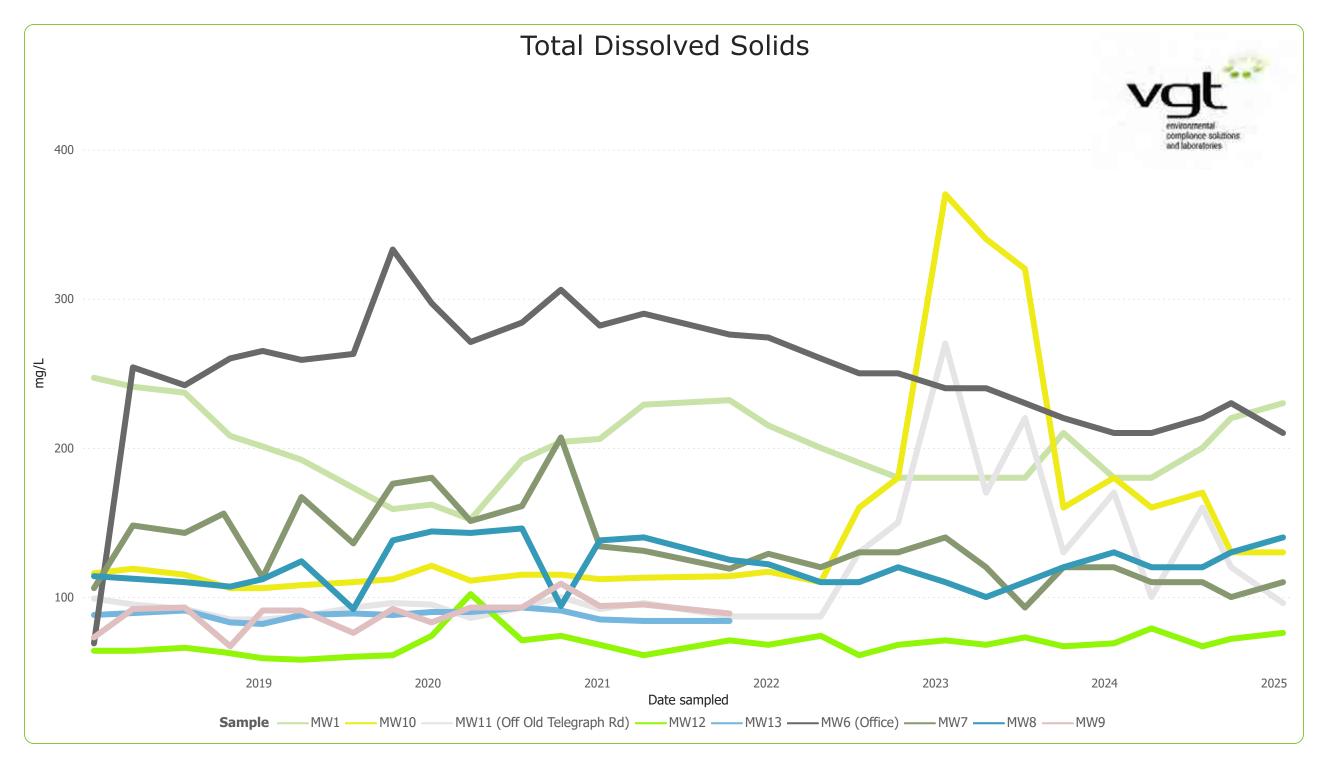


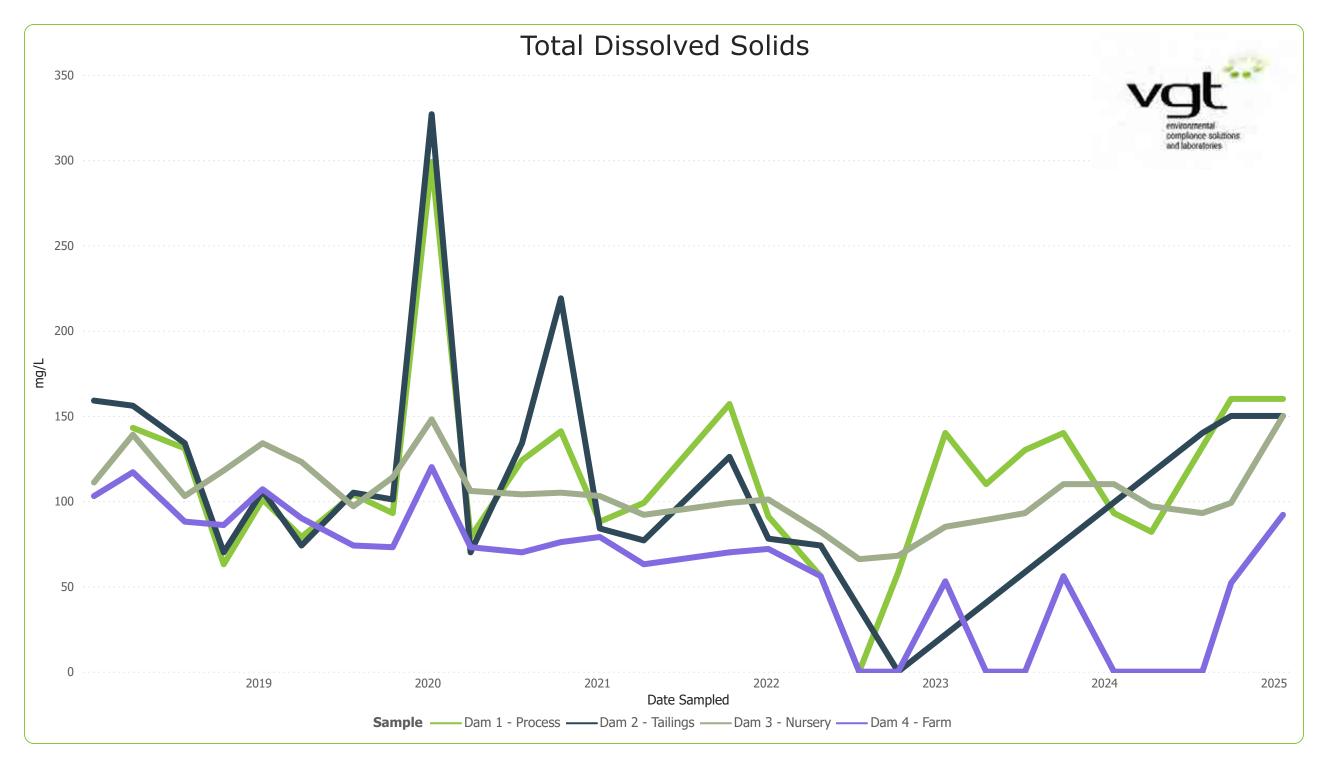


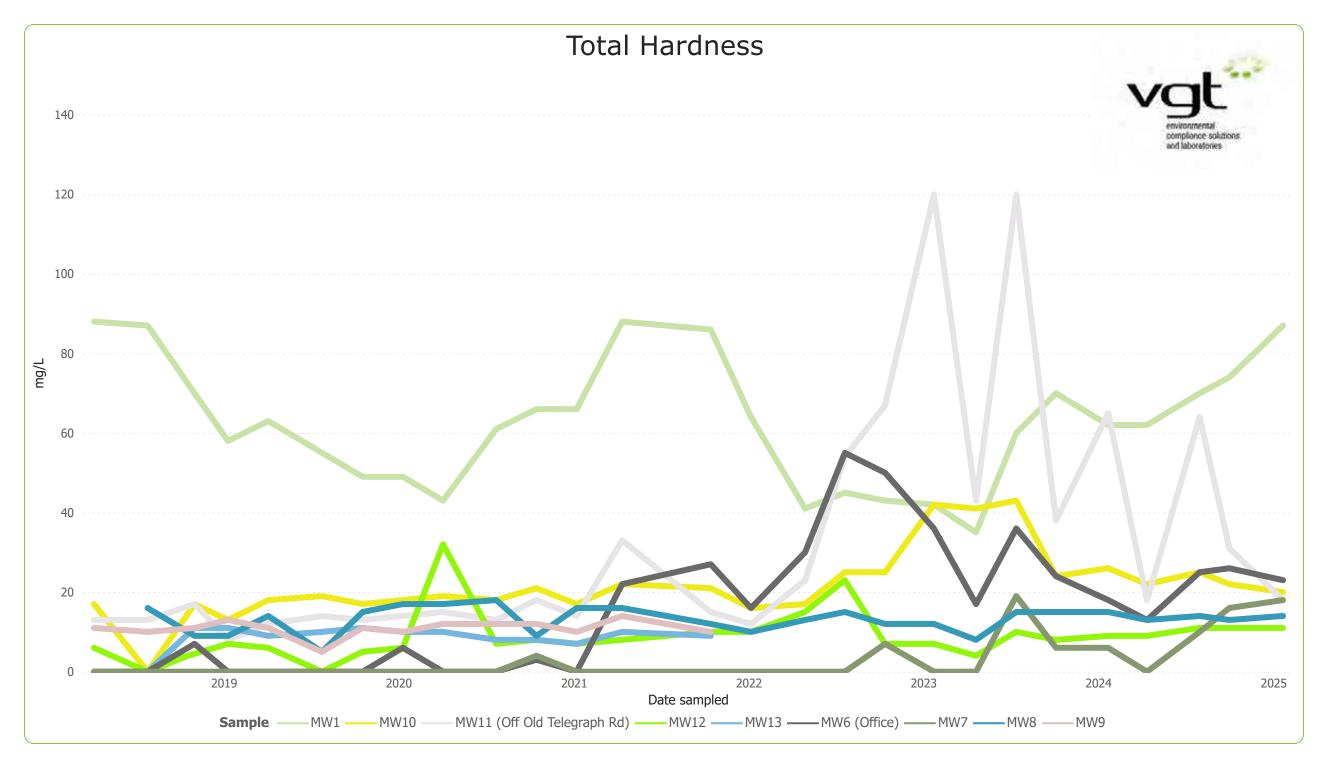


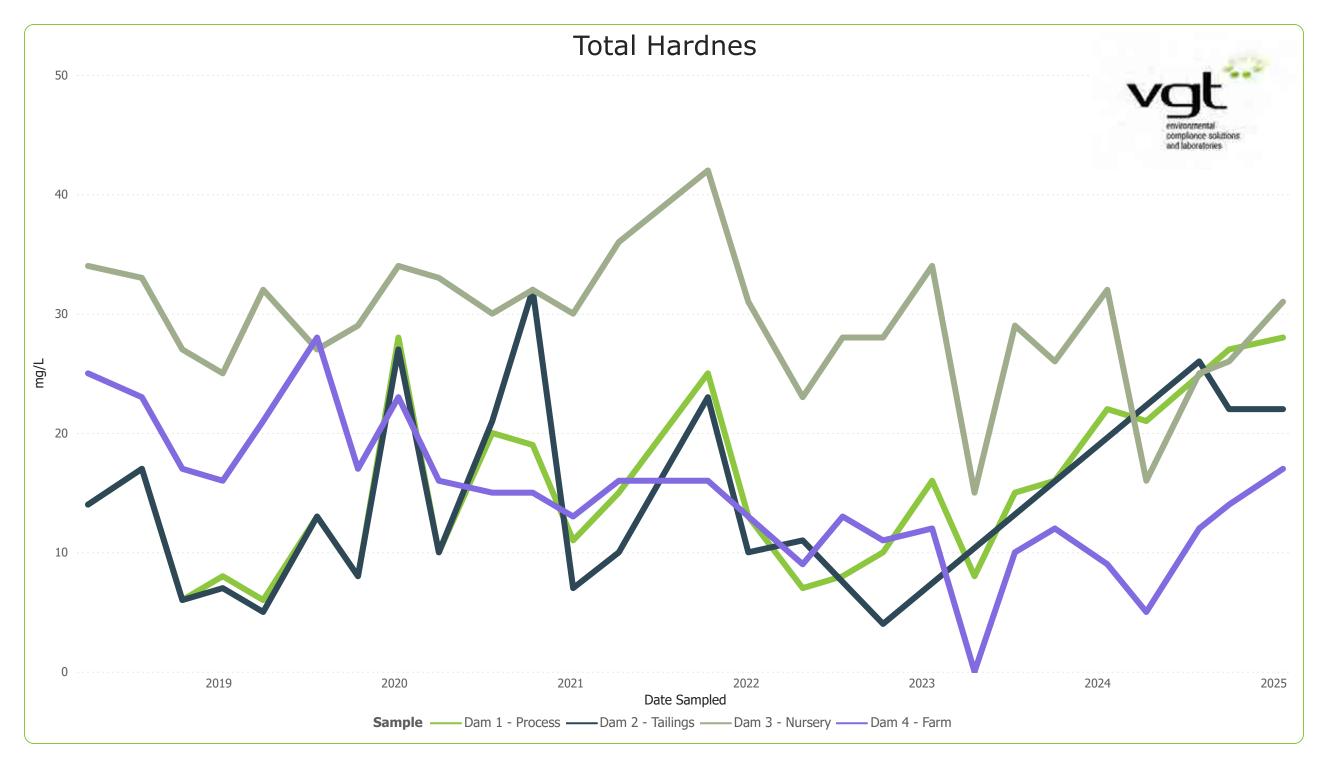












JANUARY 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota



		TEMPE	RATURE °	С		_	DAYS 18.3°	PRECIP. (mm)	PRES (hi	SURE Pa)			\	WIND	SPEED = DIR = DE					
											_					WIND	MAX			
	≥	Σ	Щ	ıщ	9 يب	ی	ن		<u> </u>	ᄪᄪ	Z		Щ	INST	ANT	2 - 1	ИIN	ARC	HIVE	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date
01	22.6	15.9	19.4	17.2	17.9	0.674	1.767	1.4	997.8	1022.3	1.2	124	1.4	19.3	126	0.0	0	6.5	145	01
02	28.6	18.1	23.0	18.6	19.7	0.003	4.625	0.0	994.7	1019.2	3.1	123	3.5	29.0	145	0.0	0	14.5	139	02
03	30.6	18.2	23.5	18.2	19.5	0.001	5.153	0.0	992.7	1017.1	1.9	127	2.0	29.0	155	0.0	0	13.0	147	03
04	28.4	19.4	21.4	18.9	19.6	0.000	3.034	5.8	992.9	1017.3	1.7	215	1.9	27.4	190	0.0	0	13.9	198	04
05	22.7	16.3	19.9	15.9	17.1	0.158	1.704	0.2	997.5	1022.0	2.1	194	2.3	20.9	164	0.0	0	7.3	212	05
06	25.8	14.6	20.0	14.6	16.1	0.913	2.630	0.0	997.2	1021.7	2.4	140	3.2	29.0	133	0.0	0	11.0	135	06
07	28.9	15.6	22.4	16.6	18.1	0.479	4.519	0.0	993.2	1017.6	3.3	121	3.4	32.2	148	0.0	0	11.4	127	07
08	24.9	19.3	21.8	18.1	19.1	0.000	3.476	3.0	988.0	1012.3	1.7								08	
09	26.6	18.6	22.4	18.5	19.5	0.000	4.089	0.2	988.9	1013.2	l									
10	30.6	19.6 21.1	23.5	19.8	20.7	0.000	5.194 5.969	0.0	990.8	1015.2	1.3 2.5	155	1.7 3.2	20.9	159 170	11.5	132 155	13.5	154	10 11
11 12	28.1	20.3	24.3	19.9	21.8	0.000	5.432	0.0	994.8 996.1	1019.3	3.8	133	3.9	30.6	139	16.7 17.9	153	14.4	154	12
13	32.5	18.8	24.6	19.5	20.8	0.000	6.255	0.0	992.0	1016.5	1.9	133	2.5	25.7	143	0.0	0	11.7	146	13
14	26.7	18.3	21.1	19.0	19.5	0.000	2.793	24.0	994.0	1010.3	2.0	213	2.8	32.2	167	0.0	0	8.9	196	14
15	20.8	17.7	19.3	17.3	17.9	0.042	0.987	32.8	996.5	1021.0	2.0	198	2.3	20.9	203	10.8	203	7.6	202	15
16	24.7	17.1	20.2	17.9	18.6	0.338	2.164	2.6	992.5	1016.9	0.2	91	1.3	20.9	142	9.9	119	5.2	119	16
17	28.8	19.6	22.8	20.3	20.9	0.000	4.447	11.0	984.5	1008.7	0.5	53	0.8	19.3	328	7.4	103	8.0	325	17
18	31.3	20.9	25.7	18.0	19.7	0.000	7.364	0.0	979.3	1003.5	3.7	338	4.3	37.0	290	17.6	318	16.4	326	18
19	30.4	14.5	22.0	13.1	15.4	0.457	4.122	0.0	984.1	1008.3	1.3	136	3.1	29.0	128	7.9	9	13.7	144	19
20	25.9	18.3	22.2	17.9	19.0	0.000	3.856	0.0	987.2	1011.5	2.7	131	2.8	32.2	122	0.0	0	12.8	124	20
21	38.5	17.7	28.5	16.3	18.5	0.035	10.159	0.0	981.9	1006.1	2.9	350	3.8	32.2	298	0.0	0	16.7	346	21
22	23.3	19.4	20.9	15.7	17.2	0.000	2.536	0.0	988.3	1012.7	3.2	196	3.4	24.1	188	11.6	202	9.7	195	22
23	25.1	17.6	20.8	15.8	17.2	0.078	2.534	0.4	991.3	1015.7	2.6	136	2.7	30.6	131	14.8	143	11.8	148	23
24	33.9	15.1	24.6	17.5	19.1	0.544	6.805	0.0	988.5	1012.9	0.9	49	1.0	17.7	38	10.2	27	5.9	1	24
25	36.3	24.1	28.2	20.9	22.5	0.000	9.868	0.0	985.8	1010.1	0.8	85	1.3	40.2	19	0.0	0	16.4	29	25
26	38.2	21.1	27.7	19.5	21.1	0.000	9.378	0.0	980.2	1004.4	4.1	360	7.1	53.1	5	0.0	0	29.2	6	26
27	23.3	18.6	20.2	17.8	18.5	0.000	1.888	1.6	983.5	1007.8	0.6	120	0.6	19.3	142	0.0	0	5.3	110	27
28	27.8	16.8	21.2	17.7	18.6	0.234	3.108	0.0	987.0	1011.3	1.3	164	1.9	27.4	171	0.0	0	10.2	152	28
29	33.2	18.7	24.9	20.2	21.2	0.000	6.547	0.0	987.7	1012.0	2.2	132	2.4	27.4	156	14.3	143	11.5	142	29
30	27.6	21.8	23.8	21.3	21.9	0.000	5.512	0.0	989.1	1013.5	1.4	167	1.5	20.9	231	11.2	227	8.4	207	30
31	27.1	20.6	22.7	20.3	20.9	0.000	4.368	0.0	989.2	1013.6							31			
	28.5 18.5 22.8 18.2 19.3						4.590		989.9	1014.3	2.0	157	2.5							
	NUMBER OF DAYS WITH: > Maximum Temp ≥ 32.2: 6 Maximum Temp ≤ 0: 0										Precipitation \geq 0.2 mm: 12 Greatest 24 — hr precipitation: 50.6 Date Monthly Total Precipitation: 94.4				te: 14	-15				
SEA :	SEA LEVEL PRESSURE: > MAXIMUM: 1024.2 5 22:07 MINIMUM: 1001.3 26 14:49 DEGREEE DAYS: > DEGREEE DAYS: > MONTHLY TOTAL SEASON TO DATE TOTAL 3.955 3.955 COOLING: 142.281 483.096																			

FEBRUARY 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota

na	VIS	Family
Du		Rossill!

		TEMPE	RATURE °	С		DEG BASE	DAYS 18.3°	PRECIP. (mm)	_	SURE Pa)			١	WIND	SPEED = DIR = DE					
																WIND	MAX			
	Σ	≥	ш	ш	<u>ш</u> <u>е</u>	ن ا	ט		ш-,	ᆔᆔ	IN		ш	INST	ANT	2 - 1	ΛIN	ARCI	HIVE	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date
01	31.4	18.4	22.9	19.4	20.2	0.000	4.594	1.8	987.8	1012.1	0.9	77	1.2	22.5	58	10.3	25	7.2	57	01
02	32.4	20.6	24.1	19.5	20.6	0.000	5.766	0.0	984.4	1008.7	2.6	152	3.4	35.4	171	16.7	146	14.2	147	02
03	27.6	18.4	22.6	17.2	18.7	0.000	4.299	0.0	988.9	1013.3	2.3	123	2.3	27.4	164	3.0	125	9.1	133	03
04	38.4	18.2	26.6	20.3	21.6	0.001	8.285	0.0	985.3	1009.6	2.3	104	2.8	25.7	142	0.0	0	12.2	134	04
05	34.6	24.4	28.5	22.4	23.7	0.000	10.141	0.0	984.5	1008.8	0.4	163	1.8	20.9	276	9.8	5	10.7	283	05
06	24.6	18.7	21.3	19.2	19.8	0.000	2.977	29.0	988.5	1012.8	2.9	218	3.4	32.2	332	13.0	205	12.7	320	06
07	23.6	16.3	18.9	14.3	15.8	0.398	0.985	0.0	997.0	1021.6	3.1	222	3.3	27.4	277	8.4	213	8.3	204	07
08	23.1	16.3	19.2	14.4	15.9	0.438	1.351	0.0	1000.1	1024.7									08	
09	24.6	14.6	19.5	14.9	16.3	0.999	2.207	0.0	997.9	1022.4									09	
10	24.2	17.8	19.6	16.2	17.2	0.116	1.383	3.8	999.8	1024.4	2.6	201	2.8	37.0	173	3.5	244	12.0	199	10
11	23.3	15.6	19.7	16.1	17.2	0.526	1.941	0.2	999.0	1023.5	0.6	136	0.7	14.5	167	0.0	0	3.8	144	11
12	31.9	17.3	23.7	18.5	19.7	0.083	5.421	0.0	995.6	1020.1	1.5	115	1.9	25.7	151	12.9	143	9.9	143	12
13	34.7	19.1	25.4	19.7	21.0	0.000	7.081	0.0	990.7	1015.1	0.9	100	1.3	20.9	159	11.7	146	6.7	129	13
14	31.8	18.2	23.4	18.6	19.8	0.003	5.037	3.2	989.5	1013.9	1.7	201	2.3	30.6	216	16.1	199	12.0	204	14
15	19.2	16.5	17.8	17.0	17.2	0.624	0.118	6.8	997.1	1021.7	0.3	241	0.3	11.3	199	4.6	234	1.5	235	15
16	28.1	17.6	21.6	19.4	20.0	0.137	3.393	0.4	997.5	1022.0	1.0	131	1.5	24.1	157	12.6	136	9.0	134	16
17	32.2	20.3	24.2	20.4	21.3	0.000	5.850	0.0	996.4	1020.9	0.4	183	1.1	20.9	161	0.0	0	8.6	148	17
18	32.3	18.7	23.5	20.3	21.0	0.000	5.127	0.0	994.5	1019.0	0.3	74	0.6	12.9	167	0.0	0	4.9	1	18
19	25.9	17.8	20.1	18.1	18.6	0.080	1.815	8.0	994.5	1018.9	0.3	266	0.9	35.4	245	17.4	218	12.9	208	19
20	22.4	18.1	19.5	18.0	18.4	0.020	1.198	21.2	994.2	1018.7	0.8	267	1.0	32.2	161	12.1	149	5.8	280	20
21	26.2	17.9	20.8	18.8	19.3	0.045	2.521	6.0	992.3	1016.8	0.3	233	0.8	16.1	186	8.4	294	4.8	208	21
22	32.8	19.2	23.9	20.1	21.0	0.000	5.590	0.0	989.1	1013.5	0.9	126	1.0	19.3	139	0.0	0	6.6	137	22
23	36.9	21.2	27.2	20.2	21.6	0.000	8.847	0.0	984.7	1009.0	2.8	32	4.9	46.7	236	24.4	243	16.4	1	23
24	22.6	17.2	18.7	16.7	17.3	0.128	0.531	3.4	992.9	1017.4	1.9	214	1.9	24.1	246	3.4	244	6.9	215	24
25	29.4	15.1	21.2	16.5	17.7	0.696	3.564	0.0	992.9	1017.3	0.4	81	1.0	17.7	320	0.0	0	5.6	142	25
26	31.2	17.4	22.4	18.0	19.1	0.107	4.194	0.0	991.3	1015.7	2.2	203	3.0	29.0	177	14.0	223	11.6	197	26
27	22.2	18.3	20.2	17.6	18.4	0.000	1.867	0.4	995.1	1019.6	0.1	220	0.2	12.9	183	5.1	207	1.6	212	27
28	29.8	19.9	23.6	20.5	21.2	0.000	5.245	0.0	994.2	1018.6										
29	40.7	21.5	29.2	21.0	22.6	0.000	10.878	0.0	990.2	1014.6							29			
	28.9	18.3	22.4	18.4	19.4	0.275	4.214		992.6	1017.1	1.4	160	1.9			< Mont	hly Avg			
	NUMBER OF DAYS WITH: > Maximum Temp \geq 32.2: 8 Minimum Temp \leq 0: 0 Minimum Temp \leq -17.7:									itation ≥ itation ≥			Greates Monthly						te: 5-	6
SEA :	DAYS WITH:																			

MARCH 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota

Lat: -33.4650 Long: 151.0008 Elev (ground): 205 m Time Zone: Australia/Sydney

Da	V/S	East!

		TEMPE	RATURE °	С		DEG BASE	_	PRECIP. (mm)		SURE Pa)			1	WIND	SPEED = DIR = DE					
																WIND	MAX			
	MΩ	₹	Щ.	Щ	٣٣	ی ا	ن		<u> </u>	ᄪᄪ	Z Z		щ	INST	ANT	2 - 1	ИIN	ARC	HIVE	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date
01	28.9	21.2	24.1	20.8	21.7	0.000	5.814	0.0	990.8	1015.2	1.0	151	1.3	19.3	206	0.0	0	5.9	209	01
02	27.4	19.9	22.8	20.7	21.3	0.000	4.459	0.8	989.8	1014.2	1.4	210	1.5	20.9	190	0.0	0	8.9	208	02
03	32.0	17.6	23.5	17.7	19.0	0.063	5.220	0.0	990.0	1014.4	0.9	334	1.8	32.2	342	0.0	0	14.6	323	03
04	23.2	15.6	19.7	14.7	16.2	0.199	1.531	0.0	997.3	1021.8	2.8	193	2.9	24.1	209	13.0	197	7.9	203	04
05	26.1	13.9	19.9	13.6	15.4	1.034	2.589	0.0	998.3	1022.8	0.7	106	0.8	14.5	155	5.2	133	3.0	117	05
06	31.8	15.1	22.6	16.9	18.3	0.631	4.946	0.0	995.4	1019.9	0.8	127	0.9	16.1	127	0.1	94	7.5	137	06
07	28.4	18.6	23.3	19.5	20.4	0.000	4.917	0.0	997.5	1022.1								07		
08	28.2	19.7	23.2	18.4	19.6	0.000	4.855	0.0	1000.6	1025.3								08		
09	28.7	17.2	22.9	17.5	18.9	0.054	4.667	0.0	1001.6	1026.2	2.1	135	2.2	24.1	143	0.2	102	10.8	136	09
10	29.1	17.0	22.7	17.7	18.9	0.127	4.476	0.0	1003.0	1027.6	3.3	120	3.5	29.0	128	0.0	0	12.5	137	10
11	29.1	17.3	22.6	17.0	18.5	0.067	4.290	0.0	1001.1	1025.8	2.1	124	2.3	27.4	128	14.8	148	10.3	145	11
12 13	34.3 29.2	15.5 17.9	23.7	16.1 17.0	17.8 18.5	0.556 0.015	5.953 4.430	0.0	994.3 992.4	1018.8	0.6 1.2	235 157	1.5	29.0 19.3	165 171	15.5 10.6	147 174	10.7	153 139	12
14	35.1	17.3	23.4	17.4	18.7	0.015	5.201	2.6	992.4	1010.8	1.5	215	2.7	35.4	171	14.8	323	10.5	190	14
15	22.8	15.5	18.3	14.6	15.7	0.120	0.969	2.0	996.0	1012.2	1.7	183	1.9	24.1	211	11.9	205	7.6	160	15
16	23.6	14.3	18.2	14.0	15.7	1.360	1.222	0.6	996.9	1020.3	0.4	154	0.9	20.9	130	1.2	255	6.5	142	16
17	21.8	16.8	18.5	16.4	17.0	0.525	0.740	6.0	992.3	1016.8	0.2	131	0.3	9.7	144	0.0	0	3.3	134	17
18	27.2	17.1	19.9	17.2	18.0	0.297	1.831	0.0	991.5	1015.9	0.2	145	0.2	16.1	146	0.0	0	4.0	151	18
19	29.2	17.8	22.1	18.6	19.5	0.024	3.741	0.0	992.1	1016.5	0.6	112	0.7	17.7	180	5.9	359	4.1	141	19
20	25.3	17.2	21.2	18.0	18.9	0.116	2.993	0.0	993.4	1017.9	1.6	210	2.4	30.6	228	10.3	198	9.4	202	20
21	20.8	12.6	16.5	10.3	12.4	2.077	0.215	0.0	1003.2	1027.9	2.2	202	2.5	30.6	225	11.9	203	9.0	204	21
22	23.4	14.1	17.6	13.3	14.7	1.659	0.881	0.0	1000.5	1025.1	0.1	106	0.2	12.9	288	3.5	125	2.1	115	22
23	23.7	13.1	18.0	14.4	15.5	1.665	1.334	0.0	998.4	1023.0	0.3	144	0.4	11.3	162	0.0	92	2.6	128	23
24	27.0	16.7	20.2	16.2	17.3	0.506	2.401	0.2	996.0	1020.5	0.4	129	0.5	11.3	188	0.0	0	3.1	137	24
25	31.4	14.6	21.8	14.1	16.0	0.802	4.318	0.0	994.5	1018.9	0.3	298	1.0	19.3	288	10.3	284	5.5	203	25
26	30.3	14.8	20.6	15.6	17.0	0.703	2.953	0.0	995.7	1020.2	0.4	131	0.6	20.9	182	8.5	117	5.4	116	26
27	25.7	16.8	20.1	16.4	17.5	0.253	2.012	0.0	999.2	1023.8	1.2	165	1.5	22.5	176	10.9	146	8.2	146	27
28	23.2	17.1	19.2	16.7	17.4	0.308	1.190	2.0	1000.6	1025.2	0.9	155	0.9	24.1	155	9.4	169	6.5	156	28
29	24.2	15.8	19.2	15.8	16.8	0.679	1.533	0.2	1002.5	1027.2	1.1	140	1.2	20.9	121	10.1	122	8.4	145	29
30	29.8	13.1	20.2	15.3	16.6	1.451	3.292	0.0	1000.8	1025.5	0.8	117	1.2	17.7	140	9.8	142	6.8	134	30
31	27.3	15.4	19.6	16.1	17.1	0.841	2.132	0.4	998.4	1023.0						31				
						0.634	3.132		996.5	1021.0	1.1	163	1.4			< Mont	hly Avg			
	NUMBER OF DAYS WITH: > Maximum Temp ≥ 32.2: 2 Minimum Temp Maximum Temp ≤ 0: 0 Minimum Temp									itation ≥ itation ≥			Greates Monthly						e: 14-	15
SEA 1	LEVEL PR	RESSURE:	>	JMIXAM JMINIM	JM: 103 JM: 100	0.1 2	ате 21 14	10:29 15:31	DEGF	REEE DAYS	: >	HEATING COOLING			25.47 702.4		FAL			

MARCH 2024 Maroota, NSW AUS

APRIL 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota

Da	VIS	Emili !
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													aa,. 200							
		TEMPE	RATURE °	с		DEG BASE	DAYS 18.3°	PRECIP. (mm)	_	SURE Pa)			1	WIND	SPEED = DIR = DE					
																WIND	MAX			
	5	_									ANT			INICT	ANT	2 - 1		ARC	HIVE	1 1
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTAI SPEED	RES DIR	AVERAGE SPEED	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date
01	30.9	14.4	21.7	15.8	17.2	0.889	4.216	0.0	994.8	1019.3	1.2	106	1.4	20.9	122	11.5	150	8.0	143	01
02	25.6	16.5	20.4	15.2	16.7	0.361	2.450	5.2	989.1	1013.5	2.2	20	3.0	30.6	315	14.9	322	12.9	324	02
03	24.1	12.2	17.8	12.6	14.2	1.682	1.198	0.0	994.8	1019.2	0.7	146	0.9	19.3	177	7.7	149	5.3	140	03
04	17.4	16.1	16.6	15.1	15.6	1.690	0.000	19.8	999.5	1024.1	0.8	196	0.8	19.3	220	10.2	202	5.8	200	04
05	19.1	16.2	17.4	16.5	16.8	0.987	0.051	110.0	997.6	1022.2	2.5	161	2.9	27.4	157	14.0	146	9.8	150	05
06	27.2	17.3	21.3	16.7	17.9	0.072	3.070	44.2	989.9	1014.3	4.1	32	5.2	32.2	360	20.3	344	17.2	359	06
07	27.5	14.8	20.6	14.5	16.2	0.692	3.034	0.0	986.8	1011.1	3.0	9	3.2	30.6	11	20.1	18	15.7	347	07
08	26.5	13.8	18.9	14.3	15.7	1.097	1.704	0.0	986.4	1010.7	0.1	320	1.0	14.5	303	5.3	352	5.3	316	08
09	21.3	10.7	15.3	11.5	12.8	3.372	0.370	0.0	986.7	1011.0	1.6	280	2.4	33.8	227	0.0	0	15.3	215	09
10	20.2	10.9	15.0	7.6	10.2	3.596	0.249	0.0	991.2	1015.6	2.8	290	3.3	37.0	273	18.2	319	10.1	322	10
11	22.6	10.2	15.6	9.9	11.8	3.402	0.670	0.0	995.8	1020.3	0.7	304	1.3	17.7	336	8.6	334	5.4	334	11
12	24.7	11.6	17.3	12.3	13.8	2.277	1.243	0.0	996.4	1020.9	0.3	86	0.6	14.5	175	7.0	141	4.4	139	12
13	24.7	11.9	17.7	14.0	15.1	1.979	1.325	0.0	996.9	1020.3	0.7	139	0.8	22.5	148	0.0	0	6.6	140	13
14	26.5	15.0	19.1	15.4	16.5	1.071	1.883	0.0	998.0	1021.4	0.4	119	0.5	14.5	157	0.0	0	5.3	145	14
15	27.9	13.3	18.9	13.4	15.1	1.412	1.953	0.0	998.2	1022.8	0.3	132	0.5	17.7	148	0.0	0	6.4	135	15
16	24.8	14.1	18.1	14.1	15.3	1.469	1.197	0.0	998.8	1023.4	0.3	162	0.9	16.1	164	7.3	199	5.1	144	16
17	23.1	15.3	18.0	15.6	16.3	1.147	0.808	9.2	998.6	1023.2	0.5	191	1.1	22.5	259	10.2	211	6.5	177	17
18	24.7	14.5	17.6	15.1	15.8	1.812	1.103	3.0	992.8	1017.2	0.1	326	0.4	17.7	223	9.4	202	5.0	171	18
19	18.9	10.1	14.9	10.9	12.3	3.472	0.011	0.2	993.8	1018.3	0.4	273	0.5	16.1	238	6.3	233	3.2	318	19
20	17.6	13.6	14.9	12.3	13.2	3.476	0.000	4.2	1000.2	1024.8	1.8	238	1.9	29.0	233	8.4	243	8.0	232	20
21	20.8	12.8	15.5	12.1	13.3	3.003	0.210	0.0	1003.6	1028.2	0.7	238	0.8	17.7	257	0.0	0	4.2	250	21
22	23.3	12.2	15.9	12.7	13.7	3.034	0.619	0.0	1003.2	1027.9	0.0	250	0.2	9.7	198	4.7	153	1.8	160	22
23	24.9	10.8	17.8	12.9	14.3	2.340	1.811	0.0	998.5	1023.1	0.8	71	0.8	16.1	26	6.8	28	4.5	44	23
24	25.3	14.3	18.3	12.8	14.5	1.476	1.416	0.0	993.6	1018.1	0.6	34	1.5	24.1	232	14.2	224	7.5	9	24
25	20.7	11.7	15.2	9.3	11.4	3.356	0.304	0.0	995.9	1020.5	0.4	278	0.7	16.1	324	0.7	260	4.1	327	25
26	21.0	8.8	13.8	8.6	10.4	4.578	0.206	0.0	999.1	1023.7	0.4	266	0.5	16.1	248	0.0	0	3.9	239	26
27	22.3	10.1	15.1	11.6	12.8	3.587	0.412	0.0	1002.2	1026.8	0.1	289	0.4	14.5	168	0.0	0	3.4	174	27
28	24.4	10.6	16.8	13.0	14.2	2.696	1.152	0.0	1001.2	1025.9	0.2	87	0.3	12.9	131	0.0	0	2.0	108	28
29	25.9	11.8	17.8	12.6	14.1	2.328	1.780	0.2	998.8	1023.4	1.1	26	1.2	22.5	5	14.2	2	10.5	11	29
30	17.3	13.4	15.2	12.1	13.2	3.172	0.000	0.2	1001.2	1025.8							30			
	23.4	13.0	17.3	13.0	14.4	2.184	1.276		996.1	1020.6	1.0	176	1.3		l	< Mont		1	ı	1
	NUMBER OF Maximum Temp ≥ 32.2: 0 Minimum DAYS WITH: > Maximum Temp ≤ 0: 0 Minimum							: 0 17.7: 0	Precip	L itation ≩	0.2 mm:		Greates Monthly			cipita	tion:		ate: 5	-6
DAIS	11 111 •	riaz	STIMUM TE	mb - 0:	-			TIME	TIECIP	10001011 =	- 2 • O IIIII •	•	MONTHLY TO			TO DATE TO		• 4		
SEA 1	LEVEL PF	RESSURE:	>		JM: 102 JM: 100	9.8 2	22	09:48 15:17	DEGF	REEE DAYS	: >	HEATING:	65.525	INL	90.99 736.8	97	IML			

MAY 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota

Lat: -33.4650 Long: 151.0008 Elev (ground): 205 m Time Zone: Australia/Sydney

Da	VISE
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		TEMPE	RATURE °	С			DAYS 18.3°	PRECIP. (mm)		SURE Pa)				WIND	SPEED = DIR = DI					
											_					WIND	MAX			
	Σ	Σ	ييرا	ļ <u>ļu</u>	9 يب	ی	<u> </u>		<u></u>	변력	AN		<u> </u>	INST	ANT	2 - 1	MIN	ARC	HIVE]]
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date
01	16.8	11.8	13.7	10.6	11.8	4.601	0.000	0.6	1004.8	1029.5	1.2	229	1.4	22.5	207	10.9	226	6.8	222	01
02	18.1	11.3	14.0	11.6	12.5	4.290	0.000	0.6	1005.8	1030.5	1.0	230	1.2	24.1	167	10.9	225	6.9	210	02
03	16.6	11.7	13.7	12.0	12.6	4.672	0.000	8.0	1003.8	1028.4	0.2	271	0.2	11.3	215	4.9	232	3.5	234	03
04	18.1	12.8	14.6	13.4	13.8	3.730	0.000	7.2	999.3	1023.9	0.4	310	0.6	14.5	329	2.2	271	6.3	325	04
05	15.9	13.2	14.1	13.1	13.5	4.270	0.000	16.2	997.2	1021.7	1.2	272	1.3	19.3	277	0.0	0	4.2	274	05
06	19.2	11.7	14.6	12.1	13.0	3.722	0.038	36.6	1002.3	1026.9	3.4	211	3.8	41.8	167	20.6	190	15.2	196	06
07	18.7	11.7	14.1	12.3	12.9	4.187	0.003	0.4	1005.2	1029.9									07	
08	17.7	12.1	14.3	13.3	13.6	4.007	0.000	9.4	1005.4	1030.1									08	
09	20.6	13.3	14.9	13.7	14.1	3.471	0.046	1.4	1006.0	1030.7	0.1	325	0.1	11.3	293	4.4	33	1.9	319	09
10	19.4	13.6	15.2	13.6	14.1	3.226	0.079	0.2	1004.6	1029.3	0.1	255	0.2	16.1	193	6.9	188	4.3	166	10
11	16.2	13.8	14.8	13.7	14.1	3.546	0.000	17.2	1000.5	1025.1	0.2	125	0.4	14.5	138	3.1	306	3.5	128	11
12	20.2	13.3	15.0	13.1	13.8	3.417	0.062	2.2	995.1	1019.6	1.2	309	1.4	24.1	238	0.0	0	6.1	318	12
13	19.8	12.8	15.8	13.5	14.3	2.670	0.159	0.6	995.2	1019.7	0.9	289	1.1	25.7	288	9.8	244	5.3	253	13
14	22.9	9.8	15.4	11.6	12.8	3.644	0.710	0.0	1000.4	1025.0	0.2	283	0.2	12.9	257	4.9	233	2.7	272	14
15	21.6	11.8	15.9	12.6	13.7	2.889	0.479	0.0	1003.2	1027.9	0.2	65	0.3	12.9	19	6.4	21	3.1	38	15
16	19.9	11.8	15.1	12.8	13.6	3.420	0.155	0.0	1003.5	1028.1	0.0	307	0.0	6.4	334	2.4	272	0.9	273	16
17	23.4	11.3	15.4	12.2	13.2	3.606	0.669	0.0	998.6	1023.1	0.0	16	0.0	4.8	16	0.9	15	0.2	16	17
18	13.9	9.7	11.6	6.7	8.7	6.693	0.000	0.0	998.1	1022.6	2.4	244 317	2.5	30.6	248	11.8	240	7.2	232	18
19	17.4 17.1	6.9	11.1	4.9 6.1	7.4	7.251	0.000	0.0	996.8 998.2	1021.3	0.7 0.3	255	0.8	19.3 17.7	321 258	0.0	0	6.0 5.4	324	19
20	17.1	4.9 10.3	13.1	8.3	8.1			0.0			1.0	233	0.4	20.9	293	10.7	194	7.1	214 199	20 21
21 22	18.4	7.3	12.0	7.3	10.1	5.244 6.362	0.000	0.0	1001.6	1026.3	0.2	308	1.1	12.9	269	6.2	330	3.0	332	21 22
23	20.6	5.5	11.9	7.8	9.3	6.575	0.144	0.0	1001.4	1026.4	0.1	336	0.3	6.4	325	3.2	301	1.2	331	23
24	20.4	6.4	12.4	9.3	10.4	6.002	0.087	0.0	1001.0	1026.7	0.0	299	0.0	4.8	337	1.2	133	0.3	336	24
25	17.3	9.2	12.4	10.3	11.2	5.727	0.000	0.0	1002.0	1020.7	0.0	285	0.0	4.8	264	0.0	0	0.4	264	25
26	20.9	8.0	13.3	10.1	11.2	5.270	0.259	0.0	1002.4	1024.9	0.1	302	0.1	6.4	308	0.0	0	1.1	303	26
27	19.2	7.8	12.5	9.0	10.3	5.882	0.063	0.0	1000.5	1024.3	0.0	258	0.0	6.4	181	2.4	182	1.1	247	27
28	21.4	6.4	12.6	8.7	10.1	6.121	0.358	0.2	1003.0	1023.1	0.0	43	0.0	3.2	12	1.0	70	0.3	66	28
29	22.7	6.3	13.3	9.9	11.0	5.604	0.559	0.0	1003.1	1027.7	0.2	81	0.2	9.7	106	3.0	107	2.2	60	29
30	22.4	9.1	15.6	11.0	12.5	3.304	0.613	0.2	1000.0	1024.6							30			
31	20.1	15.8	17.8	12.7	14.4	0.737	0.200	0.0	993.9	1018.3										
-	19.2	10.4	13.9	10.9	12.0	4.559	0.260		1001.1	1025.7	0.7	229	0.8	1			hly Avg			-
	ER OF WITH:	Max	∣ kimum Te	$ \begin{array}{rcl} \text{emp} & \geq & 32 \\ \text{emp} & \leq & 0 \\ \end{array} $.2: 0	Minimum	$Temp \leq 0$ $Temp \leq -$		Precip	itation ≥	0.2 mm:	16	Greates Monthly			cipita	tion:		te: 5-	· 6
SEA :	LEVEL PF	RESSURE:	>		JM: 103 JM: 101	2.4		10:10 15:09	DEGF	REEE DAYS	: >	HEATING COOLING	MONTHLY TO 141.33 4.683		SEASON 232. 741.		FAL			

MAY 2024 Maroota, NSW AUS

JUNE 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota

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		TEMPE	RATURE °	c			DAYS 18.3°	PRECIP. (mm)	_	SURE Pa)			,	WIND	SPEED = DIR = DE					
																WIND	MAX			
	Σ	5								_	ANT		ш	INST	ANT	2 - 1		ARC	HIVE	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTA	RES DIR	AVERAGE SPEED	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date
01	15.8	10.6	12.9	10.7	11.6	5.387	0.000	44.0	994.7	1019.2	0.9	254	1.1	20.9	238	2.6	324	5.8	210	01
02	14.6	10.1	11.8	8.4	9.8	6.513	0.000	9.2	992.1	1016.5	3.1	346	3.3	22.5	250	0.0	0	9.1	334	02
03	15.8	8.2	11.6	5.6	8.0	6.727	0.000	0.0	988.1	1012.4	2.7	356	3.0	30.6	350	18.2	317	11.2	329	03
04	15.8	6.2	10.6	6.1	8.0	7.774	0.000	0.0	991.1	1015.5	0.2	31	0.2	8.0	10	2.7	25	2.6	1	04
05	16.2	8.6	12.0	9.0	10.1	6.344	0.000	0.0	993.7	1018.2	0.3	278	0.3	12.9	284	5.4	255	2.6	260	05
06	16.7	10.7	12.6	11.1	11.7	5.752	0.000	18.0	993.5	1017.9	1.0	337	1.1	14.5	348	7.6	343	5.9	341	06
07	16.0	11.4	12.9	11.2	11.9	5.395	0.000	7.4	989.1	1013.4	1.1	320	1.5	25.7	317	9.4	329	8.7	325	07
08	19.8	11.5	14.3	10.5	11.9	4.165	0.137	0.0	988.1	1012.4	2.5								08	
09	19.9	9.9	13.7	8.5	10.4	4.687	0.061	0.0	992.4	1016.8	0.7								09	
10	16.4	5.7	10.3	5.9	7.7	8.002	0.000	0.0	996.7	1021.2	0.5	283	0.7	22.5	219	8.9	247	4.9	280	10
11	16.6	5.7	11.4	6.7	8.5	6.929	0.000	0.0	993.1	1017.6	3.2	32	3.4	29.0	5	17.1	14	14.2	15	11
12	17.4	6.4	13.4	6.7	9.1	4.972	0.000	0.0	987.6	1012.0	4.9	331	5.3	46.7	323	26.8	318	21.7	321	12
13	13.9	6.4	9.9	4.4	6.8	8.465	0.000	0.0	995.5	1020.0	0.5	305	0.6	19.3	273	8.9	249	4.7	281	13
14	12.7	7.8	10.3	7.0	8.4	8.009	0.000	3.0	994.4	1018.9	0.1	320	0.1	6.4	5	3.3	307	1.7	325	14
15	13.0	8.8	10.6	8.7	9.5	7.758	0.000	2.8	992.2	1016.7	0.4	255	0.4	16.1	267	3.1	242	2.7	267	15
16	15.0	5.7	10.0	4.8	7.0	8.293	0.000	0.0	990.2	1014.6	0.6	315	0.7	16.1	321	0.0	0	5.0	321	16
17	15.9	7.2	10.8	5.5	7.7	7.535	0.000	0.0	989.8	1014.2	0.6	286	0.8	24.1	266	0.0	0	6.4	255	17
18	16.2	5.4	10.0	5.3	7.2	8.302	0.000	0.0	991.5	1015.9	0.5	319	0.5	22.5	243	2.8	253	5.8	317	18
19	15.2	2.8	7.9	3.1	5.2	10.399	0.000	0.0	991.7	1016.1	0.2	328	0.2	11.3	306	4.8	307	2.3	309	19
20	15.8	2.8	8.2	3.9	5.7	10.127	0.000	0.0	992.3	1016.7	0.1	65	0.1	6.4	26	2.4	21	1.1	87	20
21	17.2	5.9	10.3	6.3	7.9	8.045	0.000	1.2	993.9	1018.4	0.2	297	0.2	12.9	327	6.2	327	3.5	319	21
22	12.3	5.7	9.2	7.2	8.1	9.146	0.000	11.8	999.9	1024.4	0.3	260	0.3	17.7	232	1.5	6	3.1	254	22
23	14.1	6.4	10.3	8.1	9.0	8.037	0.000	0.2	998.9	1023.5	0.4	269	0.4	16.1	245	0.0	0	3.5	254	23
24	17.7	3.9	9.6	7.0	8.0	8.741	0.000	0.2	995.2	1019.7	0.0	24	0.0	4.8	16	3.0	356	0.8	356	24
25	18.7	4.4	11.1	7.3	8.7	7.219	0.013	0.0	996.3	1020.8	0.2	60	0.2	8.0	26	3.9	38	2.6	49	25
26	20.4	6.4	13.1	8.4	10.1	5.425	0.194	0.0	995.2	1019.6	1.8	41	1.9	22.5	26	13.2	8	9.8	24	26
27	18.6	4.6	11.4	5.9	8.0	6.929	0.003	0.0	997.4	1022.0	1.4	11	1.4	16.1	325	8.5	338	5.9	11	27
28	18.2	4.1	10.2	4.9	7.0	8.095	0.000	0.0	1000.0	1024.5	0.2	85	0.3	11.3	128	4.4	14	3.6	10	28
29	20.9	4.7	12.6	7.5	9.4	5.938	0.203	0.0	994.5	1019.0	2.2						29			
30	15.9	7.9	11.8	9.9	10.6	6.535	0.000	9.6	990.9	1015.3							30			
	16.4	6.9	11.2	7.2	8.8	7.188	0.102	-	993.3	1017.8	1.1	214	1.2			< Mont	hlv Avg	1		
	NUMBER OF DAYS WITH: > Maximum Temp ≥ 32.2: 0 Minimum Maximum Temp ≤ 0: 0 Minimum							: 0 17.7: 0	Precip	l itation ≩	tion ≥ 0.2 mm: 11 Greatest 24 — hr precipitation: 23.6 Date: tion ≥ 2.0 mm: 8 Monthly Total Precipitation: 107.4				te: 6-	7				
	LEVEL PF			MAXIMU	JM: 102 JM: 100	7.2	ATE 28	TIME 09:23 12:17	_	REEE DAYS		HEATING COOLING	MONTHLY TO 215.64	TAL		то рате то 976				

JULY 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota

Lat: -33.4650 Long: 151.0008 Elev (ground): 205 m Time Zone: Australia/Sydney

Da	VIS	Early .
- vu		Hazziiii

		TEMPE	RATURE °	c		DEG BASE	DAYS 18.3°	PRECIP. (mm)		SURE Pa)	WIND SPEED = km/h DIR = DEGREES									
																WIND	MAX			
	Σ	5		ш	.		,,,			ا بـ ا	F			INST	ANT	2 - 1		ARC	HIVE	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date
01	14.2	4.7	9.2	6.0	7.4	9.117	0.000	0.4	999.5	1024.1	0.9	239	1.0	22.5	259	6.8	205	4.3	203	01
02	11.7	7.8	9.3	8.1	8.6	9.014	0.000	14.0	1004.9	1029.6	0.6	258	0.7	16.1	277	5.1	204	5.0	257	02
03	15.2	7.6	10.3	8.3	9.1	8.038	0.000	3.0	1008.2	1032.9	1.2	223	1.3	24.1	226	12.1	224	9.3	212	03
04	15.4	8.7	11.4	9.0	9.9	6.763	0.000	1.6	1009.4	1034.2	2.0	234	2.3	20.9	209	11.9	199	7.6	208	04
05	14.4	9.0	11.4	10.0	10.6	6.923	0.000	5.2	1011.9	1036.7	1.2	224	1.4	20.9	180	10.5	191	7.7	214	05
06	15.3	8.7	11.1	8.8	9.7	7.186	0.000	6.6	1012.6	1037.5	0.8	227	1.1	19.3	204	0.0	0	6.4	213	06
07	15.3	8.8	11.6	9.7	10.5	6.718	0.000	0.2	1007.9	1032.7	0.3	285	0.4	14.5	140	0.0	0	3.7	322	07
08	15.6	11.3	12.6	11.2	11.7	5.739	0.000	1.4	1000.5	1025.1	0.1	14	0.2	11.3	272	4.4	360	3.6	6	80
09	18.0	10.9	13.4	10.9	11.8	4.915	0.000	2.0	995.2	1019.7	1.2	47	1.3	20.9	44	13.0	26	7.4	38	09
10	17.7	6.9	12.0	8.2	9.7	6.333	0.000	0.0	996.5	1021.0	0.4	12	0.4	12.9	340	5.7	357	3.5	7	10
11	15.7	5.8	10.5	7.5	8.7	7.806	0.000	0.0	995.8	1020.3	0.1	59	0.1	9.7	95	3.7	78	1.8	71	11
12	16.9	6.8	10.6	7.2	8.5	7.688	0.000	0.0	989.0	1013.3	0.2	326	0.2	9.7	178	4.6	327	2.6	315	12
13	15.9	8.4	11.8	6.2	8.4	6.551	0.000	0.0	986.8	1011.1	1.3	307	1.6	29.0	281	0.0	0	5.5	270	13
14	15.3	4.9	9.7	3.9	6.3	8.627	0.000	0.0	986.3	1010.7	2.8	346	3.0	27.4	325	0.0	0	10.3	336	14
15	13.6	4.3	9.0	2.1	5.0	9.369	0.000	0.0	982.8	1007.0	7.1	347	7.6	45.1	349	29.7	342	21.6	335	15
16	12.6	7.7	10.1	4.1	6.6	8.222	0.000	0.0	978.2	1002.3	10.3	0	10.8	41.8	355	22.8	341	18.5	348	16
17	16.9	8.4	12.3	6.6	8.8	6.023	0.000	0.0	982.3	1006.6	3.3	353	3.8	32.2	331	20.6	321	12.1	333	17
18	16.7	7.0	11.3	5.3	7.7	7.002	0.000	0.0	988.5	1012.8	3.6	333	3.7	27.4	336	15.4	336	13.1	320	18
19	15.3	3.1	9.8	2.7	5.7	8.535	0.000	0.0	989.5	1013.8	5.5	24	5.6	33.8	350	22.3	4	17.0	7	19
20	14.7	10.7	12.5	4.7	7.7	5.864	0.000	0.0	983.0	1007.2	16.3	351	17.7	69.2	336	28.8	20	32.9	331	20
21	17.3	7.1	11.8	3.2	6.5	6.464	0.000	0.0	993.1	1017.5	6.3	336	6.4	46.7	290	0.0	0	21.0	321	21
22	18.3	4.2	10.1	5.5	7.3	8.174	0.000	0.0	1000.5	1025.1	0.5	15	0.5	14.5	352	7.3	9	6.3	11	22
23	19.7	5.6	11.4	5.6	7.8	7.019	0.042	0.0	1001.3	1025.9	0.1	67	0.1	9.7	113	3.2	111	1.5	110	23
24	19.8	4.8 8.5	12.0	6.6	8.6	6.359	0.068	0.0	997.8	1022.4	1.8	61	1.8	16.1 33.8	63	9.4	66	7.3	69	24
25	21.1		15.2	8.7	11.0	3.481	0.364	0.0	993.6	1018.0	3.5	60	3.6		41	16.3	52		62	25
26	20.7	8.7 7.2	13.9	9.0	10.7	4.583	0.157	5.8	995.0 993.6	1019.4	1.6	32	2.1 0.5	24.1	290	15.6	314	9.5	328 55	26
27 28	15.8 13.0	7.2	10.8	2.6	9.8 5.6	7.336 8.468	0.000	6.8 0.0	993.6	1018.0 1017.8	0.4 8.3	331	8.4	12.9 45.1	109 304	0.2	124 0	3.7	327	27 28
28	13.0	5.2	9.8	1.5	4.9	9.116	0.000	0.0	1000.3	1017.8	2.1	293	3.0	32.2	234	13.3	324	9.9	245	28
30	14.5	5.6	9.2	3.6	6.2	8.696	0.000	0.0	1000.3	1024.9	1.3	293	1.3	24.1	234	9.8	252	5.9	262	30
31	14.5	6.6	10.0	4.6	6.9	8.337	0.000	0.0	1007.1	1031.9	0.9	264	1.0	27.4	246	11.6	232	6.5	282	31
31	15.9	7.2	11.1	6.5	8.3	7.241	0.000	0.0	996.5	1033.1	2.8	190	3.0	27.4	240			0.5	202	1 1
	JMBER OF AYS WITH:Maximum Temp \geq 32.2: 0Minimum Temp \leq 0: 0Precipitation \geq 0.2 mm: 11 Precipitation \geq 2.0 mm: 7Greatest 24 - hr precipitation: 14.2 Date: 1-2 Monthly Total Precipitation: 47.0																			
SEA 1	LEVEL PE	RESSURE:	>	MAXIMU MINIM		9.6	ате 5 1 6	10:01 14:04	DEGF	REEE DAYS	: >	HEATING COOLING			5EASON 672.4		FAL			

JULY 2024 Maroota, NSW AUS

AUGUST 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota

Lat: -33.4650 Long: 151.0008 Elev (ground): 205 m Time Zone: Australia/Sydney

D 2	1/10	E-still!
υa	V/O	Carrill!

TEMPERATURE °C							DAYS 18.3°	PRECIP. (mm)		SURE Pa)			,	WIND	SPEED = DIR = DI					
											_					WIND	MAX]
	Σ	₹	, щ	Щ.	۳۳	ى ق	<u> </u>		#z	병학	Ā		Щ	INST	ANT	2 - 1	ИIN	ARC	HIVE	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date
01	13.9	6.7	10.2	5.4	7.5	8.154	0.000	0.0	1006.7	1031.4	0.8	247	0.9	24.1	225	9.7	241	6.5	253	01
02	15.8	7.1	10.1	6.9	8.3	8.187	0.000	2.2	1004.9	1029.6	0.3	268	0.4	12.9	271	6.2	307	3.9	200	02
03	18.6	3.8	10.1	6.3	7.8	8.131	0.000	0.2	1003.8	1028.4	0.4	48	0.5	11.3	128	0.1	92	3.3	57	03
04	15.6	4.1	9.8	5.7	7.4	8.357	0.000	0.0	1002.7	1027.4	0.0	265	0.0	8.0	194	0.0	0	0.8	278	04
05	14.2	6.9	10.3	7.7	8.8	8.016	0.000	0.0	999.0	1023.6	0.2	51	0.2	8.0	80	4.2	25	2.8	32	05
06	17.6	7.1	11.5	7.2	8.9	6.808	0.000	0.0	997.9	1022.5	0.5	308	0.8							
07	19.1	3.9	10.0	5.3	7.1	8.225	0.024	0.0	1001.2	1025.8	0.0	196		0.1 9.7 277 5.7 314 1.7 127 07						
08	19.3	4.2	11.4	7.4	8.9	6.947	0.063	0.0	1002.5	1027.1	0.4	87	0.5 14.5 80 6.1 77 4.1 104 08							
09	21.3	7.4	13.0	9.1	10.5	5.557	0.274	0.0	1001.3	1026.0	0.2	278	0.6	16.1	215	8.4	271	6.6	272	09
10	18.5	9.2	13.0	10.3	11.3	5.381	0.001	0.0	1003.7	1028.4	0.3	255	0.7	12.9	360	4.6	217	4.6	329	10
11	17.6	10.1	12.7	11.1	11.7	5.650	0.000	6.8	1006.3	1031.0	0.1	280	0.2	11.3 309 0.0 0 2.8 322 11						
12	14.6	10.8	12.7	11.7	12.1	5.673	0.000	1.6	1006.8	1031.5	0.5	277	0.6	14.5	288	3.2	292	5.9	278	12
13	17.3	12.4	14.9	13.6	14.1	3.479	0.000	2.4	1002.8	1027.4	0.1	338	0.1	6.4	96	0.0	0	2.4	322	13
14	16.1	14.2	14.8	13.9	14.2	3.519	0.000	6.8	996.6	1021.1	0.0	285	0.0	4.8	287	0.3	137	0.2	285	14
15	15.9	12.8	14.3	13.4	13.7	4.015	0.000	0.2	993.6	1018.1	0.4	273	0.4	14.5	288	5.3	271	2.9	266	15
16	20.2	13.2	15.8	13.2	14.1	2.718	0.166	0.0	988.4	1012.8	0.7	19	1.0	22.5	338	11.2	339	7.8	327	16
17	19.9	12.1 9.7	15.1	8.2	10.6	3.323 5.317	0.109	0.0	983.3	1007.5	6.9	346 278	7.3	45.1	331	26.4 8.9	356	21.5 7.5	327 269	17
18 19	16.8 18.7	9.7	13.0 12.6	7.8 8.6	9.8 10.1	5.748	0.000	0.0	990.8 999.6	1015.2	1.3 0.3	133	2.4 0.3	11.3	260 158	4.3	340 148	2.7	156	18 19
20	21.8	8.1	14.6	10.5	11.8	4.240	0.494	0.0	996.7	1024.2	1.4	70	1.4	17.7	38	10.8	55	7.0	54	20
21	24.8	14.6	19.2	11.0	13.4	0.957	1.791	0.0	990.7	1021.2	7.0	23	7.6	35.4	26	25.0	20	20.5	21	21
22	22.2	12.4	16.4	9.2	11.6	2.539	0.642	0.0	994.5	1013.1	0.6	341	0.8	16.1	350	8.4	342	5.1	348	22
23	21.3	7.6	14.3	8.0	10.2	4.541	0.505	0.0	998.6	1023.1	0.8	55	1.0	19.3	36	10.8	43	7.5	46	23
24	25.7	12.3	18.4	11.5	13.6	1.867	1.938	0.8	992.7	1017.1	5.7	47	5.8	46.7	11	29.5	4	18.9	24	24
25	20.6	15.6	18.2	13.0	14.7	0.700	0.595	0.0	990.0	1017.1	4.6	49	4.8	30.6	24	0.0	0	15.1	21	25
26	25.6	10.8	19.0	7.5	10.9	1.323	1.961	0.0	991.0	1015.4	3.6	348	4.6	41.8	282	0.0	0	20.3	319	26
27	24.9	7.2	16.4	6.0	9.2	3.560	1.648	0.0	993.7	1018.2	2.8	42	2.9	24.1	11	8.0	29	13.4	29	27
28	27.9	16.3	21.9	6.7	10.9	0.164	3.692	0.0	985.8	1010.1	11.0	356	11.7	56.3	336	37.4	334	24.9	348	28
29	22.8	11.1	17.4	5.0	9.0	1.782	0.899	0.0	988.1	1012.5	3.9	9	4.5	25.7	281	14.4	19	11.2	47	29
30	28.8	12.9	21.3	8.5	12.0	1.043	4.016	0.0	980.0	1004.2	10.3	13	10.8	70.8	360	40.6	359	32.9	346	30
31	22.8	15.1	19.3	6.2	10.2	0.571	1.584	0.0	983.1	1007.4	11.7	342	11.9	49.9	326	22.8	320	27.8	348	31
	20.0	10.0	14.6	8.9	10.8	4.403	1.074	-	996.0	1020.5	2.5	191	2.7			1	hly Avg		-	
	UMBER OF AYS WITH: $\begin{array}{ c c c c c c c c c c c c c c c c c c c$																			
SEA I	LEVEL PR	RESSURE:	>		JM: 103 JM: 100	3.6	L2 B0	TIME 09:53 15:24	DEGF	REEE DAYS	: >	HEATING COOLING	MONTHLY TO 136.49 20.401	3	SEASON 808. 21.0		FAL			

AUGUST 2024 Maroota, NSW AUS

SEPTEMBER 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota

Lat: -33.4650 Long: 151.0008 Elev (ground): 205 m Time Zone: Australia/Sydney

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		TEMPE	RATURE °	c		DEG BASE	DAYS 18.3°	PRECIP. (mm)	_	SURE Pa)		WIND SPEED = km/h DIR = DEGREES								
																WIND	MAX			
	5	_			_ m						ANT			INIST	ANT	1	MIN	ΔRC	HIVE	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTAI SPEED	RES DIR	AVERAGE SPEED	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date
01	25.7	11.9	19.7	4.1	8.6	1.131	2.484	0.0	987.1	1011.5	7.1	7	7 7.4 51.5 5 0.0 0 24.6 8 01						01	
02	24.1	11.8	17.8	2.5	7.4	1.638	1.056	0.0	989.8	1014.2	12.0	338	13.0	69.2	344	40.7	317	35.1	321	02
03	18.3	7.1	11.8	1.6	5.6	6.554	0.000	0.0	1004.0	1028.6	0.7	282	1.4	22.5	254	9.8	325	6.6	238	03
04	22.3	4.0	13.3	4.9	7.8	5.659	0.650	0.0	1002.1	1026.7	2.5	69	2.6	20.9	68	12.2	37	8.9	45	04
05	25.9	12.2	19.3	8.0	11.4	1.370	2.383	0.0	998.3	1022.8	7.9	24	8.2	53.1	38	32.1	24	27.6	20	05
06	27.4	12.7	21.1	10.3	13.2	0.813	3.583	0.0	997.0	1021.6	10.1	23	10.5	49.9	336	6.2	54	24.7	3	06
07	28.1	14.8	19.9	12.6	14.7	0.617	2.151	0.0	997.1	1021.6	3.3	55	4.9	32.2	347	0.0	0	16.1	25	07
08	20.9	12.6	15.8	11.2	12.8	2.678	0.102	0.0	994.7	1019.2	0.7	351	0.7	22.5	325	0.0	0	10.3	337	08
09	23.2	11.2	16.5	6.9	10.1	2.701	0.916	0.0	993.7	1018.1	4.8	352 5.3 38.6 302 25.9 313 19.2 332 09								
10	21.4	8.4	14.8	9.2	11.2	3.966	0.457	0.0	1000.0	1024.6	0.6	136 1.1 16.1 269 8.6 152 5.9 131 10						10		
11	26.2	8.8	17.4	10.9	12.8	2.913	2.024	0.0	998.0	1022.6	1.5	41	1.7	19.3	22	10.3	20	7.3	39	11
12	19.7	11.3	15.4	10.5	12.2	3.068	0.087	1.6	997.7	1022.2	3.0	219	3.1	37.0	229	15.1	202	11.8	215	12
13	19.1	9.2	12.9	7.0	9.2	5.433	0.012	0.0	1001.9	1026.5	1.3	258	1.7	24.1	217	9.8	255	7.2	285	13
14	23.8	6.7	14.6	6.3	8.9	4.866	1.109	0.0	997.6	1022.1	2.0	343	3.2	32.2	338	3.8	63	15.3	320	14
15	16.2	7.1	10.8	2.4	5.9	7.530	0.000	0.0	1001.5	1026.1	3.2	233	3.6	32.2	259	0.0	0	11.4	227	15
16	20.4	3.9	11.3	3.0	6.1	7.212	0.176	0.0	1001.0	1025.6	0.1	150	1.6	24.1	158	12.3	161	10.1	155	16
17	21.5	6.4	13.3	5.9	8.6	5.440	0.394	0.0	999.2	1023.8	0.2	70	0.4	11.3	284	5.7	129	2.4	130	17
18	25.7	7.4	16.4	1.1	5.8	3.765	1.799	0.0	992.1	1016.5	4.4	8	4.7	35.4	9	22.9	12	18.0	2	18
19	26.1	12.6	19.3	0.5	6.0	1.304	2.261	0.0	985.0	1009.3	6.9	339	7.8	56.3	333	35.6	337	26.7	333	19
20	24.1	12.4	17.4	2.4	7.1	2.175	1.244	0.0	985.4	1009.6	5.8	333	6.0	40.2	328	22.4	332	18.7	311	20
21	22.8	10.1	16.5	4.3	8.3	2.817	0.966	0.0	986.6	1011.0	6.3	337	6.6	40.2	337	25.1	320	19.3	335	21
22	24.7	8.8	17.2	5.5	9.2	2.598	1.510	0.0	991.4	1015.8	5.2	337	5.6	37.0	342	0.7	25	19.3	352	22
23	27.9	12.5	19.8	7.1	10.7	1.563	2.997	0.0	994.1	1018.6	3.4	357	3.9	32.2	302	0.0	0	12.2	354	23
24	25.1	11.8	19.2	9.6	12.5	1.377	2.278	0.0	994.5	1019.0	1.2	73	1.2	19.3	155	9.1	46	5.5	71	24
25	28.3	15.7	21.3	11.2	14.0	0.255	3.192	1.0	989.2	1013.6	2.1	29	2.5	33.8	22	21.4	343	15.2	4	25
26	17.8	8.8	11.2	9.5	10.2	7.155	0.000	39.4	994.4	1018.8	1.1	248	1.3	20.9	270	5.1	261	5.4	207	26
27	15.6	8.8	11.4	9.1	10.0	6.901	0.000	6.0	1001.8	1026.5	2.3	196	2.9	30.6	169	15.0	204	11.8	201	27
28	18.1	9.7	13.3	10.5	11.5	5.020	0.000	1.8	1002.5	1027.2	1.5	204	2.9	27.4	194	6.5	289	9.1	172	28
29	19.3	11.1	14.9	13.7	14.1	3.426	0.013	2.0	997.1	1021.6	0.1	259	0.4	11.3	248	0.0	0	3.6	131	29
30	20.1	11.3	15.5	12.3	13.4	2.988	0.160	5.0	995.5	1020.0	2.6	214	2.9							
	22.7	10.0	16.0	7.1	10.0	3.498	1.360		995.7	1020.2	3.5	196	4.0		•	< Mont	hly Avg			
NUMBI DAYS	ER OF WITH:		kimum Te kimum Te			Minimum Minimum	$Temp \le 0$ $Temp \le -$: 0 17.7: 0	_	itation a itation a			Greates Monthly						ite: 26	-27
SEA 1	S WITH:																			

OCTOBER 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota

Lat: -33.4650 Long: 151.0008 Elev (ground): 205 m Time Zone: Australia/Sydney

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ua	W 1-3	Personal III
		E-1911//

TEMPERATURE °C DEG DAYS BASE 18.3° (mm) PRECIP. PRESSURE (hPa) WIND SPEED = km/h DIR = DEGREES																				
											_					WIND	MAX			
	Σ	Σ	يبرا	ļ <u>ļu</u>	۳۳	ی	<u>ق</u>			변력	AN		<u> </u>	INST	ANT	2 - 1	MIN	ARC	HIVE]
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date
01	23.9	8.9	15.5	11.0	12.5	3.569	0.785	0.0	998.4	1022.9	1.2	132	1.3	22.5	146	10.6	147	7.7	144	01
02	18.3	13.5	15.2	11.3	12.7	3.155	0.000	0.0	1004.8	1029.4	1.3	198	1.3	22.5	178	4.7	177	9.8	207	02
03	20.7	10.1	14.9	10.3	11.9	3.595	0.137	0.0	1003.9	1028.6	1.6	139	1.7	27.4	140	14.2	154	9.9	144	03
04	25.6	7.6	16.5	10.9	12.6	3.436	1.592	0.2	992.8	1017.2	1.0	36	1.2	27.4	290	14.5	315	10.3	339	04
05	25.3	16.4	20.8	10.7	13.5	0.170	2.601	0.6	984.2	1008.5	7.5	347	8.3	45.1	350	27.2	347	20.8	317	05
06	26.9	15.6	21.2	9.3	12.6	0.368	3.095	0.0	988.2	1012.5	6.9	331	7.2							
07	28.4	12.3	20.6	10.3	13.1	1.259	3.490	0.0	992.9	1017.4	3.8	341	4.3							
08	18.6	11.7	13.7	10.3	11.6	4.585	0.000	1.8	998.2	1022.8	1.1	206		1.1 17.7 211 0.0 0 4.6 203 08						
09	14.3	10.8	12.1	9.1	10.3	6.276	0.000	4.0	1001.0	1025.6	0.3	196	0.4	16.1	175	6.5	207	4.1	193	09
10	24.3	10.7	16.3	12.0	13.3	3.267	1.231	0.2	997.7	1022.2	0.7	69	0.9 14.5 22 6.0 43 4.4 66 10							
11	25.8	13.6	18.3	14.0	15.3	1.758	1.690	0.0	997.6	1022.1	0.6	109	0.9	20.9 159 7.8 152 5.7 146 11 37.0 220 15.6 219 10.2 217 12						
12	16.7	10.5	14.6	9.9	11.6	3.708	0.000	0.0	1001.3	1025.9	3.7	212	3.7	1		1		1		
13	20.2	8.8	14.2	9.0	10.8	4.308	0.146	0.0	1000.5	1025.1	1.0	118	1.1	19.3	134	0.6	256	5.7	123 6	13
14 15	25.1 16.4	10.0	15.9 14.1	11.9	13.2 12.7	3.605 4.231	1.218	41.6	995.2 999.5	1019.7	1.9 1.2	54 204	2.5 1.2	38.6	189	18.9	14	15.4		14
16	17.1	10.2	13.8	10.1	11.4	4.231	0.000	1.0	997.0	1024.1	0.0	127	0.1	8.0	245 161	11.8	225 135	7.9	214 139	15 16
17	24.6	8.6	16.4	12.1	13.4	3.402	1.428	0.0	997.0	1021.0	1.0	118	1.1	19.3	171	9.0	166	5.6	124	17
18	24.6	16.2	19.4	16.0	17.0	0.744	1.832	0.4	985.0	1017.3	2.1	60	2.2	20.9	25	14.9	20	10.3	24	18
19	24.8	16.1	19.4	14.8	16.2	0.744	1.897	0.0	985.5	1009.3	2.1	349	3.4	24.1	351	12.1	342	12.1	16	19
20	23.0	15.2	17.8	13.3	14.7	1.364	0.841	0.0	994.5	1019.0	1.9	193	2.4	25.7	159	0.0	0	8.9	170	20
21	20.9	12.1	16.3	10.3	12.3	2.362	0.299	0.0	996.2	1020.8	3.2	219	3.5	30.6	225	15.1	207	10.9	206	21
22	26.7	10.1	17.3	9.9	12.1	2.677	1.687	0.0	991.8	1016.2	0.4	128	0.6	16.1	146	5.8	123	4.5	129	22
23	30.6	11.4	20.9	13.7	15.5	1.867	4.435	0.0	986.3	1010.6	0.1	9	0.2	16.1	313	6.2	318	3.2	317	23
24	22.3	13.0	17.9	13.0	14.5	1.284	0.807	3.6	986.8	1011.2	1.8	163	2.1	30.6	138	14.4	154	9.8	153	24
25	22.5	10.3	15.1	8.3	10.5	3.619	0.427	0.0	991.2	1015.7	0.8	241	2.4	37.0	161	0.0	0	12.1	158	25
26	21.3	10.6	14.3	6.1	9.0	4.205	0.123	0.0	996.4	1020.9	1.0	152	1.4	25.7	134	0.0	0	9.0	141	26
27	27.1	9.2	17.6	9.4	11.7	3.040	2.262	0.0	994.5	1018.9	0.6	82	1.0	17.7	26	0.0	0	6.1	327	27
28	29.4	12.2	19.0	11.4	13.5	1.652	2.326	0.0	994.0	1018.5	1.0	168	2.9	33.8	162	15.8	153	13.3	148	28
29	24.8	13.3	17.5	12.4	14.0	1.865	1.056	0.0	997.9	1022.5	1.1	132	1.6	27.4	152	14.2	148	10.6	147	29
30	29.3	15.3	20.5	14.4	16.1	0.855	3.049	0.0	992.1	1016.5	1.8	104	2.3	25.7	140	16.3	150	11.1	143	30
31	30.0	13.7	20.6	12.6	14.6	0.888	3.134	0.6	986.7	1011.0	0.1	254	1.8	29.0	324	15.3	348	9.9	329	31
	23.5	11.9	17.0	11.3	13.0	2.647	1.663		994.4	1018.8	1.7	167	2.1			< Mont	hly Avg			1
	UMBER OF AYS WITH: Maximum Temp ≥ 32.2: 0 Minimum Temp ≤ 0: 0 Precipitation ≥ 0.2 mm: 10 AXIMUM Temp ≤ 0: 0 Minimum Temp ≤ -17.7: 0 Precipitation ≥ 2.0 mm: 3 Monthly Total Precipitation: 54.0																			
SEA I	LEVEL PF	RESSURE:	>		JM: 103 JM: 100	1.8	PATE 3 L 8	07:49 16:37	DEGI	REEE DAYS	: >	HEATING COOLING	MONTHLY TO 82.043 41.587		995. 96.6		FAL			

NOVEMBER 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota

Lat: -33.4650 Long: 151.0008 Elev (ground): 205 m Time Zone: Australia/Sydney

Da	VIS	Emili/
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						DEG	DAYS	PRECIP.	PRFC	SURE				WIND SPEED = km/h									
		TEMPE	RATURE °	С		BASE	_	(mm)	_	Pa)			'	WIND	DIR = DE								
											_					WIND	MAX						
	Σ	≥	_ w	<u> </u>	<u> </u>	ی ا	ט		<u> </u>	ᆔᇜ	ANT		_ w	INST	ANT	2 - 1	MIN	ARC	HIVE				
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULT/ SPEED	RES DIR	AVERAG	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date			
01	22.5	14.3	17.6	13.4	14.7	1.397	0.696	1.4	992.2	1016.6	1.9	163	2.2	32.2	167	14.5	168	10.7	198	01			
02	18.3	13.1	15.4	14.0	14.5	2.982	0.000	7.4	998.1	1022.6	0.3	252	0.6	12.9	240	1.4	178	4.2	325	02			
03	31.2	12.8	21.5	15.4	16.8	1.448	4.638	0.0	990.5	1014.9	2.4	22	2.7	40.2	15	0.0	0	20.2	359	03			
04	25.8	17.2	20.6	15.9	17.2	0.155	2.451	0.0	988.8	1013.2	0.6	148	1.1	14.5	150	0.0	0	3.9	157	04			
05	22.3	15.9	18.6	15.5	16.4	0.754	1.031	0.0	993.1	1017.5	2.1	133	2.2	27.4	142	11.6	147	9.9	143	05			
06	32.3	16.3	22.9	17.8	19.0	0.291	4.812	0.0	988.9	1013.2	1.2	111	1.3	17.7	130	7.7	136	5.1	135	06			
07	34.1	18.1	25.4	17.4	19.2	0.003	7.040	1.2	985.0	1009.2	2.6	331	3.2	45.1	296	21.2	309	17.4	322	07			
08	28.8	15.0	22.1	11.6	14.3	0.450	4.245	0.2	988.1	1012.4	4.3	327	4.4	33.8	336	22.4	327	16.0	317	08			
09	24.4	14.3	19.5	13.7	15.4	0.865	2.071	0.0	994.7	1019.2	1.1	155	1.5	22.5	115	0.0	0	6.2	141	09			
10	27.6	16.5	20.1	15.3	16.7	0.434	2.151	0.0	995.9	1020.4	3.0	205							10				
11	18.7	15.1	17.2	13.2	14.5	1.159	0.025	0.0	996.7	1021.2	0.2	297	0.3	11.3	250	3.8	306	2.3	260	11			
12	22.1	15.9	18.1	15.4	16.2	0.802	0.532	3.8	992.4	1016.8	0.2	128	0.2	9.7	102	3.5	134	1.9	140	12			
13	23.3	14.5	18.0	16.1	16.7	1.233	0.850	3.4	988.5	1012.8	0.1	92	0.2	11.3	129	5.3	133	3.4	125	13			
14	20.9	16.1	17.8	15.1	15.9	0.958	0.389	0.0	992.2	1016.7	1.0	197	1.2	17.7	238	8.5	236	5.5	216	14			
15	19.9	15.2	16.8	15.2	15.7	1.575	0.041	4.2	996.9	1021.5	0.0	182	0.1	11.3	169	0.9	210	1.1	328	15			
16	22.6	16.8	19.1	17.2	17.8	0.420	1.234	0.6	997.7	1022.3	2.5	132	2.5	29.0	125	0.0	0	10.2	151	16			
17	31.9	18.2	23.6	17.9	19.2	0.003	5.182	10.2	990.1	1014.5	2.9	60	3.3	62.8	291	0.0	0	14.4	319	17			
18	28.4	17.2	20.8	14.4	16.1	0.153	2.635	10.2	990.7	1015.1	0.2	43	1.6	30.6	155	0.0	0	8.9	156	18			
19	20.9	15.5	18.0	13.8	15.1	0.846	0.530	0.0	997.9	1022.4	2.2	144	2.2	27.4	150	15.2	142	9.7	143	19			
20	24.8	12.8	18.8	13.4	15.0	1.477	1.918	0.0	999.4	1024.0	2.0	136	2.0	25.7	172	15.0	157	9.4	142	20			
21	24.6	13.3	18.9	13.3	14.9	1.347	1.880	0.0	1001.4	1026.1	1.8	131	1.9	33.8	167	12.8	144	9.3	148	21			
22	28.3	13.2	20.4	15.4	16.7 16.7	1.251	3.323	0.0	999.5	1024.0	1.2	132 125	1.3	22.5	173	11.3	161	6.7 10.9	146	22 23			
24	33.0	15.1 15.8	23.9	14.8		0.709	5.162 5.877	0.0	995.8	1020.2	2.2		2.2	29.0	169 165	0.0	0	11.8	131	24			
25	31.5	16.4	23.9	15.6 17.8	17.5 19.2	0.360 0.264	5.293	0.0	992.5 989.8	1017.0	2.2	138 140	2.2	30.6	167	15.4	149	11.8	144 142	25			
26	36.6	17.1	26.2	18.1	19.7	0.264	7.958	0.0	986.6	1014.2	1.3	91	1.8	32.2	147	19.3	20	13.3	141	26			
27	36.6	19.8	28.2	17.2	19.7	0.000	9.819	0.0	985.2	1011.0	3.9	20	4.5	37.0	25	23.9	13	17.1	32	27			
28	28.7	20.2	24.8	18.6	20.1	0.000	6.352	11.4	990.0	1014.4	0.2	52	0.5	25.7	221	12.4	226	7.1	222	28			
29	20.9	19.4	20.2	19.1	19.4	0.000	1.893	4.4	992.8	1014.4	0.1	190	0.3	17.7	188	4.6	235	2.3	190	29			
30	23.7	20.1	21.6	20.3	20.6	0.000	3.196	2.2	986.6	1017.2	0.1	92	0.2	12.9	121	0.4	59	1.8	106	30			
	26.6	16.0	20.7	15.7	17.0	0.826	3.215	2.2	992.6	1010.5	1.5	145	1.7	12.7	121		thly Avg	1.0	100				
															,			14.0					
	ER OF WITH:			$emp \ge 32$ $emp \le 0$:		Minimum		17.7: 0	_	itation ≥ itation ≥			Greates Monthly	Total	Precip	itatio	n: 60.		te: 28	-29			
SEA 1	LEVEL PF	DATE TIME MONTHLY TOTAL SEASON TO DATE TOTAL MAXIMUM: 1028.3 21 09:31 LEVEL PRESSURE: > MINIMUM: 1007.2 30 18:02 DEGREEE DAYS: > HEATING: 21.481 1017.395 COOLING: 93.225 189.848																					

DECEMBER 2024

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Maroota, NSW AUS Hodgson Quarries - Maroota

Lat: -33.4650 Long: 151.0008 Elev (ground): 205 m Time Zone: Australia/Sydney



		TEMPE	RATURE °	С		DEG BASE	DAYS 18.3°	PRECIP. (mm)	_	SURE Pa)	WIND SPEED = km/h DIR = DEGREES									
																WIND	MAX			
	₹	≥	Щ.	ш	<u> </u>	ی ا	ن		<u> </u>	ᆔᇜ	F		<u> </u>	INST	ANT	2 - 1	MIN	ARC	HIVE	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	SPEED	DIR	SPEED	DIR	SPEED	DIR	Date
01	31.4	18.4	23.2	19.0	20.0	0.000	4.776	0.0	983.1	1007.4	2.1	19	2.5	37.0	9	0.5	126	18.0	341	01
02	35.9	17.3	26.3	16.2	18.3	0.057	7.968	0.0	984.4	1008.7	2.8	3	3.7							02
03	31.6	20.7	25.7	18.4	20.1	0.000	7.329	0.0	984.4	1008.7	3.4	21	3.5	49.9	12	29.6	15	24.6	9	03
04	27.3	19.8	23.1	18.1	19.4	0.000	4.644	0.0	991.9	1016.3	1.6	160	2.2	24.1	166	12.8	158	7.6	144	04
05	28.8	18.4	22.1	18.7	19.6	0.000	3.641	0.0	995.6	1020.1	0.9	133	0.9	17.7	143	6.8	132	5.4	144	05
06	34.5	20.5	25.3	21.2	22.1	0.000	6.996	36.8	992.4	1016.8	0.6	142								
07	29.1	22.0	24.7	22.3	22.9	0.000	6.411	6.2	985.9	1010.3	0.1	305								
08	32.6	17.6	23.3	19.1	20.1	0.076	5.093	0.6	985.8	1010.1	0.0		180 0.0 0.0 0 0.0 0 0.0 0							
09	21.1	17.5 17.9	19.2 21.3	17.8	18.2 18.1	0.216 0.012	1.056 3.024	0.4	990.2 987.7	1014.6	0.0	180 180	0.0	0.0	0	0.0	0	0.0	0	09 10
10	27.7	17.9	21.3	16.9 15.8	17.3	0.012	3.109	0.0	987.7	1012.0	0.0	180	0.0	0.0	0	0.0	0	0.0	0	11
11	33.4	15.4	23.2	14.3	16.4	0.173	5.370	0.0	983.5	1010.0	0.0	180	0.0	0.0	0	0.0	0	0.0	0	12
13	35.4	16.7	25.1	17.4	19.1	0.113	6.636	0.0	983.6	1007.7	0.0	180	0.0	0.0	0	0.0	0	0.0	0	13
14	30.6	20.0	23.8	19.1	20.2	0.000	5.412	0.0	986.8	1011.1	0.0	180	0.0	0.0	0	0.0	0	0.0	0	14
15	30.1	19.8	23.9	20.3	21.2	0.000	5.543	0.0	988.1	1012.4	0.0	180	0.0	0.0	0	0.0	0	0.0	0	15
16	31.9	20.4	25.6	20.5	21.7	0.000	7.115	0.0	989.4	1013.8	0.0	180	0.0	0.0	0	0.0	0	0.0	0	16
17	39.7	19.1	27.1	19.1	20.6	0.000	8.402	0.0	984.3	1008.6	0.0	180	0.0	0.0	0	0.0	0	0.0	0	17
18	21.3	15.8	18.2	13.6	15.0	0.748	0.616	4.4	992.6	1017.1	0.0	180	0.0	0.0	0	0.0	0	0.0	0	18
19	23.7	14.4	18.8	12.3	14.2	1.042	1.518	0.0	994.0	1018.4	0.0	180	0.0	0.0	0	0.0	0	0.0	0	19
20	28.1	13.9	19.6	13.0	14.9	1.161	2.465	0.0	988.7	1013.1	0.0	180	0.0	0.0	0	0.0	0	0.0	0	20
21	34.6	14.9	22.5	15.1	16.8	0.804	4.973	0.0	984.8	1009.1	0.0	180	0.0	0.0	0	0.0	0	0.0	0	21
22	27.7	18.9	22.3	17.0	18.4	0.000	3.937	0.0	982.9	1007.1	0.0	180	0.0	0.0	0	0.0	0	0.0	0	22
23	27.7	15.3	23.0	8.5	12.0	0.160	4.822	0.0	978.8	1003.0	0.0	180	0.0	0.0	0	0.0	0	0.0	0	23
24	25.4	12.2	18.6	9.2	12.0	1.538	1.845	0.0	987.7	1012.1	0.0	180	0.0	0.0	0	0.0	0	0.0	0	24
25	31.6	13.9	21.3	13.8	15.7	0.920	3.932	0.0	992.1	1016.5	0.0	180	0.0	0.0	0	0.0	0	0.0	0	25
26	33.3	15.7	24.1	16.6	18.3	0.413	6.211	0.0	988.6	1012.9	0.0	180	0.0	0.0	0	0.0	0	0.0	0	26
27	36.8	20.1	26.8	17.4	19.4	0.000	8.483	1.8	980.6	1004.8	0.0	180	0.0	0.0	0	0.0	0	0.0	0	27
28	27.6	17.3	22.0	15.3	17.1	0.045	3.751	0.0	985.7	1010.0	0.0	180	0.0	0.0	0	0.0	0	0.0	0	28
29	30.9	15.7	22.2	12.9	15.2	0.364	4.207	0.0	990.6	1015.0	0.0	180	0.0	0.0	0	0.0	0	0.0	0	29
30	26.6	17.5	21.7	16.8	18.1	0.116	3.441	0.0	993.8	1018.3	0.0	180	0.0	0.0	0	0.0	0	0.0	0	30
31	27.8	17.7	22.2	17.7	18.8	0.056	3.933	0.0	990.8	1015.2	0.0	180	0.0	0.0	0	0.0	0	0.0	0	31
	30.1	17.5	22.8	16.6	18.1	0.449	4.731		987.6	1011.9	1.6	164	1.9			< Mont	, 0			
NUMBI DAYS	ER OF WITH:			$mp \ge 32$ $mp \le 0:$		Minimum		17.7: 0			≥ 0.2 mm: ≥ 2.0 mm:		Greates Monthly	Total	Precip	itatio	n: 50.		e: 17-	.18
SEA 1	LEVEL PR	RESSURE:	>		JM: 102 JM: 100	2.5	5	TIME 09:11 04:33	DEGF	REEE DAYS	: >	HEATING COOLING	MONTHLY TO 8.538 146.65		1025 336.5		FAL			

DECEMBER 2024 Maroota, NSW AUS



Appendix F Air Quality Sampling **Procedures**



WORK INSTRUCTION

WORK INSTRUCTION TITLE: HVAS OPERATION AND SAMPLING

QUALITY PROCEDURE NUMBER: VGTLAB-QWI57

Amend.	Date	Description of Amendment
No		
0	16/02/2023	Issue A
1		
2		
3		
4		
5		
6		
7		
8		

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HVAS OPERATION & SAMPLING

VGTLAB-QWI57 Issue: A Amendment: 0 Date: 16/02/2023 Page 1 of 4

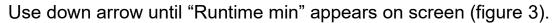
Where to find what to record:

1. Run Time:

Do this when putting paper on and when taking paper off.

Press SELECT to enter menu (figure 2.).

Press SELECT again (Status screen).



Record runtime in 'Start Hrs Run'/'End Hrs Run'.

Press EXIT to return to front menu.

Display should be in standby with next run time displayed.



Figure 1.Control panel keypad

Figure 2. Menu

Figure 3."RunTime Min" screen

2. Swapping Out Papers:

Record details

Unscrew hood (figure 4.)

Carefully remove paper.

FOLD PAPER -dust to the inside

Put in envelope.

Place new paper between blue screen.

How to place filter on screen:

- 1. Number facing DOWN.
- 2. Paper on mesh
- 3. Spongy lid on top



Figure 4. Unscrewing lid

Avoid excessive touching of paper.

Handle papers with clean hands.

Figure 5. Fold dust to the INSIDE

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Do not crease paper before placing on machine.

- 4. Close lid.
- 5. Check next 'run time'
- 6. Lock up.

Finished.



Technician Name: Name of person placing/removing filter paper.

Weather: e.g. rainy, overcast, sunny.

Temperature On: Temperature on the day

paper is placed.

Initial Flow Rate: Operate the sampler for 5 min and record the initial flow indicated. (Usually between 67-69)

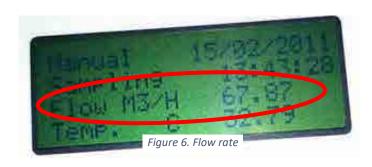
Start Hrs: Number displayed after "RunTime min" recorded before paper is placed.

Date and Time On: Date and time paper is placed on HVAS.

Date Operating: Date HVAS is running.

Temperature Off: Temperature on the day paper is removed.

Final Flow Rate: Operate the sampler for 5 min and record the initial flow indicated. (Usually between 67-69)



End Hrs: Number displayed after "RunTime min", recorded after paper is removed. (There should be a difference of 1439-1441 between Start and End numbers)

Date and Time Off: Date and time paper is removed from HVAS

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Activities on site during operating period: *E.g. truck movement levels-high, low. Mowing, hazard reduction burns etc.*

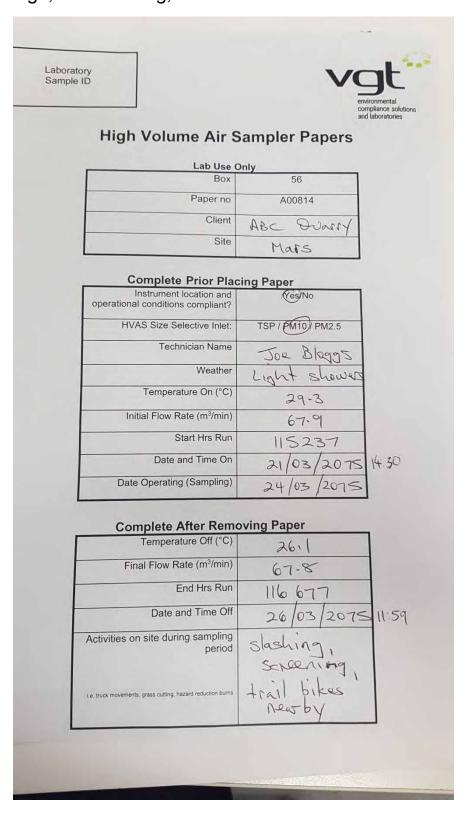


Figure 7. Example of Filled in Envelope

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Figure 8. A correctly installed HVAS filter paper

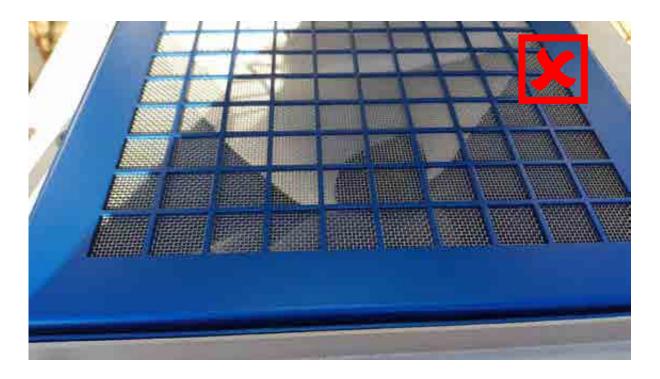


Figure 9. An example of an incorrectly installed HVAS filter paper.

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WORK INSTRUCTION

Work Instruction Title: DUST SAMPLING

Quality Procedure Number: VGTLAB-QWI15

Amend.	Date	Description of Amendment
No		
0	19/5/03	Issue A
1	15/3/2005	Add figures, spelling errors, page formatting
2	9/11/05	As per Oct 2005 NATA assessment findings
3	28/2/06	As per NATA letter 23/2/06
4	19/3/2007	New logo
5	16/9/07	AS3580.1.1
6	14/05/2008	As per Audit 21
7	22/04/09	As per Audit 23
8	19/07/13	As per Audit 38
9	28/5/15	As per Audit 43
10	7/6/16	As per Audit 49
11	06/04/2021	As per Audit 75, formatting

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1. Scope

This method is adapted from the Australian Standard AS3580.10.1. It sets out the sampling of particulate matter, which is deposited from the atmosphere for determination of insoluble solids, ash, and combustible matter. It provides a means for measuring the mean concentration of particulate matter in air over a sampling period, normally one month.

2. Principle

Over a given sampling period, particles, which settle from the ambient air, are collected in a vessel and retained together with any rainwater. The sample is sieved to remove any extraneous matter and the filtrate containing the deposited matter is quantitatively transferred to a filtration apparatus whereby determination of insoluble solids, ash, and combustible matter can be made.

3. References

- AS3580.10.1 Determination of particulates- Deposited Matter-Gravimetric method
- AS3580.1.1 Methods for sampling and analysis of ambient air Part 1.1 Guide to siting air monitoring equipment
- VGTLAB-QW14 Determination of Dusts
- VGTLAB-QW11- Site Visits /Site specific Appendix (online Onenote)

4. Apparatus

4.1. Deposit Gauge

Comprising of a 150mm ± 10mm diameter funnel (nominal angle of cone sides 60 degrees) of glass, or other demonstrably unreactive material, supported in the neck of a glass bottle of minimum volume 2L, in such a way as to remain horizontal and to allow water overflow under excessive rainfall conditions. (An indicative design is given in Figure 1)

4.2. Lid

The gauge shall have a tight fitting lid for sealing the bottle during transport. The lid shall be made of an impermeable material, which does not react with the collected, deposited matter.

4.3. Stand

The stand shall support the deposit gauge such that the funnel face is between 1.8 and 2.2m above ground level. The stand generally incorporates a container or beaker to protect the bottle contents from sunlight, which can accelerate algal growth. This container or beaker is provided with a drainage hole at the base to prevent rainwater build-up. The stand should be sufficiently rugged to prevent any noticeable sway and shall ensure that the funnel aperture plane is maintained in horizontal position. A typical stand is illustrated in Figure 2.

4.4. Bird Ring (optional)

Shall be made of inert and corrosion resistant metal wire having a diameter of 4 mm to 6 mm and of suitable design to prevent birds perching on the funnel. See Figure 2.

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Other bird deterrent methods (such as cable ties around the ring) can be employed as long as they do not interfere with sample collection zone.

4.5. Copper Sulphate Solution

Dissolve 7.8g of copper sulphate pentahydrate ($CuSO_4.5H_20$) in 1 litre tap water. This acts as an algaecide. There is no requirement to accurately measure this as Total Solids is not included in this scope.

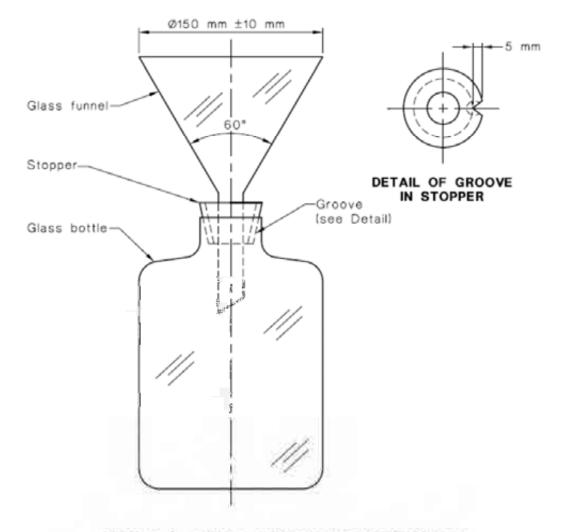


FIGURE 1 TYPICAL STANDARD DEPOSIT GAUGE

(Source: AS3580.10.1)

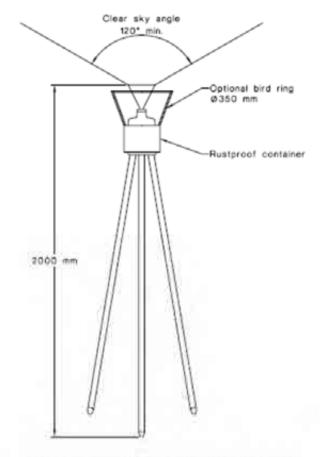


FIGURE 2 TYPICAL STAND WITH DEPOSIT GAUGE

(Source: AS3580.10.1)

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5. Safety

VGT staff must at all times follow the safety directions of site managers and site safety protocols. This includes consultation with the client prior to entering the premises. Laboratory safety begins with a safe attitude. The following must be considered before proceeding.

- Become familiar with the physical properties and potential dangers of materials you plan to use. Consider how they may react in combination
- Consider the limitations of the equipment you plan to use.
- Think through any potential hazards associated with your work and plan your response before commencing an experiment.
- If in doubt ask your supervisor for assistance.
- Wear the appropriate protective clothing when working in the field.
- Wear appropriate footwear and personal protection.
- If you are working alone, always let someone know your whereabouts and schedule.
- All chemicals should be disposed of as stated in the MSDS.
- Treat each sample as if it is potentially hazardous.
- Inspect any glass or equipment for breakage or sharp edges prior to handling. Do not
 pick up bottles by the lids, particularly Winchesters of 2L capacity or more. Place a hand
 under the base of the bottles whilst lifting
- Dispose of broken glassware into the appropriate container, ensuring any contamination hazard is considered.
- Care should be taken when cleaning or drying glassware.
- If glass tubing or rod is to be passed through a bung, lubricate the glass before insertion. The bung should never be held in the palm of the hand while inserting the tube. If any significant force is required to push the tube through the bung, the hole should be enlarged.

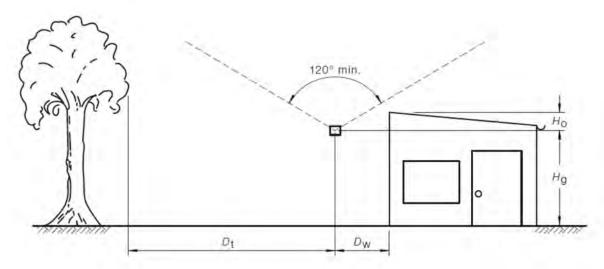
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6. Procedure

6.1. Location and Positioning

The sampling site should be selected in accordance with the guidelines given in AS3580.1.1 Methods for sampling and analysis of ambient air Part 1.1 Guide to siting air monitoring equipment. In particular, the following points should be considered:

- The site shall be level ground, free, as far as practicable, from such foreign (to the case in hand) sources of pollution such as chimneys, traffic, incinerators, trees, dusty ground and road traffic. If a local foreign source exists in the area, it shall be noted and mapped.
- The nearest obstacles shall not be closer than twice their height. Therefore if the obstacle is 3m high, the gauge must be no closer than 6m.
- As a general rule, a sampling inlet should be located away from any nearby structure to the extent that the sampling inlet has a minimum clear sky angle of 120°.
- There should be an unrestricted air flow of 360° around the sampling inlet.
- The sample inlet shall be horizontal and between 1.8 and 2.2m above ground level.
- The gauge must greater than 5m from source road and 10m from any object taller than the gauge inlet and 10m from the dripline of any trees.



(Source: AS3580.1.1)

 H_g = Height of top of funnel above ground = 2 ± 0.2m

 H_o = Height of nearby obstacle above sampling inlet – $2H_o \le D_w$

D_t = Distance to nearby tree ≥ 10m from drip-line

D_W = Distance to wall or supporting structure ≥ minimum 1m

120° = Minimum clear sky angle above sampling inlet

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6.2. Recommended Minimum Distances between Stations and Roads

For sites significantly influenced by motor vehicle emissions, the following criteria require a statement in the monitoring data if not met. (Distances are for particle measurement)

Estimated No of Vehicles per day	Min Distance between site and road (m)
<10,000	50
20,000	75
40,000	100

6.3. Period of Exposure

In general the period of exposure shall be 30 + 2 days.

6.4. Gauge Preparation

During preliminary cleaning, washing agents which do not attack the inside surface of the deposit gauge and lid may be used to clean the deposit gauge bottle. After each preliminary cleaning, the deposit gauge bottle shall be rinsed with water in order to remove any remaining extraneous matter. To prevent algal growth in the deposit gauge, 10mL of copper sulphate solution (4.5) shall be measured into the deposit gauge bottle and the bottle tightly sealed. The gauge and prepared assembly should be packed for transport to the sampling site. Before exposure, all extraneous matter adhering to the deposit gauge and lid shall be removed.

6.5. Gauge Exchange

Where a gauge has overflowed, or where the sampling site doesn't comply with AS3580.1.1, or any other details that may affect the results, this should be noted on the sampling report, and the client made aware that the results may be invalid. The volume of liquid in the gauge should be recorded as it gives an indication of the rainfall for the exposure period. The gauge exchange procedure shall be as follows:

- At the end of the exposure period, wash any deposited matter adhering to the funnel into the deposit gauge bottle using a minimum volume of distilled water from a wash bottle.
- Inspect the gauge from the base to ensure no spiders or other harmful insects are present in the gauge prior to placing hands within the apparatus. Observe whether any broken glass is present.
- Remove bottle carefully lifting from the base where possible. Use gloves to avoid cuts from any broken funnels or bottles if required.
- Remove the funnel and attached stopper and seal the bottle with a lid. If the bottle is broken, carefully and clearly label as broken to warn staff of the risk of cuts when handling. Identify the bottle with a label detailing the site location and period of exposure. Return the bottle to the laboratory for analysis.
- Insert the clean funnel with attached stopper into a fresh bottle containing algicide (10mL of copper sulphate solution) and leave exposed for the next sampling period.
- Ensure that the funnel is firmly held in the neck of the bottle and that the funnel aperture plane is horizontal.

NOTE: When on site to exchange dust gauges ensure that you have the appropriate safety equipment and follow all safety instructions given by the relevant company/landowner

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operating the site. For further instructions see relevant safety procedures and Safe Work Method Statements.

6.6. Storage

Analysis of the deposited matter should be performed at the earliest opportunity and completed within 30 days of collection. During storage, deposit gauges shall be tightly sealed and kept cool to prevent the growth of algae, fungi and other micro-organisms.

6.7. Documentation

The sampling details are recorded on the dust sampling form. Any customer-requested deviations, additions or exclusions from the documented sampling procedure are recorded and communicated to the appropriate personnel. The following details are to be recorded for reporting:

- Location of gauge, including co-ordinate or map reference, height above ground, classification of area (eg industrial, residential, agricultural or urban).
- Any non-conformance to AS3580.1.1 or AS3580.10.1, such as proximity of objects, overflow of gauge, funnel size or angle not compliant.
- Date and time of sampling and name of technician
- Relevant data that may include weather conditions, proximity of bush fires, farming or earth-moving activities, traffic on unsealed roads

This is recorded on VGTLAB-QFM46 Dust Sampling Sheet each month. Static information is stored in LIMS/sample point fields along with the Site Specific Appendix.

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Appendix G Pumping Records

Date	Start	Finish	Hours	Litres @ 120/min	Day	cubic metro
1/01/2024			0	0	Monday	0
2/01/2024			0	0	Tuesday	0
3/01/2024			0	0	Wednesday	0
4/01/2024			0	0	Thursday	0
5/01/2024			0	0	Friday	0
6/01/2024			0	0	Saturday	0
7/01/2024			0	0	Sunday	0
8/01/2024			0	0	Monday	0
9/01/2024	8.00	12.00	4	28800	Tuesday	28.8
10/01/2024	1.00	4.00	3	21600	Wednesday	21.6
11/01/2024	7.30	2.00	6.5	46800	Thursday	46.8
12/01/2024					Friday	0
13/01/2024	8.00	12.00	4	28800	Saturday	28.8
14/01/2024					Sunday	0
15/01/2024	8.30	4.00	7.5	54000	Monday	54
16/01/2024	10.30	4.00	5.5	39600	Tuesday	39.6
17/01/2024	10.30	4.00	5.5	39600	Wednesday	39.6
18/01/2024	9.00	4.00	7	50400	Thursday	50.4
19/01/2024					Friday	0
20/01/2024					Saturday	0
21/01/2024					Sunday	0
22/01/2024	7.00	4.00	9	64800	Monday	64.8
23/01/2024	8.00	4.00	8	57600	Tuesday	57.6
24/01/2024	8.00	4.00	8	57600	Wednesday	57.6
25/01/2024	12.00	4.00	4	28800	Thursday	28.8
26/01/2024					Friday	0
27/01/2024	8.30	12.00	3.5	25200	Saturday	25.2
28/01/2024				0	Sunday	0
29/01/2024	10.30	4.00	5.5	39600	Monday	39.6
30/01/2024	9.00	4.00	7	50400	Tuesday	50.4
31/01/2024	8.00	2.00	6	43200	Wednesday	43.2
1/02/2024					Thursday	0
2/02/2024					Friday	0
3/02/2024					Saturday	0
4/02/2024					Sunday	0
5/02/2024	7.00	3.30	8.5	61200	Monday	61.2
6/02/2024	7.00	3.00	8	57600	Tuesday	57.6
7/02/2024	10.00	4.00	6	43200	Wednesday	43.2
8/02/2024					Thursday	0
9/02/2024					Friday	0
10/02/2024					Saturday	0
11/02/2024					Sunday	0
12/02/2024	8.30	4.00	7.5	54000	Monday	54
13/02/2024	10.30	4.00	5.5	39600	Tuesday	39.6
14/02/2024	10.30	4.00	5.5	39600	Wednesday	39.6
15/02/2024	9.00	4.00	7	50400	Thursday	50.4
16/02/2024	8.00	2.00	6	43200	Friday	43.2
17/02/2024					Saturday	0
18/02/2024					Sunday	0

/02/2024 7.00 3.30 8.5 61200 Monday /02/2024 7.00 3.00 8 57600 Tuesday /02/2024 10.00 4.00 6 43200 Wednesday /02/2024 1.00 4.00 3 21600 Thursday /02/2024 7.00 2.30 7.5 54000 Friday /02/2024 8.00 12.00 4 28800 Saturday /02/2024 8.30 4.00 7.5 54000 Monday /02/2024 9.00 4.00 7 50400 Tuesday /02/2024 0 Wednesday Wednesday /02/2024 10.45 3.30 4.25 30600 Thursday /03/2024 9.00 3.00 6 43200 Friday /03/2024 8.00 12.00 4 28800 Saturday /03/2024 0 Sunday 0 Sunday
/02/2024 10.00 4.00 6 43200 Wednesday /02/2024 1.00 4.00 3 21600 Thursday /02/2024 7.00 2.30 7.5 54000 Friday /02/2024 8.00 12.00 4 28800 Saturday /02/2024 Sunday Sunday Monday /02/2024 9.00 4.00 7 50400 Monday /02/2024 0 Wednesday Wednesday /02/2024 10.45 3.30 4.25 30600 Thursday /03/2024 9.00 3.00 6 43200 Friday /03/2024 8.00 12.00 4 28800 Saturday
/02/2024 1.00 4.00 3 21600 Thursday /02/2024 7.00 2.30 7.5 54000 Friday /02/2024 8.00 12.00 4 28800 Saturday /02/2024 Sunday Sunday /02/2024 8.30 4.00 7.5 54000 Monday /02/2024 9.00 4.00 7 50400 Tuesday /02/2024 0 Wednesday /02/2024 10.45 3.30 4.25 30600 Thursday /03/2024 9.00 3.00 6 43200 Friday /03/2024 8.00 12.00 4 28800 Saturday
/02/2024 7.00 2.30 7.5 54000 Friday /02/2024 8.00 12.00 4 28800 Saturday /02/2024 Sunday Sunday /02/2024 8.30 4.00 7.5 54000 Monday /02/2024 9.00 4.00 7 50400 Tuesday /02/2024 0 Wednesday /02/2024 10.45 3.30 4.25 30600 Thursday /03/2024 9.00 3.00 6 43200 Friday /03/2024 8.00 12.00 4 28800 Saturday
/02/2024 8.00 12.00 4 28800 Saturday /02/2024 Sunday Sunday /02/2024 8.30 4.00 7.5 54000 Monday /02/2024 9.00 4.00 7 50400 Tuesday /02/2024 0 Wednesday /02/2024 10.45 3.30 4.25 30600 Thursday /03/2024 9.00 3.00 6 43200 Friday /03/2024 8.00 12.00 4 28800 Saturday
/02/2024 Sunday /02/2024 8.30 4.00 7.5 54000 Monday /02/2024 9.00 4.00 7 50400 Tuesday /02/2024 0 Wednesday /02/2024 10.45 3.30 4.25 30600 Thursday /03/2024 9.00 3.00 6 43200 Friday /03/2024 8.00 12.00 4 28800 Saturday
/02/2024 8.30 4.00 7.5 54000 Monday /02/2024 9.00 4.00 7 50400 Tuesday /02/2024 0 Wednesday /02/2024 10.45 3.30 4.25 30600 Thursday /03/2024 9.00 3.00 6 43200 Friday /03/2024 8.00 12.00 4 28800 Saturday
/02/2024 9.00 4.00 7 50400 Tuesday /02/2024 0 Wednesday /02/2024 10.45 3.30 4.25 30600 Thursday /03/2024 9.00 3.00 6 43200 Friday /03/2024 8.00 12.00 4 28800 Saturday
/02/2024 9.00 4.00 7 50400 Tuesday /02/2024 0 Wednesday /02/2024 10.45 3.30 4.25 30600 Thursday /03/2024 9.00 3.00 6 43200 Friday /03/2024 8.00 12.00 4 28800 Saturday
/02/2024 10.45 3.30 4.25 30600 Thursday /03/2024 9.00 3.00 6 43200 Friday /03/2024 8.00 12.00 4 28800 Saturday
/03/2024 9.00 3.00 6 43200 Friday /03/2024 8.00 12.00 4 28800 Saturday
/03/2024 8.00 12.00 4 28800 Saturday
/03/2024 0 Monday
/03/2024 9.00 3.00 6 43200 Tuesday
/03/2024 9.30 3.30 6 43200 Wednesday
/03/2024 9.30 3.30 6 43200 Thursday
/03/2024 0 Friday
/03/2024 0 Saturday
/03/2024 0 Sunday
/03/2024 8.00 3.30 7.5 54000 Monday
/03/2024 7.00 4.00 9 64800 Tuesday
/03/2024 8.00 3.30 7.5 54000 Wednesday
/03/2024 8.00 4.00 8 57600 Thursday
/03/2024 12.00 4.00 4 28800 Friday
/03/2024 7.00 12.00 5 36000 Saturday
/03/2024 0 Sunday
/03/2024 0 Monday
/03/2024 0 Tuesday
/03/2024 7.00 4.00 9 64800 Wednesday
/03/2024 8.00 4.00 8 57600 Thursday
/03/2024 7.30 12.00 4.5 32400 Friday
/03/2024 0 Saturday
/03/2024 0 Sunday
/03/2024 9.00 5.00 8 57600 Monday
/03/2024 9.00 5.00 8 57600 Tuesday
/03/2024 9.30 5.00 7.5 54000 Wednesday
/03/2024 10.00 3.00 5 36000 Thursday
/03/2024
/03/2024 0 Saturday
/03/2024 0 Sunday
/04/2024 0 Monday
/04/2024 9.00 3.00 6 43200 Tuesday
/04/2024 8.00 3.00 7 50400 Wednesday
/04/2024 7.00 2.00 7 50400 Thursday
/04/2024 7.30 2.30 7 50400 Friday
/04/2024 7.00 12.00 5 36000 Saturday
/04/2024 7.00 12.00 5 30000 3aturday 04/2024 0 Sunday
/04/2024 0 Monday

9/04/2024				0	Tuesday	0
10/04/2024				0	Wednesday	0
11/04/2024				0	Thursday	0
12/04/2024				0	Friday	0
13/04/2024				0	•	
					Saturday	0
14/04/2024				0	Sunday	0
15/04/2024	7.00	2.20	0.5	0	Monday	0
16/04/2024	7.00	3.30	8.5	61200	Tuesday	61.2
17/04/2024	2.00	4.00	2	14400	Wednesday	14.4
18/04/2024	1.00	4.00	3	21600	Thursday	21.6
19/04/2024	7.30	12.00	4.5	32400	Friday	32.4
20/04/2024	7.30	12.00	4.5	32400	Saturday	32.4
21/04/2024				0	Sunday	0
22/04/2024				0	Monday	0
23/04/2024	10.00	4.00	6	43200	Tuesday	43.2
24/04/2024	9.00	3.00	6	43200	Wednesday	43.2
25/04/2024				0	Thursday	0
26/04/2024				0	Friday	0
27/04/2024				0	Saturday	0
28/04/2024				0	Sunday	0
29/04/2024	8.00	3.30	7.5	54000	Monday	54
30/04/2024	7.00	4.00	9	64800	Tuesday	64.8
1/05/2024	8.00	3.30	7.5	54000	Wednesday	54
2/05/2024	8.00	4.00	8	57600	Thursday	57.6
3/05/2024	12.00	4.00	4	28800	Friday	28.8
4/05/2024	7.00	8.00	1	7200	Saturday	7.2
5/05/2024				0	Sunday	0
6/05/2024				0	Monday	0
7/05/2024				0	Tuesday	0
8/05/2024	7.00	4.00	9	64800	Wednesday	64.8
9/05/2024	8.00	4.00	8	57600	Thursday	57.6
10/05/2024	8.00	12.00	4	28800	Friday	28.8
11/05/2024	0.00	12.00	•	0	Saturday	0
12/05/2024				0	Sunday	0
13/05/2024	8.30	4.00	7.5	54000	Monday	54
14/05/2024	10.30	4.00	5.5	39600	Tuesday	39.6
15/05/2024	10.30	4.00	5.5	39600	Wednesday	39.6
16/05/2024	9.00	4.00	7.5	50400	Thursday	50.4
17/05/2024	8.00	11.00	3	21600	Friday	21.6
	0.00	11.00	3		,	_
18/05/2024				0	Saturday	0
19/05/2024				0	Sunday	0
20/05/2024	10.45	2.20	4.25	0	Monday	0
21/05/2024	10.45	3.30	4.25	30600	Tuesday	30.6
22/05/2024	9.00	4.00	7	50400	Wednesday	50.4
23/05/2024	8.00	12.00	4	28800	Thursday	28.8
24/05/2024				0	Friday	0
25/05/2024				0	Saturday	0
26/05/2024				0	Sunday	0
27/05/2024				0	Monday	0
28/05/2024	8.00	4.00	8	57600	Tuesday	57.6

64.8	Wednesday	64800	9	4.00	7.00	29/05/2024
54	Thursday	54000	7.5	3.30	8.00	30/05/2024
0	Friday	0				31/05/2024
0	Saturday	0				1/06/2024
0	Sunday	0				2/06/2024
57.6	Monday	57600	8	4.00	8.00	3/06/2024
50.4	Tuesday	50400	7	4.00	9.00	4/06/2024
43.2	Wednesday	43200	6	3.30	9.30	5/06/2024
0	Thursday	0				6/06/2024
0	Friday	0				7/06/2024
0	Saturday	0				8/06/2024
0	Sunday	0				9/06/2024
0	Monday	0				10/06/2024
0	Tuesday	0				11/06/2024
0	Wednesday	0				12/06/2024
57.6	Thursday	57600	8	4.00	8.00	13/06/2024
0	Friday	0				14/06/2024
0	Saturday	0				15/06/2024
0	Sunday	0				16/06/2024
64.8	Monday	64800	9	4.00	7.00	17/06/2024
57.6	Tuesday	57600	8	4.00	8.00	18/06/2024
28.8	Wednesday	28800	4	12.00	8.00	19/06/2024
0	Thursday	0				20/06/2024
0	Friday	0				21/06/2024
0	Saturday	0				22/06/2024
0	Sunday	0				23/06/2024
61.2	Monday	61200	8.5	3.30	7.00	24/06/2024
14.4	Tuesday	14400	2	4.00	2.00	25/06/2024
21.6	Wednesday	21600	3	4.00	1.00	26/06/2024
32.4	Thursday	32400	4.5	12.00	7.30	27/06/2024
32.4	Friday	32400	4.5	12.00	7.30	28/06/2024
0	Saturday	0				29/06/2024
0	Sunday	0				30/06/2024
57.6	Monday	57600	8	4.00	8.00	1/07/2024
50.4	Tuesday	50400	7	4.00	9.00	2/07/2024
43.2	Wednesday	43200	6	3.30	9.30	3/07/2024
0	Thursday	0				4/07/2024
0	Friday	0				5/07/2024
0	Saturday	0				6/07/2024
0	Sunday	0				7/07/2024
61.2	Monday	61200	8.5	3.30	7.00	8/07/2024
14.4	Tuesday	14400	2	4.00	2.00	9/07/2024
28.8	Wednesday	28800	4	4.00	12.00	10/07/2024
0	Thursday	0				11/07/2024
0	Friday	0				12/07/2024
0	Saturday	0				13/07/2024
0	Sunday	0				14/07/2024
0	Monday	0				15/07/2024
0	Tuesday	0				16/07/2024
	Wednesday	57600	8	4.00	8.00	17/07/2024

18/07/2024	9.00	4.00	7	50400	Thursday	50.4
19/07/2024	9.30	3.30	6	43200	Friday	43.2
20/07/2024	8.30	12.00	3.5	25200	Saturday	25.2
21/07/2024				0	Sunday	0
22/07/2024				0	Monday	0
23/07/2024				0	Tuesday	0
24/07/2024				0	Wednesday	0
25/07/2024				0	Thursday	0
26/07/2024	8.00	4.30	8.5	61200	Friday	61.2
27/07/2024	7.30	12.00	4.5	32400	Saturday	32.4
28/07/2024				0	Sunday	0
29/07/2024				0	Monday	0
30/07/2024	7.00	3.30	8.5	61200	Tuesday	61.2
31/07/2024	2.00	4.00	2	14400	Wednesday	14.4
1/08/2024	1.00	4.00	3	21600	Thursday	21.6
2/08/2024	7.30	12.00	4.5	32400	Friday	32.4
3/08/2024	7.30	12.00	4.5	32400	Saturday	32.4
4/08/2024	7.00			0	Sunday	0
5/08/2024	8.00	4.00	8	57600	Monday	57.6
6/08/2024	9.00	4.00	7	50400	Tuesday	50.4
7/08/2024	9.30	3.30	6	43200	Wednesday	43.2
8/08/2024	8.30	12.00	3.5	25200	Thursday	25.2
9/08/2024	0.50	12.00	5.5	0	Friday	0
10/08/2024				0	Saturday	0
11/08/2024				0	Sunday	
12/08/2024	7.00	3.30	8.5	61200	Monday	61.2
13/08/2024	2.00	4.00	2	14400	Tuesday	14.4
14/08/2024	2.00	4.00	2	0	Wednesday	0
15/08/2024	7.30	12.00	4.5	32400	Thursday	32.4
16/08/2024	7.30	12.00	4.5	32400	Friday	32.4
17/08/2024	7.30	12.00	4.5	0	Saturday	32.4
18/08/2024				0	Sunday	0
19/08/2024				0	Monday	0
20/08/2024	8.50	4.00	7.5	54000	Tuesday	54
21/08/2024	9.00	4.00	7.5	50400	Wednesday	50.4
22/08/2024	9.30	3.30	6		•	
			3.5	43200	Thursday	43.2
23/08/2024	8.30	12.00	3.5	25200	Friday	25.2
24/08/2024				0	Saturday	0
25/08/2024				0	Sunday	0
26/08/2024	40.00	4.00		42200	Monday	12.2
27/08/2024	10.00	4.00	6	43200	Tuesday	43.2
28/08/2024	9.00	4.00	7	50400	Wednesday	50.4
29/08/2024	7.30	3.30	8	57600	Thursday	57.6
30/08/2024				0	Friday	0
31/08/2024				0	Saturday	0
1/09/2024				0	Sunday	0
2/09/2024	7.00	3.30	8.5	61200	Monday	61.2
3/09/2024	2.00	4.00	2	14400	Tuesday	14.4
4/09/2024	1.00	4.00	3	21600	Wednesday	21.6
5/09/2024	7.30	12.00	4.5	32400	Thursday	32.4

6/09/2024				0	Friday	0
7/09/2024	8.00	11.00	3	21600	Saturday	21.6
8/09/2024	0.00	11.00		0	Sunday	0
9/09/2024				0	Monday	0
10/09/2024				0	Tuesday	
11/09/2024	8.00	4.00	8	57600	Wednesday	57.6
12/09/2024	9.00	4.00	7	50400	Thursday	50.4
13/09/2024	9.30	3.30	6	43200	Friday	43.2
14/09/2024	8.30	12.00	3.5	25200	Saturday	25.2
15/09/2024	0.50	12.00	3.5	0	Sunday	0
16/09/2024				0	Monday	0
17/09/2024				0	Tuesday	
18/09/2024	10.00	4.00	6	43200	Wednesday	43.2
			7		•	
19/09/2024	9.00	4.00		50400	Thursday	50.4
20/09/2024	7.30	3.30	8	57600	Friday	57.6
21/09/2024	8.00	12.00	4	28800	Saturday	28.8
22/09/2024				0	Sunday	0
23/09/2024				0	Monday	0
24/09/2024	9.00	5.00	8	57600	Tuesday	57.6
25/09/2024	9.00	5.00	8	57600	Wednesday	57.6
26/09/2024	9.30	5.00	7.5	54000	Thursday	54
27/09/2024				0	Friday	0
28/09/2024				0	Saturday	0
29/09/2024				0	Sunday	0
30/09/2024	7.00	3.30	8.5	61200	Monday	61.2
1/10/2024	2.00	4.00	2	14400	Tuesday	14.4
2/10/2024	1.00	4.00	3	21600	Wednesday	21.6
3/10/2024	7.30	12.00	4.5	32400	Thursday	32.4
4/10/2024	7.30	12.00	4.5	32400	Friday	32.4
5/10/2024	7.30	12.00	4.5	32400	Saturday	32.4
6/10/2024				0	Sunday	0
7/10/2024				0	Monday	0
8/10/2024	8.30	4.00	7.5	54000	Tuesday	54
9/10/2024	10.30	4.00	5.5	39600	Wednesday	39.6
10/10/2024	10.30	4.00	5.5	39600	Thursday	39.6
11/10/2024	9.00	4.00	7	50400	Friday	50.4
12/10/2024	8.00	12.00	4	28800	Saturday	28.8
13/10/2024				0	Sunday	0
14/10/2024				0	Monday	0
15/10/2024	7.00	3.30	8.5	61200	Tuesday	61.2
16/10/2024	2.00	4.00	2	14400	Wednesday	14.4
17/10/2024	1.00	4.00	3	21600	Thursday	21.6
18/10/2024	7.30	12.00	4.5	32400	Friday	32.4
19/10/2024	7.30	12.00	4.5	32400	Saturday	32.4
20/10/2024				0	Sunday	0
21/10/2024	7.00	3.30	8.5	61200	Monday	61.2
22/10/2024	2.00	4.00	2	14400	Tuesday	14.4
23/10/2024	1.00	4.00	3	21600	Wednesday	21.6
24/10/2024	7.30	12.00	4.5	32400	Thursday	32.4
25/10/2024	7.30	12.00	4.5	32400	Friday	32.4

26/40/2024	7.20	12.00	4 -	22400	Catamalan	22.4
26/10/2024	7.30	12.00	4.5	32400	Saturday	32.4
27/10/2024				0	Sunday	0
28/10/2024	2.22			0	Monday	0
29/10/2024	8.30	4.00	7.5	54000	Tuesday	54
30/10/2024	10.30	4.00	5.5	39600	Wednesday	39.6
31/10/2024	10.30	4.00	5.5	39600	Thursday	39.6
1/11/2024	10.00	4.00	6	43200	Friday	43.2
2/11/2024				0	Saturday	0
3/11/2024				0	Sunday	0
4/11/2024				0	Monday	0
5/11/2024	7.00	3.30	8.5	61200	Tuesday	61.2
6/11/2024	2.00	4.00	2	14400	Wednesday	14.4
7/11/2024	1.00	4.00	3	21600	Thursday	21.6
8/11/2024	7.30	12.00	4.5	32400	Friday	32.4
9/11/2024	7.30	12.00	4.5	32400	Saturday	32.4
10/11/2024				0	Sunday	0
11/11/2024				0	Monday	0
12/11/2024	7.00	3.30	8.5	61200	Tuesday	61.2
13/11/2024	2.00	4.00	2	14400	Wednesday	14.4
14/11/2024	1.00	4.00	3	21600	Thursday	21.6
15/11/2024	7.30	12.00	4.5	32400	Friday	32.4
16/11/2024	7.30	12.00	4.5	32400	Saturday	32.4
17/11/2024				0	Sunday	0
18/11/2024				0	Monday	0
19/11/2024				0	Tuesday	0
20/11/2024	9.00	5.00	8	57600	Wednesday	57.6
21/11/2024	9.00	5.00	8	57600	Thursday	57.6
22/11/2024	9.30	5.00	7.5	54000	Friday	54
23/11/2024				0	Saturday	0
24/11/2024				0	Sunday	0
25/11/2024				0	Monday	0
26/11/2024				0	Tuesday	0
27/11/2024	8.30	4.00	7.5	54000	Wednesday	54
28/11/2024	10.30	4.00	5.5	39600	Thursday	39.6
29/11/2024	10.30	4.00	5.5	39600	Friday	39.6
30/11/2024	9.00	12.00	3	21600	Saturday	21.6
1/12/2024				0	Sunday	0
2/12/2024				0	Monday	0
3/12/2024				0	Tuesday	0
4/12/2024	7.00	3.30	8.5	61200	Wednesday	61.2
5/12/2024	2.00	4.00	2	14400	Thursday	14.4
6/12/2024	1.00	4.00	3	21600	Friday	21.6
7/12/2024	7.30	12.00	4.5	32400	Saturday	32.4
8/12/2024	, .50	12.00	1.5	0	Sunday	0
9/12/2024				0	Monday	0
10/12/2024				0	Tuesday	0
11/12/2024	9.00	5.00	8	57600	Wednesday	57.6
12/12/2024	9.00	5.00	8	57600	Thursday	57.6
13/12/2024	9.00	5.00	7.5	54000	Friday	54
14/12/2024	5.30	3.00	7.3			0
14/12/2024				0	Saturday	1 0

15/12/2024				0	Sunday	0
16/12/2024	8.30	4.00	7.5	54000	Monday	54
17/12/2024	10.30	4.00	5.5	39600	Tuesday	39.6
18/12/2024	10.30	4.00	5.5	39600	Wednesday	39.6
19/12/2024	9.00	4.00	7	50400	Thursday	50.4
20/12/2024				0	Friday	0
21/12/2024				0	Saturday	0
22/12/2024				0	Sunday	0
23/12/2024				0	Monday	0
24/12/2024				0	Tuesday	0
25/12/2024				0	Wednesday	0
26/12/2024				0	Thursday	0
27/12/2024				0	Friday	0
28/12/2024				0	Saturday	0
29/12/2024				0	Sunday	0
30/12/2024				0	Monday	0
				8308800		



Appendix H Noise Monitoring **Results**

Annual Noise Monitoring Assessment

Roberts Rd Sand Quarry Roberts Road Maroota, NSW October 2024



Document Information

Annual Noise Monitoring Assessment

Roberts Road Sand Quarry

Roberts Road

Maroota, NSW

October 2024

Prepared for: Hodgson Quarry and Plant

C/- VGT Environmental Compliance Solutions Pty Ltd

Prepared by: Muller Acoustic Consulting Pty Ltd

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DOCUMENT ID	DATE	PREPARED	SIGNED	REVIEWED	SIGNED
MAC160257-04RP1	11 November 2024	Nicholas Shipman	N.Syn_	Oliver Muller	al

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APPENDIX A – GLOSSARY OF TERMS



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1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by VGT Environmental Compliance Solutions Pty Ltd (VGT), on behalf of Hodgson Quarry and Plant to complete a Noise Monitoring Assessment (NMA) for the Roberts Road Sand Quarry (the quarry), Maroota, NSW.

The NMA involved quantifying the noise contribution of the quarry by conducting operator attended measurements to determine compliance with the Environmental Protection Licence (EPL #6535) noise limits. The monitoring has been conducted in general accordance with Conditions P1.2 and L3 of the EPL and Conditions 16, 48, 49 and 50 of the Consolidated Consent (Mod 4, DA 267-11-99) at seven receiver locations.

The assessment has been conducted in accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI), 2017;
- NSW Environment Protection Authority (EPA), Approved Methods for the measurement and analysis of environmental noise in NSW, 2022;
- NSW Environment Protection Authority (EPA), Environment Protection Licence (EPL)
 #6535:
- NSW Department of Planning, Industry and Environment (DPIE), Consolidated Consent
 DA #267-11-99, Modification 4;
- Standards Australia AS/NZS IEC 61672.1-2019-Electroacoustics Sound level meters –
 Specifications; and
- Standards Australia AS 1055:2018 Acoustics Description and measurement of environmental noise - General Procedures.

A glossary of terms, definitions and abbreviations used in this report is provided in Appendix A.



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2 Noise Criteria

2.1 Operational Noise Criteria

Table 1 incorporates the noise limits for assessed receivers referenced from Conditions P1.2 and L3.1 of the EPL and Condition 49 of the Consolidated Consent, that have been adopted for this NMA and are consistent with EPL monitoring locations.

Table 1 Noise Limits, dBA			
Receiver Identification	Day ²	Morning S	ihoulder ³
Necesial Identification	LAeq(15min)	LAeq(15min)	LA ₁ (1min)
Point 1,3,4,5,6,7 (EPA 1,3,4,5,6,7) ¹ or	43	40	EO.
All other receivers ²	43	40	50
Point 2 (EPA 2) ¹ or	4.4	40	F0
Receiver B ²	44	40	50

Note 1: Noise criteria adopted from EPL #6535.

The subsequent conditions stated in Section L3 and P1.2 of the projects EPL (EPL #6535) and are reproduced below:

Condition L3.3

- a) The noise limits set out in condition L3.1 apply under all meteorological conditions shown in the table below; and
- b) For those meteorology conditions not referred to in Condition L3.3(a), the noise limits that apply are the noise limits in Condition L3.1 plus 5dB.

Assessment Period	Meteorology Conditions
Day	Stability Categories A, B, C, D and E with wind speeds up to and including 3m/s at
Day	10m above ground level.

L3.4 For the purpose of condition L3.3:

- a) The meteorological conditions are to be determined from meteorological data obtained from a meteorological weather station.
- b) Stability category shall be determined using the following method from fact Sheet D of the Noise Policy for Industry (NSW EPA, 2017):
 - i. Pasquill-Gifford stability classification scheme (section D1.3.1).



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Note 2: Day - the period from 7am to 6pm Monday to Saturday and the period from 8am to 6pm Sunday and public holidays, EPL #6535.

Note 3: Noise criteria adopted from Consolidated Consent #DA 267-11-99, Modification 4.

L3.5 To assess compliance:

- a) with LAeq (15 minute) noise limits in condition L3.1, the noise measurement equipment must be located:
 - i. approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or where applicable,
 - ii. within 30 meters of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 meters from the property boundary closest to the premises; or, where applicable,
 - iii. in an area within 50 meters of the boundary of a National Park or a Nature Reserve.
 - iv. at any other location identified in condition L3.1.
- b) with LAeq (15 minute) noise limits in condition L3.1, the noise measurement equipment must be located:
 - i. at the reasonably most affected point at a location where there is no residence at the location; or,
 - ii. at the reasonably most affected point within an area at a location prescribed by condition L3.5(a).

L3.6 A non-compliance of conditions L3.1 will still occur where noise generated from the premises is measured in excess of the noise limit at a point other than the reasonably most affected point at the locations referred to in condition L3.5(a) or L3.5(b).

Notes to L3.5 and L3.6: The reasonably most affected point is a point at a location or within an area at a location experiencing or expected to experience the highest sound pressure level from the premises.

L3.7 For the purpose of determining the noise generated at the premises, the modifying factor correction in Table C1 in Fact Sheet C of the Noise Policy for Industry (NSW EPA, 2017) may be applied, if appropriate, to the noise measurements by the noise monitoring equipment.

L3.8 Noise measurement must not be undertaken where rain or wind speed at microphone level will affect the acquisition of valid measurements.



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P1.2 The following points referred to in the table below are identified in this licence for the purposes of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises.

EPA identification no.	Type of monitoring point	Location description
1	Noise monitoring	100 Old Telegraph Road, Maroota
2	Noise monitoring	35 Roberts Road, Maroota
3	Noise monitoring	4471 Northern Road, Maroota
4	Noise monitoring	11 Roberts Road, Maroota
5	Noise monitoring	4460 Old Northern Road, Maroota
6	Noise monitoring	59 Roberts Road, Maroota
7	Noise monitoring	45 Roberts Road, Maroota

Due to technical difficulties, data from the on-site meteorological station was unavailable. Therefore, data from the nearest Bureau of Meteorological (BoM) Station has been supplemented.

2.2 Traffic Noise Criteria

The subsequent conditions stated in Section 50 of the projects Consolidated Consent (DA# 267-11-99, Modification 4) and are reproduced below:

50. The Applicant shall ensure that all traffic noise from the development does not exceed (LAeq (1hr)) 55dB(A) between 7am and 10pm and 50dB(A) between 10pm and 7am at any affected residence under adverse weather conditions. Where ambient Leq levels already exceed these criteria, the Applicant shall ensure that traffic noise from the development does not result in an exceedance of more than 2dB(A).

Note: Adverse weather conditions means in the presence of winds up to 3 meters per second and/or temperature inversions of up to 4 degrees Centigrade per 100 meters.



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3 Methodology

3.1 Locality

Roberts Road Sand Quarry is located at the Corner of Roberts Road and Old Northern Road, Maroota, NSW. Receivers in the locality surrounding the quarry are primarily rural/residential and for consistency the naming conventions for each receiver have been retained from Condition P1.2 of the EPL. The monitoring locations with respect to the quarry are presented in the locality plan shown in Figure 1.

3.2 Assessment Methodology

The attended noise survey was conducted by MAC staff in general accordance with the procedures described in Standards Australia AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise" and the EPL. Measurements were carried out using Svantek Type 1, 971 noise analysers between Tuesday 22 October 2024 and Wednesday 23 October 2024. The acoustic instrumentation used carries appropriate and current NATA (or manufacturer) calibration certificates with records of all calibrations maintained by MAC as per Approved Methods for the measurement and analysis of environmental noise in NSW (EPA, 2022) and complies with AS/NZS IEC 61672.1-2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ±0.5dBA.

Due to time constraints within the morning shoulder period, two Svantek Type 1, 971 noise analysers were installed simultaneously at EPL1 and EPL6 on Wednesday 23 October 2024. It is noted that there is approximately 40 meters between the two locations, therefore an intermediate observation point was chosen and is considered representative of both EPL monitoring locations. The noise analysers have audio playback capabilities to confirm noise sources during the observation period.

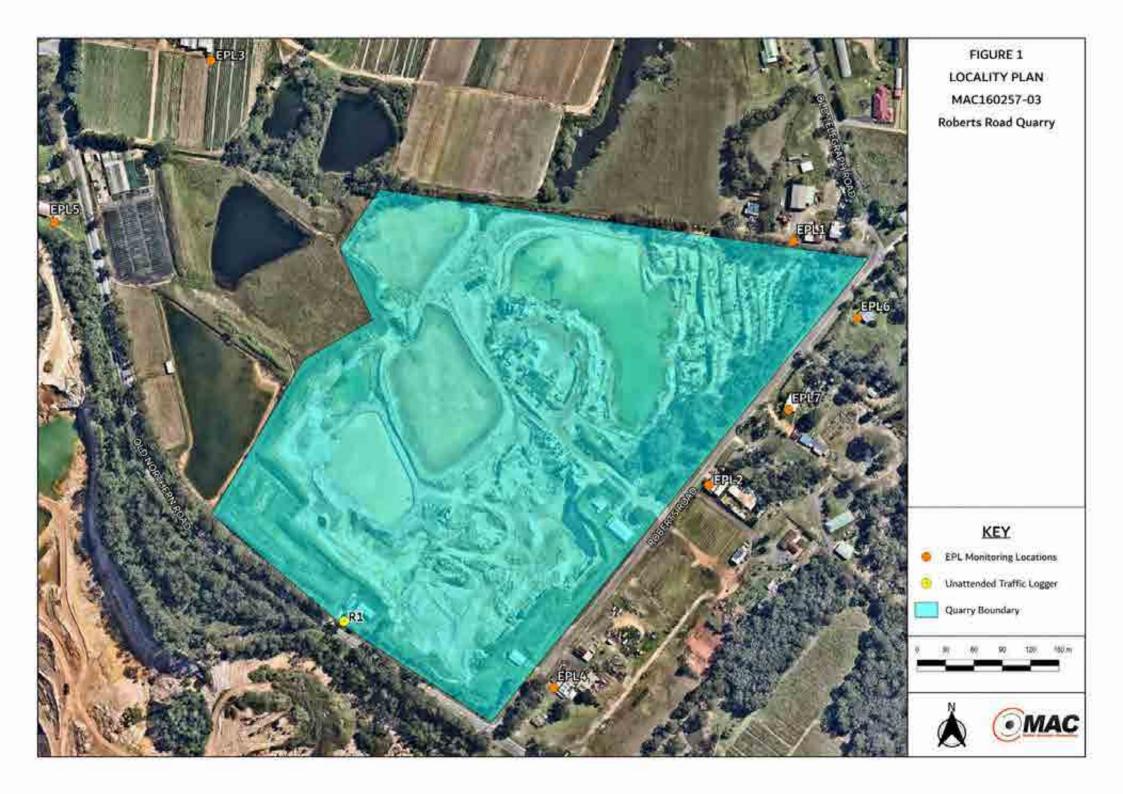
Day and morning shoulder measurements were of 15-minutes duration. Where possible, throughout each survey the operator quantified the contribution of each significant noise source. Extraneous noise sources were excluded from the analysis to calculate the LAeq(15min) quarry noise contribution for comparison against the relevant EPL limit.

Prevailing meteorological conditions for the monitoring period were sourced from the Bureau of Meteorology (BoM) site located at Mangrove Mountain AWS, NSW Site #61375. Results obtained during non-prevailing meteorological conditions (ie F Class Stability in conjunction with a 2m/s drainage or G Class Stability) are considered not applicable against the EPL criteria.

Where the quarry is inaudible, the contribution is estimated to be at least 10dBA below the ambient noise level.



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4 Results

The monitoring and assessment results are presented in individual tables for each assessment location.

4.1 Meteorological Conditions

Weather data for the noise assessment was sourced from the BoM station, Mangrove Mountain, NSW, as well as operator measured conditions on site of EPL nominated receiver locations. The data was used to determine prevailing meteorological conditions at the time of the attended measurements, which are presented in Table 2.

Table 2 Prevailing Met	Table 2 Prevailing Meteorological Conditions									
	Mangrove Mountain	AWS, NSW	Operator Measured Weather							
	Bureau of Meteorolog	gical Station	Monitoring	Location						
Date & Time	Site #6137	5	(1.8m <i>A</i>	AGL)						
_	Wind Direction	Wind (m/s)	Wind Direction	Wind (m/s)						
22/10/2024 06:07	WNW	0.5	NE	0.1						
22/10/2024 06:24	N	0.1	NE	0.2						
22/10/2024 06:42	WNW	0.5	NE	0.1						
22/10/2024 07:04	WNW	0.5	N	0.1						
22/10/2024 07:25	NW	1.1	NE	0.1						
22/10/2024 07:44	NNW	1.1	N	0.1						
22/10/2024 08:03	WNW	1.1	N	0.1						
22/10/2024 08:35	W	2.4	N	0.1						
22/10/2024 08:53	WNW	1.6	N	0.1						
22/10/2024 09:15	WNW	1.9	N	0.1						
23/10/2024 06:09	NW	1.6	W	0.1						
23/10/2024 06:11	NW	1.6	W	0.1						
23/10/2024 06:28	NW	1.6	W	0.1						
23/10/2024 06:45	NW	1.9	W	0.1						



4.2 Assessment Results – Location EPA 1

The results of the attended noise measurements at location EPA 1 for the October 2024 survey are summarised in **Table 3** with the relevant EPL limits, the calculated quarry noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 3 Operator-Attended Noise Survey Results – EPA 1									
Date	Time (hrs) ¹	Descriptor (dBA re 20 μPa)		Limit	Meteorology ²	Description and SPL, dBA			
Date	riirie (riis)	LAmax	LAeq	LA90	LIIIIII	Meteorology	Description and SPL, dbA		
	07:04					WD: N	Birds 33-54		
22/10/2024		76	57	36	43	WS: 0.1m/s	Traffic 33-76		
	(Day)					Rain: Nil	Quarry inaudible		
	Qı	uarry LAeq	(15min) Cc	ntribution			<30		
							Birds 33-63		
	06:09					WD: W	Traffic 33-46		
23/10/2024	(Morning	63	44	37	40/50	WS: 0.1m/s	Local residential noise 40-45		
	Shoulder)					Rain: Nil	Quarry mobile plant <33		
							(5 minutes)		
	Qı		<30						
	33								

 $Note \ 1: Day - the \ period \ from \ 8 am \ to \ 6 pm \ Sunday \ and \ public \ holidays, EPL \ \#6535.$

Note 2: Meteorological data obtained from direct measurement by the operator and by BoM Mangrove Mountain AWS, NSW Site #61375.



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4.3 Assessment Results – Location EPA 2

The results of the attended noise measurements at location EPA 2 for the October 2024 survey are summarised in **Table 4** with the relevant EPL limits, the calculated quarry noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 4 Operator-Attended Noise Survey Results – EPA 2								
Data	Time (hrs) ¹	Descript	tor (dBA r	e 20 µPa)	Linait	Matagralagy ²	Description and CDI dDA	
Date	rime (nrs)	LAmax	LAeq	LA90	Limit	Meteorology ²	Description and SPL, dBA	
	08:03					WD: N	Birds 33-53	
22/10/2024		97	64	36	44	WS: 0.1m/s	Traffic 33-97	
	(Day)					Rain: Nil	Quarry inaudible	
	Qı	uarry LAeq	(15min) Cc	ntribution			<30	
							Birds 37-56	
	06:45					WD: W	Traffic 66-85	
23/10/2024	(Morning	85	59	39	40/50	WS: 0.1m/s	Operator 39-48	
	Shoulder)					Rain: Nil	Quarry truck exit 44-50	
							(20 seconds)	
	Qı	uarry LAeq	(15min) Co	ntribution			34	
	Quarry LA1(1min) Contribution 45							

 $Note \ 1: Day - the \ period \ from \ 8 am \ to \ 6 pm \ Sunday \ and \ public \ holidays, EPL \ \#6535.$

Note 2: Meteorological data obtained from direct measurement by the operator and by BoM Mangrove Mountain AWS, NSW Site #61375.



4.4 Assessment Results – Location EPA 3

The results of the attended noise measurements at location EPA 3 for the October 2024 survey are summarised in **Table 5** with the relevant EPL limits, the calculated quarry noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 5 Ope	Table 5 Operator-Attended Noise Survey Results – EPA 3								
Date	Time (hrs) ¹	Descrip	tor (dBA r	e 20 µPa)	- Limit	Meteorology ²	Description and SPL, dBA		
Date	riirie (riis)	LAmax	LAeq	LA90	LIIIIII	Meteorology	Description and SPL, dbA		
							Traffic 34-58		
	09:15					WD: N	Birds 34-70		
22/10/2024		70	50	39	43	WS: 0.1m/s	Sprinkler 34-36		
	(Day)					Rain: Nil	Rooster 35-37		
							Quarry inaudible		
	(Quarry LAe	q(15min) C	ontribution			<30		
							Traffic 37-60		
	06:07					WD: NE	Birds 40-54		
22/10/2024	(Morning	65	52	43	40/50	WS: 0.1m/s	Rooster 40-45		
22/10/2024	Shoulder)	03	32	43	40/30	Rain: Nil	Local residential noise 45-65		
	Siloulder)					Main. Mi	Insects <37		
							Quarry inaudible		
	(<33						
			<33						

Note 1: Day - the period from 7am to 6pm Monday to Saturday and the period from 8am to 6pm Sunday and public holidays, EPL #6535.

Note 2: Meteorological data obtained from direct measurement by the operator and by BoM Mangrove Mountain AWS, NSW Site #61375.



4.5 Assessment Results – Location EPA 4

The results of the attended noise measurements at location EPA 4 for the October 2024 survey are summarised in **Table 6** with the relevant EPL limits, the calculated quarry noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 6 Operator-Attended Noise Survey Results – EPA 4								
Date	Time (hrs) ¹	Descript LAmax	tor (dBA r	e 20 μPa) LA90	Limit	Meteorology ²	Description and SPL, dBA	
22/10/2024	08:35 (Day)	76	55	39	43	WD: N WS: 0.1m/s	Birds 32-52 Traffic 32-76	
	C)uarry LAe	q(15min) C	ontribution		Rain: Nil	Quarry inaudible <30	
22/10/2024	06:42 (Morning	78	53	34	40/50	WD: NE WS: 0.1m/s	Birds 32-46 Traffic 32-78	
	Shoulder)	. 0		0.	10,00	Rain: Nil	Local residential noise 32-50 Quarry inaudible	
	C	<30						
		<30						

Note 1: Day - the period from 7am to 6pm Monday to Saturday and the period from 8am to 6pm Sunday and public holidays, EPL #6535.



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 $Note\ 2:\ Meteorological\ data\ obtained\ from\ direct\ measurement\ by\ the\ operator\ and\ by\ BoM\ Mangrove\ Mountain\ AWS,\ NSW\ Site\ \#61375.$

4.6 Assessment Results – Location EPA 5

The results of the attended noise measurements at location EPA 5 for the October 2024 survey are summarised in **Table 7** with the relevant EPL limits, the calculated quarry noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 7 Operator-Attended Noise Survey Results – EPA 5								
Date	Time (hre) ¹	Descript	tor (dBA r	e 20 µPa)	· Limit	Mata avalagu ²	Description and CDL dDA	
Date	Time (hrs)	LAmax	LAeq	LA90	LITTILL	Meteorology ²	Description and SPL, dBA	
							Rooster 38-44	
	00.50					WD: N	Birds 38-52	
22/10/2024	08:53	89	67	44	43	WS: 0.1m/s	Traffic 38-89	
	(Day)					Rain: Nil	Sprinklers 38-40	
							Quarry inaudible	
	(Quarry LA	eq(15min) C	Contribution	l		<34	
	06:24					WD: NE	Traffic 35-93	
22/10/2024		02	60	45	40/50	WD. NE WS: 0.2m/s	Rooster 40-55	
22/10/2024	(Morning	93	93 69		40/50	Rain: Nil	Birds 35-44	
	Shoulder)					Rain. Nii	Quarry inaudible	
	(<35						
Quarry LA1(1min) Contribution <35								

Note 1: Day - the period from 7am to 6pm Monday to Saturday and the period from 8am to 6pm Sunday and public holidays, EPL #6535.



Note 2: Meteorological data obtained from direct measurement by the operator and by BoM Mangrove Mountain AWS, NSW Site #61375.

4.7 Assessment Results – Location EPA 6

The results of the attended noise measurements at location EPA 6 for the October 2024 survey are summarised in **Table 8** with the relevant EPL limits, the calculated quarry noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 8 Ope	Table 8 Operator-Attended Noise Survey Results – EPA 6									
Date	Time (hrs) ¹	Descriptor (dBA re 20 μPa)			- Limit	Meteorology ²	Description and SPL, dBA			
Date	rime (ms)	LAmax	LAeq	LA90	LIIIIII	Meteorology	Description and SPL, dbA			
<u> </u>							Birds 31-51			
	07:25					WD: NE	Traffic 31-80			
22/10/2024		80	54	34	43	WS: 0.1m/s	Local residential noise 51-73			
	(Day)					Rain: Nil	Dog bark 51-55			
							Quarry inaudible			
	C	Quarry LAe	q(15min) C	Contribution			<30			
	06:11					WD: W	Birds 34-60			
23/10/2024	(Morning	69	46 27	37	40/50	WS: 0.1m/s	Traffic 34-69			
25/10/2024	Shoulder)	J		46 37 40	40/30	Rain: Nil	Quarry truck exit 34-36			
	Siloulder)					IXalli. IVII	(2 minutes)			
	C	<30								
		36								

Note 1: Day - the period from 7am to 6pm Monday to Saturday and the period from 8am to 6pm Sunday and public holidays, EPL #6535.



Note 2: Meteorological data obtained from direct measurement by the operator and by BoM Mangrove Mountain AWS, NSW Site #61375.

4.8 Assessment Results – Location EPA 7

The results of the attended noise measurements at location EPA 7 for the October 2024 survey are summarised in **Table 9** with the relevant EPL limits, the calculated quarry noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 9 Operator-Attended Noise Survey Results – EPA 7								
Date	Time (hrs) ¹	Descrip	tor (dBA r	e 20 µPa)	Limit	Meteorology ²	Description and SPL, dBA	
Date	rime (nrs)	LAmax	LAeq	LA90	LITTILL	Meteorology	Description and SPL, dBA	
							Traffic 32-84	
	07:44					WD: N	Birds 32-50	
22/10/2024	-	84	56	34	43	WS: 0.1m/s	Dog bark <32	
	(Day)					Rain: Nil	Aircraft 42-60	
							Quarry inaudible	
	Q	uarry LAec	(15min) Co	ntribution			<30	
							Birds 36-54	
	06:28					WD: W	Traffic 36-48	
23/10/2024	(Morning	72	48	39	40/50	WS: 0.1m/s	Rooster 51-57	
23/10/2024		12	40	39	40/30	Rain: Nil	Local residential noise 68-72	
	Shoulder)		IValli. IVII	Quarry truck exit 43-45				
							(3 seconds)	
	Q	uarry LAec	(15min) Co	ntribution			<30	
Quarry LA1(1min) Contribution 32								

Note 1: Day - the period from 7am to 6pm Monday to Saturday and the period from 8am to 6pm Sunday and public holidays, EPL #6535.

Note 2: Meteorological data obtained from direct measurement by the operator and by BoM Mangrove Mountain AWS, NSW Site #61375.



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4.9 Unattended Road Traffic Noise Results - Location R1

To assess road traffic noise levels associated with quarry related heavy vehicle, an unattended noise monitor was located on the boundary of 4405 Old Northern Road, Maroota, NSW.

The results of the road traffic noise measurements on Tuesday 22 October 2024 are summarised in Table 10.

As per condition 50 of the quarries Consolidated Consent (#DA 267-11-99, Modification 4), results of the road traffic noise measurements identify that noise levels were influenced by extraneous noise sources such as birds and local road traffic not associated with the quarry. The noise contribution of the quarry related traffic at this location remained below relevant criteria.

Road traffic noise calculations were undertaken to quantify project related road traffic noise contributions at the measurement position using Traffic Noise Model (TNM) by the United States Department of Transport, Federal Highway Administrations Low Volume Calculator Tool at an offset distance of 15m from the road, which is representative of R1. Results of the road traffic noise calculations identify that quarry related heavy vehicles satisfy the relevant road noise criteria, hence would comply at all privately-owned receivers further than 15m from Old Northern Road.

Table 10 Roa	nd Noise Survey F	Results							
Operational Period	Number of Quarry Trucks (passbys) ¹	Overall Calculated dB LAeq (dBA re 20 μPa)	Overall Measured dB LAeq (dBA re 20 μPa)	Compliance Limit dB LAeq (period)					
	Assessment Period – Day (7am to 8am), dB LAeq(1hr)								
7:00am to 8:00am	2	51	67	55					
	Assessm	nent Period – Morning Shoulder (6	Sam to 7am), dB LAeq(1hr)						
6:00am to 7:00am	1	48	65	50					
7.00am									

Note 1: Vehicle flows provided by the quarry.



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5 Discussion

5.1 Discussion of Results – Location EPA 1

Monitoring conducted between Tuesday 22 October 2024 and Wednesday 23 October 2024 identified that noise emissions were audible during the morning shoulder period on Wednesday 23 October 2024 at location EPA 1. The quarry source was mobile plant with an estimated contribution measured at <33dBA for approximately five minutes and therefore satisfied the relevant EPL noise limits.

Extraneous sources such as birds, local residential noise and traffic were audible during the measurement period.

5.2 Discussion of Results – Location EPA 2

Monitoring conducted between Tuesday 22 October 2024 and Wednesday 23 October 2024 identified that noise emissions were audible during the morning shoulder period on Wednesday 23 October 2024 at location EPA 2. The quarry source was a road truck exiting site with an estimated contribution measured between 44dBA and 50dBA for approximately 20 seconds and therefore satisfied the relevant EPL noise limits.

Extraneous sources such as birds, operator noise and traffic were audible during the measurement period.

5.3 Discussion of Results – Location EPA 3

Monitoring conducted between Tuesday 22 October 2024 and Wednesday 23 October 2024 identified that quarry noise emissions were inaudible during all assessment periods at location EPA 3, therefore the estimated quarry contribution satisfied the EPL noise limits.

Extraneous sources such as traffic, birds, sprinkler noise, rooster, insects and local residential noise were audible during the measurement period.

5.4 Discussion of Results – Location EPA 4

Monitoring conducted between Tuesday 22 October 2024 and Wednesday 23 October 2024 identified that noise emissions were inaudible during all assessment periods at location EPA 4, therefore the estimated quarry contribution satisfied the relevant EPL noise limits.

Extraneous sources such as birds, traffic and local residential noise were audible during the measurement period.



5.5 Discussion of Results – Location EPA 5

Monitoring conducted between Tuesday 22 October 2024 and Wednesday 23 October 2024 identified that noise emissions were inaudible during all assessment periods at location EPA 5, therefore the estimated guarry contribution satisfied the relevant EPL noise limits.

Extraneous sources such as rooster, birds, traffic, sprinkler noise and birds were audible during the measurement period.

5.6 Discussion of Results – Location EPA 6

Monitoring conducted between Tuesday 22 October 2024 and Wednesday 23 October 2024 identified that noise emissions were audible during the morning shoulder period on Wednesday 23 October 2024 at location EPA 6. The quarry source was a road truck exiting site with an estimated contribution measured between 34dBA and 36dBA for approximately two minutes and therefore satisfied the relevant EPL noise limits.

Extraneous sources such as birds, traffic, local residential noise and dogs barking were audible during the measurement period.

5.7 Discussion of Results – Location EPA 7

Monitoring conducted between Tuesday 22 October 2024 and Wednesday 23 October 2024 identified that noise emissions were audible during the morning shoulder period on Wednesday 23 October 2024 at location EPA 7. The quarry source was a road truck exiting site with an estimated contribution measured between 43dBA and 45dBA for approximately 3 seconds and therefore satisfied the relevant EPL noise limits.

Extraneous sources such as traffic, birds, dogs barking, aircraft, rooster and local residential noise were audible during the measurement period.



6 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment (NMA) for VGT Environmental Compliance Solutions Pty Ltd (VGT), on behalf of Hodgson Quarry and Plant. Monitoring was conducted in accordance with Conditions P1.2 and L3 of the Environmental Protection Licence (EPL #6535) and Conditions 16, 48, 49 and 50 of the Consolidated Consent (Mod 4, DA#267-11-99). The assessment was completed determine compliance with the EPL and Consent noise limits.

Attended monitoring conducted between Tuesday 22 October 2024 and Wednesday 23 October 2024 identified that Roberts Road Sand Quarry noise emissions were audible on several occasions, although satisfying the relevant EPL noise limits. A review of monitoring data and operator attended observations determined that Roberts Road Sand Quarry contributions are below the EPL and Consent limits for all assessment periods.



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Appendix A – Glossary of Terms



A number of technical terms have been used in this report and are explained in **Table A1**.

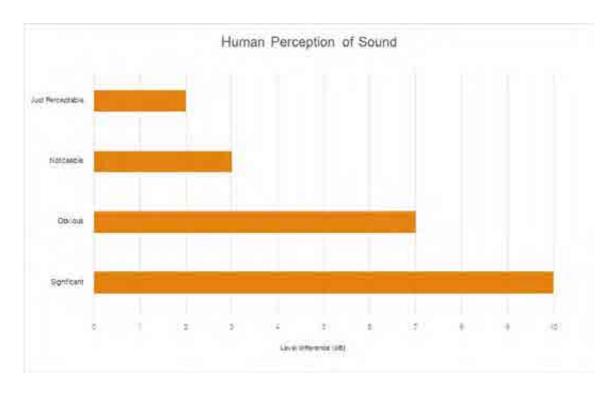
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being
	twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background
	level for each assessment period (day, evening and night). It is the tenth percentile of the
	measured L90 statistical noise levels.
Ambient Noise	The total noise associated with a given environment. Typically, a composite of sounds from all
	sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the
	human ear to sound.
Background Noise	The underlying level of noise present in the ambient noise, excluding the noise source under
	investigation, when extraneous noise is removed. This is usually represented by the LA90
	descriptor
dBA	Noise is measured in units called decibels (dB). There are several scales for describing
	noise, the most common being the 'A-weighted' scale. This attempts to closely approximate
	the frequency response of the human ear.
dB(Z), dB(L)	Decibels Z-weighted or decibels Linear (unweighted).
Extraneous Noise	Sound resulting from activities that are not typical of the area.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second
	equals 1 hertz.
LA10	A sound level which is exceeded 10% of the time.
LA90	Commonly referred to as the background noise, this is the level exceeded 90% of the time.
LAeq	Represents the average noise energy or equivalent sound pressure level over a given period.
LAmax	The maximum sound pressure level received at the microphone during a measuring interval.
Masking	The phenomenon of one sound interfering with the perception of another sound.
	For example, the interference of traffic noise with use of a public telephone on a busy street.
RBL	The Rating Background Level (RBL) as defined in the NPI, is an overall single figure
	representing the background level for each assessment period over the whole monitoring
	period. The RBL, as defined is the median of ABL values over the whole monitoring period.
Sound power level	This is a measure of the total power radiated by a source in the form of sound and is given by
(Lw or SWL)	10.log10 (W/Wo). Where W is the sound power in watts to the reference level of 10^{-12} watts.
Sound pressure level	the level of sound pressure; as measured at a distance by a standard sound level meter.
(Lp or SPL)	This differs from Lw in that it is the sound level at a receiver position as opposed to the sound
	'intensity' of the source.



Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA Source Typical Sound Pressure Level Threshold of pain 140 130 Jet engine Hydraulic hammer 120 Chainsaw 110 Industrial workshop 100 Lawn-mower (operator position) 90 Heavy traffic (footpath) 80 70 Elevated speech Typical conversation 60 40 Ambient suburban environment Ambient rural environment 30 Bedroom (night with windows closed) 20 Threshold of hearing 0

Figure A1 - Human Perception of Sound





Muller Acoustic Consulting Pty Ltd
PO Box 678, Kotara NSW 2289

ABN: 36 602 225 132 Ph: +61 2 4920 1833 www.mulleracoustic.com





Appendix I Induction Checklist

Workplace Environmental Stability Check List

1.0 PURPOSE

The purpose of document is to identify potential failures within the operations of the quarry with reference to dams, slopes / walls, channels and spillways.

20 SCOPE

At a minimum complete a visual walk through every month of the site.

Qua	arry	Pit

Are catchment areas pumped out. No No Gensets checked and operational 440 Gensets fully fueled No Pumps checked and operational Hoses checked and connected No Yes Hall roads clear and accessible Yes) No No Drains clear and feeding into catchment Yes No. Highwalls checked for pooling

Comments: FILL # 2 GENSET

Mud Dams

Sufficient capacity to take inundation
Overflow plugs checked and clear
Bund walls checked
Gensets checked and operational
Gensets fully fueled
Pumps checked and operational
Hoses checked and connected

Yes
No
No
No

Comments: FILL # 1 GENSET

Hodson Quarries & Plant Pty Ltd WORKPLACE ENVIROMENTAL STABILITY CHECK LIST

Author Stuart Reed Approved by Martin Hodgson

DATE OF ISSUE: 3/04/23

PAGE NUMBER: 1.0

Clean Water Process Dam Sufficient capacity to take inundation No Pumps checked and operational No Yes Hoses checked and connected No Yes. Bund walls checked No Comments: Receiving Water Dams Sufficient capacity to take pumped water No Bund walls checked Comments: Comments / Follow Up Actions: STUARS REED Date: 27 6 24

Hodgson Quarries & Plant Pty Ltd
WORKPLACE ENVIROMENTAL STABILITY CHECK LIST
Author: Stuart Reed
Approved by: Martin Hodgson

DATE OF ISSUE: 3/04/23

Signature:

ISSUE NUMBER 1.0 PAGE NUMBER 2 of 2

Inducted Truck Driver Code of Conduct Audit

d	D		**	n	-		'n
ч		u	ы	υ	u	3	u

To ensure all drivers who are approaching & entering the Maroota Site know the correct procedures and are complying with them.

2. Scope

To cover all persons whilst in and about the quarry site.

3. Responsibilities

The Quarry Manager / Site Supervisor have overall responsibility to ensure the observance of the requirements of this procedure.

All personnel within the quarry site have a responsibility to comply with the requirements of this procedure and to at all times follow the directions of the Quarry Manager / Site Supervisor.

4. Procedure (All Drivers Must)

If no please explain:

Do you comply with all NSW government rules and regulations, including all
posted school zone and work-site speed limits.

	ES NO	
	f no please explain:	
	Oo you comply with RMS regulations and never leave the quarry overloaded	
	Es NO	
	f no please explain:	_
•	Do you minimise potential conflict with school buses, observe speed limits when lights are flashing.	
	ÈS NO	

Hodgson Quarries & Plant Pty Ltd
INDUCTED TRUCK DRIVER CODE OF CONDUCT AUDIT
Author: Stuart Reed

Approved by Martin Hodgson

DATE OF ISSUE: 3/04/23

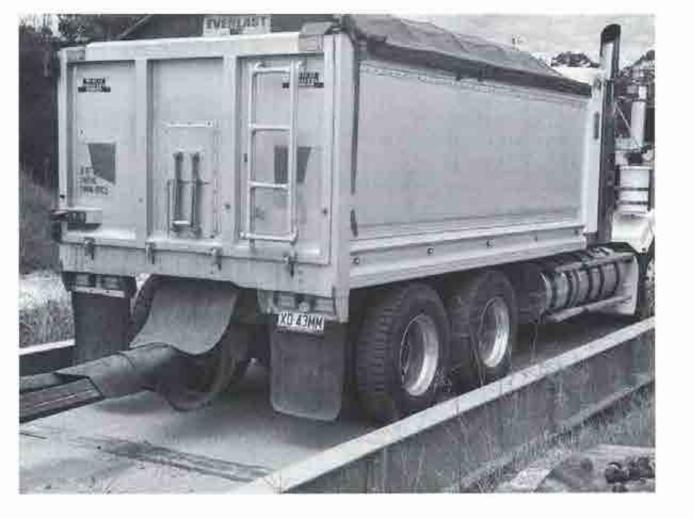
ISSUE NUMBER: 1.0 PAGE NUMBER: 1 of 3

ES	NO
If no plea	ase explain:
Have you	u in the last 12 months been given an infringement notice.
YES	(No
If yes ple	ease explain:
Do you coperate.	conduct a prestart on the vehicle to ensure the vehicle is safe to
YES	NO
lf no plea	ase explain:
Do attend	d regular safety meetings with the appropriate Manager / Superv
YES	60
If no plea	ise explain: IAM OWNER OFERATOR
Do you h manufact	ave your vehicle serviced and maintained as recommended by turer.
(É3	NO
6	se explain:

Hodgson Quarries & Plant Pty Ltd
INDUCTEDTRUCK DRIVER CODE OF CONDUCT AUDIT Author Stuart Reed
Approved by: Martin Hodgson
DATE OF ISSUE 3/04/23 ISSUE NUMBER: 1.0
PAGE NUMBER: 2 of 3

	friver follow all directions of site personnel.		
MES	NO		
If no plea	se explain		
Has an in	spection been completed for tailgate leakage.		
YES	NO		
If yes plea	ase explain:		
as the driver be	een observed complying with the following	VES	NC
 Compiy w 	2M2 seineu Quasan His		
 Always di Maintain of and walking Prior to en get permis Wear all and Never apposente If it is neodo otherwise Never apposente Never apposente Never apposente When exit 	with Hodgson Quarries SMS. splay courtesy & restraint to others entering and on approach to the quarry (entering Roberts Rding pace whilst in the quarry, never uses comprended to the quarry contacts the Loader Operator ssion to enter. appropriate PPE. broaches an operating mobile machine from the remains in your truck until called to get his or horoaches machinery until eye contact is made we knowledges your presence and equipment is gring the quarry calls on the radio "Truck up Hairme: ANDREAL MACKINDER. Date) a minimum session braking via UHF Ch.2 rear. rst via radio, er docket. vith operator & rounded. ul Road".	speed 1. 28, to
 Always di Maintain of and walking Prior to en get permis Wear all and Never apposente If it is neodo otherwise Never apposente Never apposente Never apposente When exit 	splay courtesy & restraint to others entering and on approach to the quarry (entering Roberts Rding pace whilst in the quarry, never uses comprentering the quarry contacts the Loader Operator ssion to enter. Appropriate PPE. Aroaches an operating mobile machine from the essary to approach a machine makes contact for remains in your truck until called to get his or horoaches machinery until eye contact is made we knowledges your presence and equipment is gring the quarry calls on the radio "Truck up Hairing the grant of the strength of t	a minimum session braking via UHF Ch. rear. rst via radio, er docket. vith operator 8 rounded. ul Road".	speed 1. 28, to

Author: Stuart Reed
Approved by: Martin Hodgson
DATE OF ISSUE: 3/04/23 ISSUE NUMBER: 1.0
PAGE NUMBER: 3 of 3





Workplace Environmental Inclement Weather Check List

1.0 PURPOSE

The purpose of document is to identify potential damage to plant, equipment and the environment in the event of significant rainfall event, either short term or over a prolong period of days.

2.0 SCOPE

Prepare the site in the event of torrential rain occurrence.

Predicted rain event date: 14-15 - 10-24	Amount in mm: _ [/
Quarry Pit Are catchment areas pumped out. Gensets checked and operational Gensets fully fueled Pumps checked and operational Hoses checked and connected Hall roads clear and accessible Drains clear and feeding into catchment Highwalls checked for pooling	Yes No Yes No Yes No Yes No Yes No Yes No Yes No
Comments:	
Mud Dams Sufficient capacity to take inundation Overflow plugs checked and clear Bund walls checked Gensets checked and operational Gensets fully fueled Pumps checked and operational Hoses checked and connected	Yes No Yes No Yes No Yes No Yes No Yes No Yes No
Comments:	
~	
Hodene Overnou & Die	nt Div Ltd

Hodson Quarries & Plant Pty Ltd WORKPLACE ENVIROMENTAL INCLEMENT WEATHERCHECK LIST

Author Stuart Reed Approved by Martin Hodgson

DATE OF ISSUE: 27/01/23

PAGE NUMBER: 1.0 PAGE NUMBER: 1 of 2

Clean Water Process Dam	W
Sufficient capacity to take inundation	Yes No
Pumps checked and operational Hoses checked and connected	yes No Yes No
Bund walls checked	Ves) No
Comments: WATER INVINDATION	TO PROCESS DAM.
ORGANISE HISE CONFIGS TO	DUT TO ISOVIDANS
Receiving Water Dams	
Sufficient capacity to take pumped water	Res No
Bund walls checked	(Yes) No
Comments:	
Comments / Follow Up Actions: ALL TI WELL, NO FLOODING, PRE 2012	HE PLANNING WENT
Name: S RES	Date: 16/10/29
Signature S (C)	

Hodgson Quarries & Plant Pty Ltd WORKPLACE ENVIROMENTAL ENCLEMENT WEATHER CHECK LIST

Author: Stuart Reed Approved by: Martin Hodgson

DATE OF ISSUE: 27/01/23

ISSUE NUMBER 1.0

PAGE NUMBER: 2 of 2



High 24 HR Max Rain Total Alarm at Hodgson Quarries - Maroota

1 message.

noreply@weatherlink.com <noreply@weatherlink.com> Reply-To_noreply@weatherlink.com

To: hodgsonquarries@gmail.com

Mon, Oct 14, 2024 at 4:42 PM



As al. 14/10/2024 16:42

Hoogson Cuarries: Marcon

THE WHITES

Maroota Weather Station - High 24 HR Max Rain Total

15/2 mm

This email has been sent to hoogsommanive@gmail.com at your request.

Davis Instruments Inc., 3465 Diablo Ave. Hayward, CA 94545

Unsubscribe



Appendix J Correspondence

Coleman Adams Environmental • Environmental Investigations • Risk Assessment • Project Management

PO Box R1370 The Royal Exchange NSW 1225 Sydney

ABN 57 635 464 041

Email: enviro@colemanadams.com.au
Web: www.colemanadams.com.au

Client: MET Sydney Pty Ltd Project Number: CAE1063.375

Date: 16/01/2024

Material Classification Certificate

134 Carnarvon St, Newton St N, Silverwater NSW 2128

134 camarton 5t, 1tc	Waste Classification Report
Site Details	Waste Classification Report
Address	124 Cornerven St. Newton St.N. Silverwater NSW 2129
	134 Carnarvon St, Newton St N, Silverwater NSW 2128
Lot Reference	Lot 1 and 2 DP713708
Material Information	
Source Location	Material is located within site boundaries, imported from sites across
	Sydney region. An estimated 4000 tonnes of stockpiled material is
	proposed to be removed from the site.
Material Identification	The stockpiled soils encountered on site consisted of brown/grey gravelly
	clay shale with traces of silt and sand.
Observations	Material sampled was free of foreign materials and signs of contamination.
	No odours, ACM or other indicators of contamination were detected.
Samples Collected	Ten discrete and composite soil samples were collected from the stockpile.
	Samples collected in accordance with Resource Recovery Order under Part
	9, Clause 93 of the Protection of the Environment Operations (Waste)
	Regulation 2014 The excavated natural material order 2014. Sampling
	method following AS1141 method 3.1.
Samples Analysed	1063.375.1 to 1063.375.11
Sampling Date	15-12-2023 Sampler MT
Analytes	Heavy metals;
	 Total recoverable hydrocarbons (TRH);
	Benzene, toluene, ethylbenzene, xylenes and naphthalene
	(BTEXN);
	Polyaromatic hydrocarbons (PAH);
	 Organochlorine pesticides, organophosphorus pesticides;
	Polychlorinates biphenyls;
	pH and conductivity (EC);
	Foreign materials and asbestos.
Waste Classification	Excavated Natural Material- in accordance with the EPA Waste Classification
	Guidelines (2014)
Approved by	11.
	Maria
	M.Tofler
	Principal
	LAA001351

Introduction

Coleman Adams Environmental Pty Ltd was engaged by MET Sydney Pty Ltd to conduct a visual assessment and chemical analysis of stockpiled material at 134 Carnarvon St, Newton St N, Silverwater NSW. (the site).

Objectives

The objective of the investigation was to:

- Obtain representative samples of material proposed to be removed from site;
- Provide a material classification certificate in accordance with Waste Classification Guidelines
 Part 1 (EPA NSW 2014).

Scope of Work

Coleman Adams scope of work included:

- Desktop assessment of the site;
- Detailed site walkover to identify potential impacted areas;
- Collection of soil samples;
- Analysis of samples by a NATA accredited laboratory;
- Comparison of results obtained against relevant assessment criteria; and
- Preparation of a material classification report.

Desktop Assessment

Contaminated Land Register

A search of the EPA NSW Contaminated Land Register indicates the site is listed due to historical landfilling on the site. This does not impact the material assessed as part of this investigation, as the material assessed was imported to site and stockpiled on constructed hardstand. No excavation works were undertaken to generate site material assessed.

Historical Site Use

Review of aerial photographs has identified the previous land use is industrial and commercial.

Acid Sulfate Soils

A search of the NSW Office of Environment and Heritage Acid Sulfate Soils Risk Mapping indicates the site is in an area of no known occurrence of acid sulfate soils.

Field Observations

The stockpiled material assessed as part of this investigation comprised of brown/grey gravelly clay shale with traces of silt and sand. No odours or signs of contamination were observed during the investigation.

Sampling Method and Sample Collection

Ten samples were collected using shovel. Samples were collected by hand to assess the stockpiled material. Samples were placed in laboratory prepared Teflon-lined glass jars, with asbestos samples placed in zip lock bags. Sampling was done in accordance with AS1141.3.1.

Samples were placed in a cooler with a target temperature of <4°C, and were sent to a NATA accredited laboratory for analysis. Chain of custody documentation was returned confirming successful receipt of collected samples.

Discussion of Results Obtained

Material Classification

The material assessed is classified Excavated Natural Material as contaminant values are within the Excavated Natural Material Order contaminant guidelines.

Limitations of This Assessment

CAE has, to the best of our knowledge and based on information provided to us, performed its services for this project in accordance with current industry codes and practices and the information provided is accurate at the date of issue. Opinions and judgements expressed in this report should not be construed as legal opinions or advice, and CAE is not responsible or liable for third-party use or reliance on this report.

Subsurface material can be variable, even over short distances, and the conclusions in this report are based on material observed at specific sampling points. If unexpected finds or material not consistent with this classification is identified, CAE is to be notified immediately.



Project Number:	CAE1063
Site Address:	134 Carnarvon St and Newton St Silverwater NSW
Client Name:	MET Sydney Pty Ltd

Absolute Maximum Analyte Criteria ENM Order	
Maximum average concentration for ENM	
General Solid Waste	
Restricted Solid Waste	
Hazardous Waste	
Exceeds HIL A	

Waste Classification				Heavy (mg					PAH (mg/kg)	Foreign Materials*	рН	Electrical Conductivity	Asbestos
	Arsenic As	Cadmium Cd	Chromium Cr	Copper Cu	Lead Pb	Mercury H g	Nickel Ni	Zinc Zn	Benzo (a) Pyrene	Total PAH	%		dS/m	
Absolute Maximum Analyte Criteria ENM Order 2014	40	1	150	200	100	1.0	60	300	1.0	40	0.10	4.5-10	3.0	Detect/Non-Detect
Maximum average concentration for FNM Order 2014	20	0.5	75	100	50	0.5	30	150	0.5	20	0.05	5 to 9	1.5	
General Solid Waste	100	20	100	-	100	4	40	-	0.8	200	-	-	-	
Restricted Solid Waste	400	80	400	-	400	16	160	-	3.2	800	-	-	-	
Hazardous Waste	>2000	>400	>7600	-	>6000	>200	>4200	-	>3.2	>800	-	-	-	
Exceeds HIL A	100	20	100	6000	300	40	400	7400	3	300	-	-	-	
Soil Sample ID														
1063.375.1	2.8	<0.4	5.5	51	27	<0.1	<5	48	<0.5	<0.5		7.3	0.089	Non-Detect
1063.375.2	3.0	<0.4	5.5	43	27	<0.1	<5	48	<0.5	<0.5		7.3	0.088	Non-Detect
1063.375.3	3.0	<0.4	6.2	51	27	<0.1	<5	46	<0.5	<0.5		7.3	0.081	Non-Detect
1063.375.4	3.1	<0.4	6.1	67	29	<0.1	<5	55	<0.5	<0.5		7.2	0.084	Non-Detect
1063.375.5	3.7	<0.4	7.0	45	35	<0.1	<5	57	<0.5	<0.5		7.3	0.079	Non-Detect
1063.375.6	2.8	<0.4	5.5	46	26	<0.1	<5	46	<0.5	<0.5		7.6	0.087	Non-Detect
1063.375.7	3.4	<0.4	6.8	45	35	<0.1	<5	58	<0.5	<0.5		7.6	0.090	Non-Detect
1063.375.8	3.1	<0.4	7.2	42	34	<0.1	<5	54	<0.5	<0.5		7.6	0.076	Non-Detect
1063.375.9	3.2	<0.4	6.5	42	28	<0.1	<5	48	<0.5	<0.5		7.6	0.091	Non-Detect
1063.375.10	3.1	<0.4	6.7	52	31	<0.1	<5	52	<0.5	<0.5		7.6	0.063	Non-Detect
1063.375.11QA	3.1	<0.4	6.3	47	34	<0.1	<5	52	-	-	-	-	-	-
Average	3.12	<0.4	6.30	48.27	30.27	<0.1	<5	51.27	<0.5	<0.5		7.44	0.083	-
95% UCL	3.26	<0.4	6.63	52.19	32.24	<0.1	<5	53.64	<0.5	<0.5		7.54	0.09	-

Waste Classification		Petroleum Hydro	ocarbons (mg/kg	:)			BTEX (mg/kg)			Pes	ticides	РСВ
waste classification	C10-C14	C15-C28	C29-C36	Total C10-C36	C6-C9	Benzene	Toluene	Ethyl Benzene	Xylene	ОСР	OPP	mg/kg
Absolute Maximum Analyte Criteria ENM Order 2014		-		500	-	0.5	65	25	15		-	
Maximum average concentration for ENM Order		=		250	-	NA	NA	NA	NA		-	
General Solid Waste		-		10000	650	10	288	600	1000		-	
Restricted Solid Waste		-		40000	2600	40	1152	2400	4000		-	
Hazardous Waste		-		>40000	>2600	>40	>1152	>2400	>4000		-	
Exceeds HIL A		-		-	-	-	-	-	-		-	
Soil Sample ID												
1063.375.1	<20	<50	<50	<50	<20	<0.1	<0.1	<0.1	<0.3	-	-	-
1063.375.2	<20	<50	<50	<50	<20	<0.1	<0.1	<0.1	<0.3	<0.1	<2	<0.1
1063.375.3	<20	52	<50	52	<20	<0.1	<0.1	<0.1	<0.3	-	-	-
1063.375.4	<20	<50	<50	<50	<20	<0.1	<0.1	<0.1	<0.3	<0.1	<2	<0.1
1063.375.5	<20	<50	<50	<50	<20	<0.1	<0.1	<0.1	<0.3	-	-	-
1063.375.6	<20	<50	<50	<50	<20	<0.1	<0.1	<0.1	<0.3	<1	<5	<1
1063.375.7	<20	<50	<50	<50	<20	<0.1	<0.1	<0.1	<0.3	-	-	-
1063.375.8	<20	89	55	144	<20	<0.1	<0.1	<0.1	<0.3	<1	<5	<1
1063.375.9	<20	<50	<50	<50	<20	<0.1	<0.1	<0.1	<0.3	-	-	-
1063.375.10	<20	<50	<50	<50	<20	<0.1	<0.1	<0.1	<0.3	<0.1	<2	<0.1
1063.375.11QA	-	-	-	-	-	-	-	-	-	-	-	-
Average	<20	54.1	50.5	59.6	<20	<0.1	<0.1	<0.1	<0.3	0.46	3.2	0.46
95% UCL	<20	61.22	51.42	76.79	<20	<0.1	<0.1	<0.1	<0.3	0.93	4.77	0.93

Appendix A Site Location and Drawings



Coleman Adams Environmental

Project No. CAE1063.375 Client: MET Sydney Pty Ltd

Drawn By: MT

NSW 2128 Site Layout

Scale: NTS



Stockpile Location

Sample Location

Appendix B Laboratory Test Certificates

		CHAIN OF CUSTOD			Unit F3 B	ld.F 16 Man	s Road Lane	Cove West			Unit 1 21	• Laboratory Smallwood Place Mur 600 EnviroSample			U	ratory ch Highway Ke EnviroSamp			m		(6 Mc	onterey	s Laboratory Road Dandenong Sout	
J	Company	Coleman Adams E	nvironmental	Proj	ect №	106	3.37	5				Project Manag	er					Sam	pler(s)					
	Address			Projec	t Name							EDD Format ESdat, EQuIS etc						Hande	d over	by	J	Lu			
				"Filtered". Ag.														Email f	or Inve	oice					
	ontact Name	J Chen		"Total" or UITE pricit													E	Email fo	or Res	ults	envi	iro@)col	emanadan	
	Phone №			ses se specify to attract S														Chan	ge conta	Contai	iners e & size if i	necessar	ry.	Required Tur Default will b	naround Time (TAT) e 5 days if not ticked.
Spe	cial Directions			Analy, requested, plea	B4					B15													idelines)	☐ Overnight (re	◆Surcharge will apply apporting by 9am)◆
Pui	rchase Order		Λ	metals are	Sode	တ္	Ш			Sode							aetic	astic	lastic	er Glass	A vial	r HDPE	4, WA G	☐ 2 days♦	☐ 3 days◆
C	Quote ID №	230323CAEN		Where	Suit Code	Meta			0	Suit Code						ľ	500ml Plastic	250mL Plastic	125mL Plastic	200ml. Amber Glass	40mL VOA vial	Submil Pras Bottle Jar (Glass or HDPE)	os AS4964	5 days (Stan	dard)
		Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Eurofins S	8 Heavy Metals	EC	Hd	Asbestos ID	Eurofins :							40	2		2001	-500°	Jar	Other (Asbest	Sampl / Dangerous Go	e Comments oods Hazard Warning
1	1063.37	5.1 Composite	15.12.2023	s		4	V	4	~								t		Ī				Ī		
a	1063.37	5.1 Discrete	15.12.2023	s	1																				
3	1063.37	5.2 Composite	15.12.2023	S		1	V	V	V								İ	T					Ī		
٠	1063.37	5.2 Discrete	15.12.2023	s	V					V															
	1063.37	5.3 Composite	15.12.2023	s		1	V	1	1																
•	1063.37	5.3 Discrete	15.12.2023	s	~															П					
1	1063.37	5.4 Composite	15.12.2023	s		V	4	1	1								ī								
•	1063.37	5.4 Discrete	15.12.2023	s	1					V												П			
,	1063.37	5.5 Composite	15.12.2023	s		V	~	~	1																
10	1063.37	5.5 Discrete	15.122023	s	V																				
			Total Cou	ints																					
letho	od of Shipment) Har	nd Delivered		☐ Po			me				Sign	ature				Da	ate			1		Time	
Lab	poratory Use O		HEALTH IS		-	_		adl ntl	_	Signa	ature	7	~		Date	1:12		Tir	me	-	5 5	9		Temperature	16 10
urofin	s Environment Te	Received By			SYD	BNE MEI		ADL NTL		Signa		deerned as acceptanc			Date	1/		Tir				U		Report №	10552

	Eurofins Environment Testing ABN	Y RECORD 150 005 085 521		Unit F3 B		s Road Lane	Cove West			Brisbane L Unit 1 21 Sm 07 3902 4600	allwood Place		QLD 4172 Deurofins.com		boratory Leach Highway K 600 EnviroSam						6 Mont	terey Ro	Laboratory oad Dandenong South VIC 3175 EnviroSampleVic@eurofins.com	
Company	Coleman Adams E	nvironmental	Proje	ect Nº	106	33.37	7 5			F	roject Ma	nager					Samp	ler(s)						
Address			Project	t Name							EDD For ESdat, EQu					н	anded	over b	у	J Lu				
			"Filtered". 1g.													Er	nail for	Invoi	ce					
Contact Name	J Chen		"Total" er '													Er	nail for			_	0@0	cole	emanadams.com.au	
Phone №			ses se specify to altract S								ı,						Change		ontain er type &	ers size if ne	cessary.		Required Turnaround Time (TAT) Default will be 5 days if not ticked.	
Special Directio	ns		Analy e requested: plea de must be used	B4					B15										92		₩	- 選り	◆Surcharge will apply Overnight (reporting by 9am)◆ Same day◆	
Purchase Orde	er		metals ar SUITE co	Code	SE			1 1	Suit Code	П		Н				Plastic	Plastic	Plastic	ber Glas	AS Bottle	or HDP	×	☐ 2 days♦ ☐ 3 days♦ ☐ 5 days (Standard)	
Quote ID №	230323CAEN		Where	Suit	Met			O s	Suit							500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	500mL PFAS	Jar (Glass or HDPE)	stos AS	Other()
(ME	Client Sample ID	Sampled Date/Time dd/mm/yy.hh:mm	Matrix Solid (S) Water (W)	Eurojins Suit Code B4	8 Heavy Metals	S	표	Asbestos ID	Euroins									ı	200	20	Ja	Other (Ashe	Sample Comments / Dangerous Goods Hazard Warning	9
¹¹ 1063.	375.6 Composite	15.12.2023	s		4	Y	٧.	V			- II									П				
1063.	375.6 Discrete	15.12.2023	s	V					V															
¹³ 1063.	375.7 Composite	15.12.2023	s		V	V	V	4												П	П			
¹⁴ 1063.	375.7 Discrete	15.12.2023	s	V																T				1
1063.	375.8 Composite	15.12.2023	s		V	V	~	V																
¹⁶ 1063.	375.8 Discrete	15.12.2023	s	V					V													I		Ī
¹⁷ 1063,	375.9 Composite	15.12.2023	s		~	V	1	1												П	П			
¹⁸ 1063.3	375.9 Discrete	15.12.2023	s	V															T			Ī		
¹⁹ 1063.	375.10 Composite	15.12.2023	S		4	V		4														ı		
	375.10 Discrete	15.12.2023	s	v					V										T					
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Sydney Laboratory

Company	Coleman Adams I	Environmental	Pro	oject №		SampleNSW@el				EnviroSampl		is.com		08 9251 9600	ch Highway Ke EnviroSamp	łeWA@eu	rofins.con				03 8564	erey Road Dandenong So 1 5000 EnviroSampleV	outh VIC 3175 ic@eurofins.com
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Quote ID №	22020204=11		here metals SUITE	QA 8 Heavy Metals												lastic	lastic	125mL Plastic 200mL Amber Glass	A vial	500mL PFAS Bottle	ar (Glass or HDPE)		☐ 3 days
	230323CAEN	0.11	- F	leavi	1 1	- 11										500mL Plastic	250mL Plastic	125mL Plastic 0mL Amber Glas	40mL VOA vial	mL PFA	(Glass or HDF	5 days (Sta	ndard)
	Client Sample ID	Sampled Date/Time dd/mm/yy hhumm	Matrix Solid (S) Water (W)	3A 8 H	BTEX													200	4	200	Other (Achaet		le Comments
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Environment Testing	Australia Pty Ltd							Signature	vill be deemed as				Date				Time					Report No.	



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Eurofins Environment Testing Australia Pty Ltd

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Tauranga 1277 Cameron Road Rolleston, Gate Pa, Christchurch 7675 Tauranga 3112 +64 3 343 5201 IANZ# 1290 IANZ# 1402

Sample Receipt Advice

Company name:

Coleman and Adams Environmental Pty Ltd

Contact name:

Joanna Chen (ALL SRA'S)

Project name: Project ID:

Not provided 1063.375

Turnaround time: Date/Time received 5 Day

Eurofins reference

Dec 18, 2023 5:50 PM 1055230

Sample Information

A detailed list of analytes logged into our LIMS, is included in the attached summary table.

All samples have been received as described on the above COC.

COC has been completed correctly.

Attempt to chill was evident.

Appropriately preserved sample containers have been used.

All samples were received in good condition.

Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

Appropriate sample containers have been used.

Sample containers for volatile analysis received with zero headspace.

Split sample sent to requested external lab.

X Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Asim Khan on phone: or by email: AsimKhan@eurofins.com

Results will be delivered electronically via email to Joanna Chen (ALL SRA'S) - joanna@colemanadams.com.au.





Certificate of Analysis

Coleman and Adams Environmental Pty Ltd PO Box R1370 The Royal Exchange NSW 1255





NATA Accredited Accreditation Number 1261 Site Number 18217

Accredited for compliance with ISO/IEC 17025—Testing NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: Joanna Chen (ALL SRA'S)

Report 1055230-AID-V2

Project Name

 Project ID
 1063.375

 Received Date
 Dec 18, 2023

 Date Reported
 Jan 10, 2024

Methodology:

Asbestos Fibre Identification

Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques.

NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.

Unknown Mineral Fibres

Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity.

NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.

Subsampling Soil Samples

The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a subsampling routine based on ISO 3082:2009(E) is employed.

NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.

Bonded asbestoscontaining material (ACM) The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 4964 - 2004.

NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Limit of Reporting

The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w).

The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk).

NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 %" and that currently in Australia "there is no validated method available for the quantification of asbestos". This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.

Report Number: 1055230-AID-V2

ABN: 50 005 085 521 Telephone: +61 2 9900 8400



Project Name

 Project ID
 1063.375

 Date Sampled
 Dec 15, 2023

 Report
 1055230-AID-V2

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
1063.375.1 C	23-De0043930	Dec 15, 2023	Approximate Sample 46g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
1063.375.2 C	23-De0043932	Dec 15, 2023	Approximate Sample 41g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
1063.375.3 C	23-De0043934	Dec 15, 2023	Approximate Sample 38g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
1063.375.4 C	23-De0043936	Dec 15, 2023	Approximate Sample 33g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
1063.375.5 C	23-De0043938	Dec 15, 2023	Approximate Sample 37g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
1063.375.6 C	23-De0043940	Dec 15, 2023	Approximate Sample 36g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
1063.375.7 C	23-De0043942	Dec 15, 2023	Approximate Sample 33g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
1063.375.8 C	1063.375.8 C 23-De0043944 Dec 15, 202		Approximate Sample 41g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.



Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
1063.375.9 C	23-De0043946	Dec 15, 2023	Approximate Sample 35g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
1063.375.10 C	23-De0043948	Dec 15, 2023	Approximate Sample 42g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.



Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

DescriptionTesting SiteExtractedHolding TimeAsbestos - LTM-ASB-8020SydneyDec 19, 2023Indefinite



email: EnviroSales@eurofins.com

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The Royal Exchange

NSW 1255

Site# 1254

Order No.: Report #:

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1055230 0424 639 602

Phone: Fax:

Received: Dec 18, 2023 5:50 PM

Due: Dec 28, 2023 Priority: 5 Dav

Contact Name: Joanna Chen (ALL SRA'S)

Eurofins Analytical Services Manager: Asim Khan

Project Name:

Project ID:

1063.375

		Sa	ımple Detail			Asbestos - AS4964	Conductivity (1:5 aqueous extract at 25 °C as rec.)	pH (1:5 Aqueous extract at 25 °C as rec.)	Metals M8	втех	Eurofins Suite B15	Moisture Set	Eurofins Suite B4	втех
Sydı	ney Laboratory	- NATA # 1261	Site # 18217	7		Х	Х	Х	Х	Х	Х	Х	Х	Х
Exte	rnal Laboratory	<u> </u>		1										
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	1063.375.1 C	Dec 15, 2023		Soil	S23-De0043930	Х	Х	Х	Х			Х		
2	1063.375.1 D	Dec 15, 2023		Soil	S23-De0043931							Х	Х	
3	1063.375.2 C	Dec 15, 2023		Soil	S23-De0043932	Х	Х	Х	Х			Х		
4	1063.375.2 D	Dec 15, 2023		Soil	S23-De0043933						Х	Х	Х	
5	1063.375.3 C	Dec 15, 2023		Soil	S23-De0043934	Х	Х	Х	Х			Х		
6	1063.375.3 D	Dec 15, 2023		Soil	S23-De0043935							Х	Х	
7	1063.375.4 C	Dec 15, 2023		Soil	S23-De0043936	Х	Х	Х	Х			Х		
8	1063.375.4 D	Dec 15, 2023		Soil	S23-De0043937						Х	Х	Х	
9	1063.375.5 C	Dec 15, 2023		Soil	S23-De0043938	Х	Х	Х	Х			Х		
10	1063.375.5 D	Dec 15, 2023		Soil	S23-De0043939							Х	Х	
11	1063.375.6 C	Dec 15, 2023		Soil	S23-De0043940	Х	Х	Х	Х			Х		
12	1063.375.6 D	Dec 15, 2023		Soil	S23-De0043941						Х	Х	Х	
13	1063.375.7 C	Dec 15, 2023		Soil	S23-De0043942	Х	Х	Χ	Х			Х		



email: EnviroSales@eurofins.com

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ABN: 50 005 085 521

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NSW 1255

Project Name:

1063.375

Order No.:

Report #: 1055230

0424 639 602

Phone: Fax:

Received: Dec 18, 2023 5:50 PM Due: Dec 28, 2023

Priority: 5 Dav

Contact Name: Joanna Chen (ALL SRA'S)

Eurofins Analytical Services Manager: Asim Khan

Sample Detail Sydney Laboratory - NATA # 1261 Site # 18217 14 1063.375.7 D Dec 15, 2023 Soil S23-De0043943					Asbestos - AS4964	Conductivity (1:5 aqueous extract at 25 °C as rec.)	pH (1:5 Aqueous extract at 25 °C as rec.)	Metals M8	втех	Eurofins Suite B15	Moisture Set	Eurofins Suite B4	втех	
			Site # 18217			Х	Х	Χ	Х	Х	Х	Х	Х	Х
14	1063.375.7 D	Dec 15, 2023			S23-De0043943							X	Х	\vdash
15	1063.375.8 C	Dec 15, 2023		Soil	S23-De0043944	Х	X	Х	Х			Х		\vdash
16	1063.375.8 D	Dec 15, 2023		Soil	S23-De0043945						Х	Х	Х	\vdash
17	1063.375.9 C	Dec 15, 2023		Soil	S23-De0043946	Х	Х	Х	Х			Х		\vdash
18	1063.375.9 D	Dec 15, 2023		Soil	S23-De0043947							Х	Х	
19	1063.375.10 C	Dec 15, 2023		Soil	S23-De0043948	Х	Х	Χ	Х			Х		
20	1063.375.10 D	Dec 15, 2023		Soil	S23-De0043949						Х	Х	Х	
21	1063.375.11Q A	Dec 15, 2023		Soil	S23-De0043950				х			х		
22	TS	Dec 15, 2023		Soil	S23-De0043951									Х
23	ТВ	Dec 15, 2023		Soil	S23-De0043952					Х				
Test	Counts					10	10	10	11	1	5	21	10	1



Internal Quality Control Review and Glossary General

- QC data may be available on request.

 All soil results are reported on a dry basis, unless otherwise stated
- Samples were analysed on an 'as received' basis
- Information identified on this report with the colour blue indicates data provided by customer that may have an impact on the results
- 5. This report replaces any interim results previously issued

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (% w/w)

F/fld

Airborne fibre filter loading as Fibres (N) per Fields counted (n)
Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (C)
Mass, e.g. of whole sample (M) or asbestos-containing find within the sample (m)

g, kg

Concentration in grams per kilogram Volume, e.g. of air as measured in AFM (**V** = **r** x **t**) g/kg L, mL

Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (r) Time (t), e.g. of air sample collection period L/min

min

Calculations

Airborne Fibre Concentration: $C = \left(\frac{A}{a}\right) \times \left(\frac{N}{p}\right) \times \left(\frac{1}{r}\right) \times \left(\frac{1}{t}\right) = K \times \left(\frac{N}{p}\right) \times \left(\frac{1}{V}\right)$

Asbestos Content (as asbestos): $\% w/w = \frac{(m \times P_A)}{M}$ Weighted Average (of asbestos): $\%_{WA} = \sum_{x} \frac{(m \times P_A)_x}{x}$

Terms

Estimated percentage of asbestos in a given matrix may be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P**_A). This estimate is not NATA-accredited. %asbestos

ACM tos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the

NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.

ΑF Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable

material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable

AFM Airborne Fibre Monitoring, e.g., by the MFM.

Amosite Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.

Asbestos Content (as asbestos) Total %w/w asbestos content in asbestos-containing finds in a soil sample (% w/w)

Chrysotile Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004

COC Chain of Custody

Crocidolite Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.

Dry Sample is dried by heating prior to analysis

DS Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.

Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA FA

generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.

Fibre Count Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003

Fibre ID Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.

Friable Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is

outside of the laboratory's remit to assess degree of friability

HSG248 UK HSE HSG248. Asbestos: The Analysts Guide. 2nd Edition (2021).

HSG264 UK HSE HSG264, Asbestos: The Survey Guide (2012)

ISO (also ISO/IEC) International Organization for Standardization / International Electrotechnical Commission.

Microscope constant (K) as derived from the effective filter area of the given AFM membrane used for collecting the sample (A) and the projected eyepiece K Factor

graticule area of the specific microscope used for the analysis (a).

LOR

NEPM (also ASC NEPM)

WA DOH

MFM (also NOHSC:3003) Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres, 2nd Edition [NOHSC:3003(2005)].

National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended)

Organic Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004

PCM Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.

PLM Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004. Sampling Unless otherwise stated Eurofins are not responsible for sampling equipment or the sampling process

SMF Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004

SRA

Trace Analysis Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.

UK HSE HSG United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.

UMF Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos

> Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (updated 2021), including Appendix Four: Laboratory analysis

Weighted Average Combined average %w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (%wA).



Comments

This report has been revised (V2) to include repeat PAH results for samples De0043935 & De0043945.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Asbestos Counter/Identifier:

Sayeed Abu Senior Analyst-Asbestos

Authorised by:

Charl Du Preez Senior Analyst-Asbestos



Glenn Jackson Managing Director

Final Report - this report replaces any previously issued Report

- Indicates Not Requested
- * Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Coleman and Adams Environmental Pty Ltd PO Box R1370 The Royal Exchange NSW 1255





NATA Accredited Accreditation Number 1261 Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: Joanna Chen (ALL SRA'S)

Report 1055230-S-V2

Project name

Project ID 1063.375
Received Date Dec 18, 2023

Client Sample ID			1063.375.1 C	1063.375.1 D	1063.375.2 C	1063.375.2 D
Sample Matrix			Soil	Soil	Soil	Soil
Campio manix			S23-	S23-	S23-	S23-
Eurofins Sample No.			De0043930	De0043931	De0043932	De0043933
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	89	-	88	-
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	7.3	-	7.3	_
Heavy Metals						
Arsenic	2	mg/kg	2.8	_	3.0	-
Cadmium	0.4	mg/kg	< 0.4	_	< 0.4	_
Chromium	5	mg/kg	5.5	_	5.5	_
Copper	5	mg/kg	51	_	43	_
Lead	5	mg/kg	27	-	27	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	-
Nickel	5	mg/kg	< 5	-	< 5	-
Zinc	5	mg/kg	48	-	48	-
Sample Properties	-1					
% Moisture	1	%	7.7	7.6	6.4	6.7
Total Recoverable Hydrocarbons	•	•				
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	< 50	-	< 50
TRH C29-C36	50	mg/kg	-	< 50	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	< 50	_	< 50
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2)N01	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	< 100
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	< 100
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	113	-	95



Environment Testing

011 10 1 10			T	1	1	1
Client Sample ID			1063.375.1 C	1063.375.1 D	1063.375.2 C	1063.375.2 D
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23- De0043930	S23- De0043931	S23- De0043932	S23- De0043933
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM I	Fractions					
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	-	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	120	-	110
p-Terphenyl-d14 (surr.)	1	%	-	105	-	109
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-HCH	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-HCH	0.05	mg/kg	-	-	-	< 0.05
d-HCH	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-HCH (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlorepoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene Methovychlor	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene Aldrin and Dieldrin (Total)*	0.5	mg/kg	-	-	-	< 0.5
CAIGUD 200 DIRIOTO CLOTAL!"	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	_	_	-	< 0.05



Client Sample ID			4000 075 4 0	4000 07F 4 D	4000 075 0 0	4000 075 0 D
			1063.375.1 C Soil	1063.375.1 D	1063.375.2 C Soil	1063.375.2 D Soil
Sample Matrix Eurofins Sample No.			S23- De0043930	Soil S23- De0043931	S23- De0043932	S23- De0043933
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
•			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides		T				
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	72
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	104
Organophosphorus Pesticides		1				
Azinphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Bolstar	0.2	mg/kg	-	-	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	-	-	< 0.2
Coumaphos	2	mg/kg	-	-	-	< 2
Demeton-S	0.2	mg/kg	-	-	-	< 0.2
Demeton-O	0.2	mg/kg	-	-	-	< 0.2
Diazinon	0.2	mg/kg	-	-	-	< 0.2
Dichlorvos	0.2	mg/kg	-	-	-	< 0.2
Dimethoate	0.2	mg/kg	-	-	-	< 0.2
Disulfoton	0.2	mg/kg	-	-	-	< 0.2
EPN	0.2	mg/kg	-	-	-	< 0.2
Ethion	0.2	mg/kg	-	-	-	< 0.2
Ethoprop	0.2	mg/kg	-	-	-	< 0.2
Ethyl parathion	0.2	mg/kg	-	-	-	< 0.2
Fenitrothion	0.2	mg/kg	-	-	-	< 0.2
Fensulfothion	0.2	mg/kg	-	-	-	< 0.2
Fenthion	0.2	mg/kg	-	-	-	< 0.2
Malathion	0.2	mg/kg	-	-	-	< 0.2
Merphos	0.2	mg/kg	-	-	-	< 0.2
Methyl parathion	0.2	mg/kg	-	-	-	< 0.2
Mevinphos	0.2	mg/kg	-	-	-	< 0.2
Monocrotophos	2	mg/kg	-	-	-	< 2
Naled	0.2	mg/kg	-	-	-	< 0.2
Omethoate	2	mg/kg	-	-	-	< 2
Phorate	0.2	mg/kg	-	-	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Pyrazophos	0.2	mg/kg	-	-	-	< 0.2
Ronnel	0.2	mg/kg	-	-	-	< 0.2
Terbufos	0.2	mg/kg	-	-	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	-	-	< 0.2
Tokuthion	0.2	mg/kg	-	-	-	< 0.2
Trichloronate	0.2	mg/kg	-	-	-	< 0.2
Triphenylphosphate (surr.)	1	%	-	-	-	89
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	_	72



				1		
Client Sample ID			1063.375.3 C	1063.375.3 D	1063.375.4 C	1063.375.4 D
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23- De0043934	S23- De0043935	S23- De0043936	S23- De0043937
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	81	-	84	-
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	7.3	-	7.2	-
Heavy Metals						
Arsenic	2	mg/kg	3.0	_	3.1	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	6.2	-	6.1	-
Copper	5	mg/kg	51	-	67	-
Lead	5	mg/kg	27	-	29	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	-
Nickel	5	mg/kg	< 5	-	< 5	-
Zinc	5	mg/kg	46	-	55	-
Sample Properties						
% Moisture	1	%	7.4	6.9	6.3	7.6
Total Recoverable Hydrocarbons	'	•				
TRH C6-C9	20	mg/kg	-	< 20	_	< 20
TRH C10-C14	20	mg/kg	-	< 20	_	< 20
TRH C15-C28	50	mg/kg	-	52	-	< 50
TRH C29-C36	50	mg/kg	-	< 50	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	52	-	< 50
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	_	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	< 100
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	< 100
ВТЕХ						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	_	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	108	-	108
Total Recoverable Hydrocarbons - 2013 NEPM Frac	ctions					
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	-	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5



Environment Testing

	1	1	1	1	_	_
Client Sample ID			1063.375.3 C	1063.375.3 D	1063.375.4 C	1063.375.4 D
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23- De0043934	S23- De0043935	S23- De0043936	S23- De0043937
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Chrysene	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	_	< 0.5	_	< 0.5
Fluoranthene	0.5	mg/kg	_	< 0.5	_	< 0.5
Fluorene	0.5	mg/kg	_	< 0.5	_	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	_	< 0.5	_	< 0.5
Naphthalene	0.5	mg/kg	_	< 0.5	_	< 0.5
Phenanthrene	0.5	mg/kg	_	< 0.5	_	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	_	< 0.5
Total PAH*	0.5	mg/kg	_	< 0.5	_	< 0.5
2-Fluorobiphenyl (surr.)	1	%	_	89	_	100
p-Terphenyl-d14 (surr.)	1	%	_	91	_	98
Organochlorine Pesticides	· · · · · · · · · · · · · · · · · · ·	,,,		1		
Chlordanes - Total	0.1	mg/kg	_	_	_	< 0.1
4.4'-DDD	0.05	mg/kg	_	_	-	< 0.05
4.4'-DDE	0.05	mg/kg	_	_	_	< 0.05
4.4'-DDT	0.05	mg/kg				< 0.05
a-HCH	0.05	mg/kg				< 0.05
Aldrin	0.05	mg/kg				< 0.05
b-HCH	0.05	mg/kg				< 0.05
d-HCH	0.05		-			< 0.05
Dieldrin	0.05	mg/kg mg/kg				< 0.05
Endosulfan I	0.05	mg/kg				< 0.05
Endosulfan II	0.05	mg/kg				< 0.05
Endosulfan sulphate	0.05	mg/kg				< 0.05
Endrin	0.05	mg/kg				< 0.05
Endrin aldehyde	0.05	mg/kg				< 0.05
Endrin ketone	0.05	mg/kg	-			< 0.05
q-HCH (Lindane)	0.05	mg/kg		_		< 0.05
Heptachlor	0.05	mg/kg	_	_	_	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	_		< 0.05
Hexachlorobenzene	0.05	mg/kg	-			< 0.05
Methoxychlor	0.05	mg/kg	-	_	_	< 0.05
Toxaphene	0.05	mg/kg	-	_	_	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	_	_	_	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	_	_	_	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.03	mg/kg	-	_	_	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	_	_	< 0.1
Dibutylchlorendate (surr.)	1	%	-	_	_	68
Tetrachloro-m-xylene (surr.)	1	%	_	_	_	95
Organophosphorus Pesticides						55
Azinphos-methyl	0.2	mg/kg	-	_	_	< 0.2
Bolstar	0.2	mg/kg	-	_	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	-		-	< 0.2
Chlorpyrifos	0.2	mg/kg	-			< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-			< 0.2
Coumaphos	2	mg/kg	-			< 2
Demeton-S	0.2	mg/kg	-	-	-	< 0.2
Demeton-O	0.2	mg/kg	-	-	-	< 0.2
Diazinon	0.2	mg/kg	-	-	-	< 0.2



Client Sample ID			1063.375.3 C	1063.375.3 D	1063.375.4 C	1063.375.4 D
Sample Matrix			Soil	Soil	Soil	Soil
			S23-	S23-	S23-	S23-
Eurofins Sample No.			De0043934	De0043935	De0043936	De0043937
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dichlorvos	0.2	mg/kg	-	-	-	< 0.2
Dimethoate	0.2	mg/kg	-	-	-	< 0.2
Disulfoton	0.2	mg/kg	-	-	-	< 0.2
EPN	0.2	mg/kg	-	-	-	< 0.2
Ethion	0.2	mg/kg	-	-	-	< 0.2
Ethoprop	0.2	mg/kg	=	-	-	< 0.2
Ethyl parathion	0.2	mg/kg	=	-	-	< 0.2
Fenitrothion	0.2	mg/kg	-	-	-	< 0.2
Fensulfothion	0.2	mg/kg	=	-	-	< 0.2
Fenthion	0.2	mg/kg	=	-	-	< 0.2
Malathion	0.2	mg/kg	-	-	-	< 0.2
Merphos	0.2	mg/kg	=	-	-	< 0.2
Methyl parathion	0.2	mg/kg	-	-	-	< 0.2
Mevinphos	0.2	mg/kg	=	-	-	< 0.2
Monocrotophos	2	mg/kg	-	-	-	< 2
Naled	0.2	mg/kg	-	-	-	< 0.2
Omethoate	2	mg/kg	-	-	-	< 2
Phorate	0.2	mg/kg	-	-	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Pyrazophos	0.2	mg/kg	-	-	-	< 0.2
Ronnel	0.2	mg/kg	-	-	-	< 0.2
Terbufos	0.2	mg/kg	-	-	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	-	-	< 0.2
Tokuthion	0.2	mg/kg	-	-	-	< 0.2
Trichloronate	0.2	mg/kg	-	-	-	< 0.2
Triphenylphosphate (surr.)	1	%	-	-	-	87
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	68
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	95



				1		1
Client Sample ID			1063.375.5 C	1063.375.5 D	1063.375.6 C	1063.375.6 D
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23- De0043938	S23- De0043939	S23- De0043940	S23- De0043941
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	79	-	87	-
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	7.3	-	7.6	-
Heavy Metals						
Arsenic	2	mg/kg	3.7	_	2.8	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	7.0	-	5.5	-
Copper	5	mg/kg	45	-	46	-
Lead	5	mg/kg	35	-	26	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	-
Nickel	5	mg/kg	< 5	-	< 5	-
Zinc	5	mg/kg	57	-	46	-
Sample Properties						
% Moisture	1	%	5.3	6.1	7.7	6.4
Total Recoverable Hydrocarbons	•	•				
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	< 50	-	< 50
TRH C29-C36	50	mg/kg	-	< 50	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	< 50	-	< 50
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	-	< 20	_	< 20
TRH >C10-C16	50	mg/kg	-	< 50	_	< 50
TRH >C10-C16 less Naphthalene (F2)N01	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	< 100
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	< 100
втех						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	113	-	88
Total Recoverable Hydrocarbons - 2013 NEPM Fra	ctions					
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	-	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5



Environment Testing

Client Comple ID			4000 075 5 0	4000 075 5 D	4000 075 0 0	4000 07F 0 B
Client Sample ID			1063.375.5 C	1063.375.5 D	1063.375.6 C	1063.375.6 D
Sample Matrix			Soil S23-	Soil S23-	Soil S23-	Soil S23-
Eurofins Sample No.			De0043938	De0043939	De0043940	De0043941
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Chrysene	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	99	-	109
p-Terphenyl-d14 (surr.)	1	%	-	89	-	119
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.5
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.5
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.5
a-HCH	0.05	mg/kg	-	-	-	< 0.5
Aldrin	0.05	mg/kg	-	-	-	< 0.5
b-HCH	0.05	mg/kg	-	-	-	< 0.5
d-HCH	0.05	mg/kg	-	-	-	< 0.5
Dieldrin	0.05	mg/kg	-	-	-	< 0.5
Endosulfan I	0.05	mg/kg	-	-	-	< 0.5
Endosulfan II	0.05	mg/kg	-	-	-	< 0.5
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.5
Endrin	0.05	mg/kg	-	-	-	< 0.5
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.5
Endrin ketone	0.05	mg/kg	-	-	-	< 0.5
g-HCH (Lindane)	0.05	mg/kg	-	-	-	< 0.5
Heptachlor	0.05	mg/kg	-	-	-	< 0.5
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.5
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.5
Methoxychlor	0.05	mg/kg	-	-	-	< 0.5
Toxaphene	0.5	mg/kg	-	-	-	< 10
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.5
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.5
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	-	71
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	110
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	-	< 0.5
Bolstar	0.2	mg/kg	-	-	-	< 0.5
Chlorfenvinphos	0.2	mg/kg	-	-	-	< 0.5
Chlorpyrifos	0.2	mg/kg	-	-	-	< 0.5
Chlorpyrifos-methyl	0.2	mg/kg	-	-	-	< 0.5
Coumaphos	2	mg/kg	-	-	-	< 5
Demeton-S	0.2	mg/kg	-	-	-	< 0.5
Demeton-O	0.2	mg/kg	-	-	-	< 0.5
Diazinon	0.2	mg/kg	-	-	-	< 0.5

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Client Sample ID			1063.375.5 C	1063.375.5 D	1063.375.6 C	1063.375.6 D
Sample Matrix			Soil	Soil	Soil	Soil
			S23-	S23-	S23-	S23-
Eurofins Sample No.			De0043938	De0043939	De0043940	De0043941
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dichlorvos	0.2	mg/kg	-	-	-	< 0.5
Dimethoate	0.2	mg/kg	-	-	-	< 0.5
Disulfoton	0.2	mg/kg	-	-	-	< 0.5
EPN	0.2	mg/kg	-	-	-	< 0.5
Ethion	0.2	mg/kg	-	-	-	< 0.5
Ethoprop	0.2	mg/kg	-	-	-	< 0.5
Ethyl parathion	0.2	mg/kg	-	-	-	< 0.5
Fenitrothion	0.2	mg/kg	-	-	-	< 0.5
Fensulfothion	0.2	mg/kg	-	-	-	< 0.5
Fenthion	0.2	mg/kg	-	-	-	< 0.5
Malathion	0.2	mg/kg	-	-	-	< 0.5
Merphos	0.2	mg/kg	-	-	-	< 0.5
Methyl parathion	0.2	mg/kg	-	-	-	< 0.5
Mevinphos	0.2	mg/kg	-	-	-	< 0.5
Monocrotophos	2	mg/kg	-	-	-	< 5
Naled	0.2	mg/kg	-	-	-	< 0.5
Omethoate	2	mg/kg	-	-	-	< 5
Phorate	0.2	mg/kg	-	-	-	< 0.5
Pirimiphos-methyl	0.2	mg/kg	-	-	-	< 0.5
Pyrazophos	0.2	mg/kg	-	-	-	< 0.5
Ronnel	0.2	mg/kg	-	-	-	< 0.5
Terbufos	0.2	mg/kg	-	-	-	< 0.5
Tetrachlorvinphos	0.2	mg/kg	-	-	-	< 0.5
Tokuthion	0.2	mg/kg	=	-	-	< 0.5
Trichloronate	0.2	mg/kg	=	-	-	< 0.5
Triphenylphosphate (surr.)	1	%	=	-	-	85
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 1
Aroclor-1221	0.1	mg/kg	-	-	-	< 1
Aroclor-1232	0.1	mg/kg	-	-	-	< 1
Aroclor-1242	0.1	mg/kg	-	-	-	< 1
Aroclor-1248	0.1	mg/kg	-	-	-	< 1
Aroclor-1254	0.1	mg/kg	-	-	-	< 1
Aroclor-1260	0.1	mg/kg	-	-	-	< 1
Total PCB*	0.1	mg/kg	-	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	-	71
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	110



			1	1	1	1
Client Sample ID			1063.375.7 C	1063.375.7 D	1063.375.8 C	1063.375.8 D
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23- De0043942	S23- De0043943	S23- De0043944	S23- De0043945
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	90	-	76	-
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	7.6	-	7.6	-
Heavy Metals	<u>'</u>					
Arsenic	2	mg/kg	3.4	-	3.1	_
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	6.8	-	7.2	-
Copper	5	mg/kg	45	-	42	-
Lead	5	mg/kg	35	-	34	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	-
Nickel	5	mg/kg	< 5	-	< 5	-
Zinc	5	mg/kg	58	-	54	-
Sample Properties						
% Moisture	1	%	8.4	7.0	7.3	8.0
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	< 50	-	89
TRH C29-C36	50	mg/kg	-	< 50	-	55
TRH C10-C36 (Total)	50	mg/kg	-	< 50	-	144
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	130
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	130
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	108	-	123
Total Recoverable Hydrocarbons - 2013 NEPM Fra	ctions					
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	-	< 0.5
Polycyclic Aromatic Hydrocarbons		Т				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5

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Client Sample ID			4000 075 7 0	4000 07F 7 D	4000 075 0 0	4000 075 0 D
•			1063.375.7 C	1063.375.7 D	1063.375.8 C	1063.375.8 D
Sample Matrix			Soil S23-	Soil S23-	Soil S23-	Soil S23-
Eurofins Sample No.			De0043942	De0043943	De0043944	De0043945
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Chrysene	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	103	-	100
p-Terphenyl-d14 (surr.)	1	%	-	93	-	97
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.5
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.5
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.5
а-НСН	0.05	mg/kg	-	-	-	< 0.5
Aldrin	0.05	mg/kg	-	-	-	< 0.5
b-HCH	0.05	mg/kg	-	-	-	< 0.5
d-HCH	0.05	mg/kg	-	-	-	< 0.5
Dieldrin	0.05	mg/kg	-	-	-	< 0.5
Endosulfan I	0.05	mg/kg	-	-	-	< 0.5
Endosulfan II	0.05	mg/kg	-	-	-	< 0.5
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.5
Endrin	0.05	mg/kg	-	-	-	< 0.5
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.5
Endrin ketone	0.05	mg/kg	-	-	-	< 0.5
g-HCH (Lindane)	0.05	mg/kg	-	-	-	< 0.5
Heptachlor	0.05	mg/kg	-	-	-	< 0.5
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.5
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.5
Methoxychlor	0.05	mg/kg	-	-	-	< 0.5
Toxaphene	0.5	mg/kg	-	-	-	< 10
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.5
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.5
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	-	68
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	96
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	-	< 0.5
Bolstar	0.2	mg/kg	-	-	-	< 0.5
Chlorfenvinphos	0.2	mg/kg	-	-	-	< 0.5
Chlorpyrifos	0.2	mg/kg	-	-	-	< 0.5
Chlorpyrifos-methyl	0.2	mg/kg	-	-	-	< 0.5
Coumaphos	2	mg/kg	-	-	-	< 5
Demeton-S	0.2	mg/kg	-	-	-	< 0.5
Demeton-O	0.2	mg/kg	-	-	-	< 0.5
Diazinon	0.2	mg/kg	-	-	-	< 0.5

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Client Sample ID			1063.375.7 C	1063.375.7 D	1063.375.8 C	1063.375.8 D
Sample Matrix			Soil	Soil	Soil	Soil
Campio many			S23-	S23-	S23-	S23-
Eurofins Sample No.			De0043942	De0043943	De0043944	De0043945
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dichlorvos	0.2	mg/kg	-	-	-	< 0.5
Dimethoate	0.2	mg/kg	-	-	-	< 0.5
Disulfoton	0.2	mg/kg	-	-	-	< 0.5
EPN	0.2	mg/kg	-	-	-	< 0.5
Ethion	0.2	mg/kg	-	-	-	< 0.5
Ethoprop	0.2	mg/kg	-	-	-	< 0.5
Ethyl parathion	0.2	mg/kg	-	-	-	< 0.5
Fenitrothion	0.2	mg/kg	-	-	-	< 0.5
Fensulfothion	0.2	mg/kg	-	-	-	< 0.5
Fenthion	0.2	mg/kg	-	-	-	< 0.5
Malathion	0.2	mg/kg	-	-	-	< 0.5
Merphos	0.2	mg/kg	-	-	-	< 0.5
Methyl parathion	0.2	mg/kg	-	-	-	< 0.5
Mevinphos	0.2	mg/kg	-	-	-	< 0.5
Monocrotophos	2	mg/kg	-	-	-	< 5
Naled	0.2	mg/kg	-	-	-	< 0.5
Omethoate	2	mg/kg	-	-	-	< 5
Phorate	0.2	mg/kg	-	-	-	< 0.5
Pirimiphos-methyl	0.2	mg/kg	-	-	-	< 0.5
Pyrazophos	0.2	mg/kg	-	-	-	< 0.5
Ronnel	0.2	mg/kg	-	-	-	< 0.5
Terbufos	0.2	mg/kg	-	-	-	< 0.5
Tetrachlorvinphos	0.2	mg/kg	-	-	-	< 0.5
Tokuthion	0.2	mg/kg	=	-	-	< 0.5
Trichloronate	0.2	mg/kg	=	-	-	< 0.5
Triphenylphosphate (surr.)	1	%	=	-	-	104
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 1
Aroclor-1221	0.1	mg/kg	-	-	-	< 1
Aroclor-1232	0.1	mg/kg	-	-	-	< 1
Aroclor-1242	0.1	mg/kg	-	-	-	< 1
Aroclor-1248	0.1	mg/kg	-	-	-	< 1
Aroclor-1254	0.1	mg/kg	-	-	-	< 1
Aroclor-1260	0.1	mg/kg	-	-	-	< 1
Total PCB*	0.1	mg/kg	-	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	-	68
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	96

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			1			1
Client Sample ID			1063.375.9 C	1063.375.9 D	1063.375.10 C	1063.375.10 D
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23- De0043946	S23- De0043947	S23- De0043948	S23- De0043949
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	91	-	63	_
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units		_	7.6	_
Heavy Metals		Tp Grinto	1.0			
Arsenic	2	mg/kg	3.2	_	3.1	_
Cadmium	0.4	mg/kg	< 0.4	_	< 0.4	_
Chromium	5	mg/kg	6.5	_	6.7	-
Copper	5	mg/kg	42	_	52	-
Lead	5	mg/kg	28	_	31	_
Mercury	0.1	mg/kg	< 0.1	_	< 0.1	-
Nickel	5	mg/kg	< 5	-	< 5	-
Zinc	5	mg/kg	48	-	52	-
Sample Properties						
% Moisture	1	%	7.4	7.8	9.5	7.6
Total Recoverable Hydrocarbons		-1				
TRH C6-C9	20	mg/kg	_	< 20	-	< 20
TRH C10-C14	20	mg/kg	_	< 20	_	< 20
TRH C15-C28	50	mg/kg	_	< 50	-	< 50
TRH C29-C36	50	mg/kg	_	< 50	-	< 50
TRH C10-C36 (Total)	50	mg/kg	_	< 50	-	< 50
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	< 100
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	< 100
ВТЕХ						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	110	-	102
Total Recoverable Hydrocarbons - 2013 NEPM Fra	ctions					
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	-	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5



		1			1	
Client Sample ID			1063.375.9 C	1063.375.9 D	1063.375.10 C	1063.375.10 D
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23- De0043946	S23- De0043947	S23- De0043948	S23- De0043949
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Chrysene	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	109	-	109
p-Terphenyl-d14 (surr.)	1	%	-	98	-	94
Organochlorine Pesticides		•				
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-HCH	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-HCH	0.05	mg/kg	-	-	-	< 0.05
d-HCH	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	=	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	=	< 0.05
g-HCH (Lindane)	0.05	mg/kg	-	-	=	< 0.05
Heptachlor	0.05	mg/kg	-	-	=	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	=	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	=	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	0.5	mg/kg	-	-	-	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	80
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	102
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	-	< 0.2
Bolstar	0.2	mg/kg	-	-	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	-	-	< 0.2
Coumaphos	2	mg/kg	-	-	-	< 2
Demeton-S	0.2	mg/kg	-	-	-	< 0.2
Demeton-O	0.2	mg/kg	-	-	-	< 0.2
Diazinon	0.2	mg/kg	-	-	-	< 0.2

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Client Sample ID			1063.375.9 C	1063.375.9 D	1063.375.10 C	1063.375.10 D
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23- De0043946	S23- De0043947	S23- De0043948	S23- De0043949
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOR	Unit	,		,	
Organophosphorus Pesticides	LOIK	Onit				
Dichlorvos	0.2	mg/kg	_	_	-	< 0.2
Dimethoate	0.2	mg/kg	_	_	-	< 0.2
Disulfoton	0.2	mg/kg	_	_	-	< 0.2
EPN	0.2	mg/kg	_	_	-	< 0.2
Ethion	0.2	mg/kg	_	_	-	< 0.2
Ethoprop	0.2	mg/kg	_	_	-	< 0.2
Ethyl parathion	0.2	mg/kg	_	_	_	< 0.2
Fenitrothion	0.2	mg/kg	_	_	_	< 0.2
Fensulfothion	0.2	mg/kg	_	_	_	< 0.2
Fenthion	0.2	mg/kg	_	_	_	< 0.2
Malathion	0.2	mg/kg	-	_	-	< 0.2
Merphos	0.2	mg/kg	_	_	_	< 0.2
Methyl parathion	0.2	mg/kg	_	_	-	< 0.2
Mevinphos	0.2	mg/kg	_	_	_	< 0.2
Monocrotophos	2	mg/kg	_	_	-	< 2
Naled	0.2	mg/kg	_	_	_	< 0.2
Omethoate	2	mg/kg	_	_	-	< 2
Phorate	0.2	mg/kg	_	_	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	_	_	-	< 0.2
Pyrazophos	0.2	mg/kg	_	_	-	< 0.2
Ronnel	0.2	mg/kg	-	-	-	< 0.2
Terbufos	0.2	mg/kg	-	_	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	_	_	-	< 0.2
Tokuthion	0.2	mg/kg	-	-	-	< 0.2
Trichloronate	0.2	mg/kg	-	-	-	< 0.2
Triphenylphosphate (surr.)	1	%	-	-	-	96
Polychlorinated Biphenyls	!	1				
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	_	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	_	_	-	< 0.1
Aroclor-1254	0.1	mg/kg	_	_	-	< 0.1
Aroclor-1260	0.1	mg/kg	_	_	-	< 0.1
Total PCB*	0.1	mg/kg	_	_	-	< 0.1
Dibutylchlorendate (surr.)	1	%	_	_	-	80
Tetrachloro-m-xylene (surr.)	1	%	_	_	_	102

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Client Sample ID			1063.375.11QA	TS	тв
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S23- De0043950	S23- De0043951	S23- De0043952
Date Sampled			Dec 15, 2023	Dec 15, 2023	Dec 15, 2023
Test/Reference	LOF	R Unit			
Heavy Metals	·				
Arsenic	2	mg/kg	3.1	-	-
Cadmium	0.4	mg/kg	< 0.4	-	-
Chromium	5	mg/kg	6.3	-	-
Copper	5	mg/kg	47	-	-
Lead	5	mg/kg	34	-	-
Mercury	0.1	mg/kg	< 0.1	-	-
Nickel	5	mg/kg	< 5	-	-
Zinc	5	mg/kg	52	-	-
Sample Properties					
% Moisture	1	%	7.0	-	-
втех					
Benzene	0.1	mg/kg	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	102
ВТЕХ					
Benzene	1	%	-	75	-
Ethylbenzene	1	%	-	80	-
m&p-Xylenes	1	%	-	85	-
o-Xylene	1	%	-	87	-
Toluene	1	%	-	78	-
Xylenes - Total	1	%	-	86	-
4-Bromofluorobenzene (surr.)	1	%	-	96	-



Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Conductivity (1:5 aqueous extract at 25 °C as rec.)	Sydney	Dec 28, 2023	7 Days
- Method: LTM-INO-4030 Conductivity			
pH (1:5 Aqueous extract at 25 °C as rec.)	Sydney	Dec 28, 2023	7 Days
- Method: LTM-GEN-7090 pH by ISE			
Metals M8	Sydney	Dec 28, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Dec 19, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			
Eurofins Suite B4			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Dec 28, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Dec 28, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Dec 28, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Dec 28, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Jan 09, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Eurofins Suite B15			
Organochlorine Pesticides	Sydney	Dec 28, 2023	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Dec 28, 2023	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	Dec 28, 2023	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			



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Eurofins Environment Testing Australia Pty Ltd

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Site# 25403

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Coleman and Adams Environmental Pty Ltd

Address: PO Box R1370

The Royal Exchange

NSW 1255

VIC 3175

NATA# 1261

Site# 1254

Order No.: Report #:

1055230

Phone:

0424 639 602

Fax:

Received: Dec 18, 2023 5:50 PM

Due: Dec 28, 2023

Priority: 5 Dav

Contact Name: Joanna Chen (ALL SRA'S)

Eurofins Analytical Services Manager: Asim Khan

Project	Name:

Project ID:

1063.375

Sample Detail Sydney Laboratory - NATA # 1261 Site # 18217						Asbestos - AS4964	Conductivity (1:5 aqueous extract at 25 °C as rec.)	pH (1:5 Aqueous extract at 25 °C as rec.)	Metals M8	втех	Eurofins Suite B15	Moisture Set	Eurofins Suite B4	втех
			Site # 18217	<u>'</u>		Х	Х	Х	Х	Х	Х	Х	Х	Х
	rnal Laboratory		.											
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	1063.375.1 C	Dec 15, 2023		Soil	S23-De0043930	Х	Х	Х	Х			Х		
2	1063.375.1 D	Dec 15, 2023		Soil	S23-De0043931							Х	Х	
3	1063.375.2 C	Dec 15, 2023		Soil	S23-De0043932	Х	Х	Х	Χ			Х		
4	1063.375.2 D	Dec 15, 2023		Soil	S23-De0043933						Х	Х	Х	
5	1063.375.3 C	Dec 15, 2023		Soil	S23-De0043934	Х	Х	Х	Χ			Х		
6	1063.375.3 D	Dec 15, 2023		Soil	S23-De0043935							Х	Х	
7	1063.375.4 C	Dec 15, 2023		Soil	S23-De0043936	Х	Х	Х	Χ			Х		
8	1063.375.4 D	Dec 15, 2023		Soil	S23-De0043937						Х	Х	Х	
9	1063.375.5 C	Dec 15, 2023		Soil	S23-De0043938	Х	Х	Х	Х			Х		
10	1063.375.5 D	Dec 15, 2023		Soil	S23-De0043939							Х	Х	
11	1063.375.6 C	Dec 15, 2023		Soil	S23-De0043940	Х	Х	Х	Х			Х		
12	1063.375.6 D	Dec 15, 2023		Soil	S23-De0043941						Х	Х	Х	
13	1063.375.7 C	Dec 15, 2023		Soil	S23-De0043942	Х	X	Χ	Χ			Х		



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Company Name:

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Address: PO Box R1370

The Royal Exchange

NSW 1255

Order No.: Report #:

1055230

Phone: Fax:

0424 639 602

Received: Dec 18, 2023 5:50 PM

Due: Dec 28, 2023 Priority: 5 Dav

Contact Name: Joanna Chen (ALL SRA'S)

Eurofins Analytical Services Manager: Asim Khan

Project	Name:
Project	ID:

1063.375

Sample Detail						Asbestos - AS4964	Conductivity (1:5 aqueous extract at 25 °C as rec.)	pH (1:5 Aqueous extract at 25 °C as rec.)	Metals M8	втех	Eurofins Suite B15	Moisture Set	Eurofins Suite B4	ВТЕХ
	ney Laboratory		Site # 18217		000 B 0040040	Х	Х	Х	Х	Х	Х	X	X	Х
14	1063.375.7 D	Dec 15, 2023		Soil	S23-De0043943		X	V	V			X	Х	
15 16	1063.375.8 C 1063.375.8 D	Dec 15, 2023		Soil	S23-De0043944 S23-De0043945	Х	_ ^	Х	Х		Х	X	Х	
17	1063.375.8 D	Dec 15, 2023 Dec 15, 2023		Soil	S23-De0043945	Х	Х	Х	Х			X	_^	
18	1063.375.9 D	Dec 15, 2023		Soil	S23-De0043947			^				X	Х	
19	1063.375.10 C	Dec 15, 2023		Soil	S23-De0043948	Х	X	Х	Х			X		
20	1063.375.10 D	Dec 15, 2023		Soil	S23-De0043949						Х	Х	Х	
21	1063.375.11Q A	Dec 15, 2023		Soil	S23-De0043950				Х			х		
22	TS	Dec 15, 2023		Soil	S23-De0043951									Х
23	ТВ	Dec 15, 2023		Soil	S23-De0043952					Х				
Test	Counts					10	10	10	11	1	5	21	10	1



Internal Quality Control Review and Glossary

General

- 1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request
- 2. All soil/sediment/solid results are reported on a dry weight basis unless otherwise stated.
- 3. All biota/food results are reported on a wet weight basis on the edible portion unless otherwise stated.
- 4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
- Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds
- 7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise
- 8. Samples were analysed on an 'as received' basis.
- 9. Information identified in this report with blue colour indicates data provided by customers that may have an impact on the results.
- 10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is 7 days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram mg/L: milligrams per litre ppm: parts per million μg/L: micrograms per litre ppb: parts per billion %: Percentage

org/100 mL: Organisms per 100 millilitres NTU: Nephelometric Turbidity Units MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Colour: Pt-Co Units CFU: Colony forming unit

Terms

TCI P

APHA American Public Health Association CEC Cation Exchange Capacity COC Chain of Custody

CP Client Parent - QC was performed on samples pertaining to this report CRM Certified Reference Material (ISO17034) - reported as percent recovery.

Dry Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis

Duplicate A second piece of analysis from the same sample and reported in the same units as the result to show comparison.

LOR Limit of Reporting

LCS Laboratory Control Sample - reported as percent recovery.

Method Blank In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water NCP Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.

RPD Relative Percent Difference between two Duplicate pieces of analysis SPIKE Addition of the analyte to the sample and reported as percentage recovery

SRA Sample Receipt Advice

The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria Surr - Surrogate

Tributyltin oxide (bis-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. TRTO

Toxicity Characteristic Leaching Procedure TFO Toxic Equivalency Quotient or Total Equivalence

QSM US Department of Defense Quality Systems Manual Version 5.4

US EPA United States Environmental Protection Agency

Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA WA DWER

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50% Results >20 times the LOR: RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 - 150%, VOC recoveries 70 - 130%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 5.4, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

- 1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided
- 2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
- 3. pH and Free Chlorine analysed in the laboratory Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- 4. Recovery Data (Spikes & Surrogates) where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte
- 5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
- 6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data

Quality Control Results

Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Method Blank					
Conductivity (1:5 aqueous extract at 25 °C as rec.)	uS/cm	< 10	10	Pass	
Method Blank					
Heavy Metals					
Arsenic	mg/kg	< 2	2	Pass	
Cadmium	mg/kg	< 0.4	0.4	Pass	
Chromium	mg/kg	< 5	5	Pass	
Copper	mg/kg	< 5	5	Pass	
Lead	mg/kg	< 5	5	Pass	
Mercury	mg/kg	< 0.1	0.1	Pass	
Nickel	mg/kg	< 5	5	Pass	
Zinc	mg/kg	< 5	5	Pass	
Method Blank					
Total Recoverable Hydrocarbons					
TRH C6-C9	mg/kg	< 20	20	Pass	
TRH C10-C14	mg/kg	< 20	20	Pass	
TRH C15-C28	mg/kg	< 50	50	Pass	
TRH C29-C36	mg/kg	< 50	50	Pass	
TRH C6-C10	mg/kg	< 20	20	Pass	
TRH >C10-C16	mg/kg	< 50	50	Pass	
TRH >C16-C34	mg/kg	< 100	100	Pass	
TRH >C34-C40	mg/kg	< 100	100	Pass	
Method Blank	Hig/kg	V 100	100	1 433	
BTEX					
Benzene	mg/kg	< 0.1	0.1	Pass	
Toluene	mg/kg	< 0.1	0.1	Pass	
		< 0.1	0.1	Pass	
Ethylbenzene	mg/kg	< 0.2	0.1	Pass	
m&p-Xylenes	mg/kg				
o-Xylene	mg/kg	< 0.1	0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3	0.3	Pass	
Method Blank					
Total Recoverable Hydrocarbons - 2013 NEPM Fractions		2.5		_	
Naphthalene	mg/kg	< 0.5	0.5	Pass	
Method Blank		Т		T	
Polycyclic Aromatic Hydrocarbons				<u> </u>	
Acenaphthene	mg/kg	< 0.5	0.5	Pass	
Acenaphthylene	mg/kg	< 0.5	0.5	Pass	
Anthracene	mg/kg	< 0.5	0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5	0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5	0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5	0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5	0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5	0.5	Pass	
Chrysene	mg/kg	< 0.5	0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5	0.5	Pass	
Fluoranthene	mg/kg	< 0.5	0.5	Pass	
Fluorene	mg/kg	< 0.5	0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5	0.5	Pass	
Naphthalene	mg/kg	< 0.5	0.5	Pass	
Phenanthrene	mg/kg	< 0.5	0.5	Pass	
Pyrene	mg/kg	< 0.5	0.5	Pass	
Method Blank					

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Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Organochlorine Pesticides					
Chlordanes - Total	mg/kg	< 0.1	0.1	Pass	
4.4'-DDD	mg/kg	< 0.05	0.05	Pass	
4.4'-DDE	mg/kg	< 0.05	0.05	Pass	
4.4'-DDT	mg/kg	< 0.05	0.05	Pass	
а-НСН	mg/kg	< 0.05	0.05	Pass	
Aldrin	mg/kg	< 0.05	0.05	Pass	
b-HCH	mg/kg	< 0.05	0.05	Pass	
d-HCH	mg/kg	< 0.05	0.05	Pass	
Dieldrin	mg/kg	< 0.05	0.05	Pass	
Endosulfan I	mg/kg	< 0.05	0.05	Pass	
Endosulfan II	mg/kg	< 0.05	0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05	0.05	Pass	
Endrin	mg/kg	< 0.05	0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05	0.05	Pass	
Endrin ketone	mg/kg	< 0.05	0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05	0.05	Pass	
Heptachlor	mg/kg	< 0.05	0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05	0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05	0.05	Pass	
Methoxychlor	mg/kg	< 0.05	0.05	Pass	
Toxaphene	mg/kg	< 0.5	0.5	Pass	
Method Blank				ı	
Organophosphorus Pesticides					
Azinphos-methyl	mg/kg	< 0.2	0.2	Pass	
Bolstar	mg/kg	< 0.2	0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2	0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2	0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2	0.2	Pass	
Coumaphos	mg/kg	< 2	2	Pass	
Demeton-S	mg/kg	< 0.2	0.2	Pass	
Demeton-O	mg/kg	< 0.2	0.2	Pass	
Diazinon	mg/kg	< 0.2	0.2	Pass	
Dichlorvos	mg/kg	< 0.2	0.2	Pass	
Dimethoate	mg/kg	< 0.2	0.2	Pass	
Disulfoton	mg/kg	< 0.2	0.2	Pass	
EPN	mg/kg	< 0.2	0.2	Pass	
Ethion	mg/kg	< 0.2	0.2	Pass	
Ethoprop	mg/kg	< 0.2	0.2	Pass	
Ethyl parathion	mg/kg	< 0.2	0.2	Pass	
Fenitrothion	mg/kg	< 0.2	0.2	Pass	
Fensulfothion	mg/kg	< 0.2	0.2	Pass	
Fenthion	mg/kg	< 0.2	0.2	Pass	
Malathion	mg/kg	< 0.2	0.2	Pass	
Merphos	mg/kg	< 0.2	0.2	Pass	
Methyl parathion	mg/kg	< 0.2	0.2	Pass	
Mevinphos	mg/kg	< 0.2	0.2	Pass	
Monocrotophos	mg/kg	< 2	2	Pass	
Naled	mg/kg	< 0.2	0.2	Pass	
Omethoate	mg/kg	< 2	2	Pass	
Phorate	mg/kg	< 0.2	0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2	0.2	Pass	
Pyrazophos	mg/kg	< 0.2	0.2	Pass	
Ronnel	mg/kg	< 0.2	0.2	Pass	



Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Terbufos	mg/kg	< 0.2	0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2	0.2	Pass	
Tokuthion	mg/kg	< 0.2	0.2	Pass	
Trichloronate	mg/kg	< 0.2	0.2	Pass	
Method Blank					
Polychlorinated Biphenyls					
Aroclor-1016	mg/kg	< 0.1	0.1	Pass	
Aroclor-1221	mg/kg	< 0.1	0.1	Pass	
Aroclor-1232	mg/kg	< 0.1	0.1	Pass	
Aroclor-1242	mg/kg	< 0.1	0.1	Pass	
Aroclor-1248	mg/kg	< 0.1	0.1	Pass	
Aroclor-1254	mg/kg	< 0.1	0.1	Pass	
Aroclor-1260	mg/kg	< 0.1	0.1	Pass	
Total PCB*	mg/kg	< 0.1	0.1	Pass	
LCS - % Recovery	, ,		·	•	
Conductivity (1:5 aqueous extract at 25 °C as rec.)	%	106	70-130	Pass	
LCS - % Recovery					
Heavy Metals					
Arsenic	%	104	80-120	Pass	
Cadmium	%	101	80-120	Pass	
Chromium	%	97	80-120	Pass	
Copper	%	104	80-120	Pass	
Lead	%	112	80-120	Pass	
Mercury	%	93	80-120	Pass	
Nickel	%	98	80-120	Pass	
Zinc	%	98	80-120	Pass	
LCS - % Recovery		,		•	
Total Recoverable Hydrocarbons					
TRH C6-C9	%	130	70-130	Pass	
TRH C10-C14	%	88	70-130	Pass	
TRH C6-C10	%	128	70-130	Pass	
TRH >C10-C16	%	87	70-130	Pass	
LCS - % Recovery			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 335	
ВТЕХ					
Benzene	%	112	70-130	Pass	
Toluene	%	112	70-130	Pass	
Ethylbenzene	%	112	70-130	Pass	
m&p-Xylenes	%	111	70-130	Pass	
o-Xylene	%	110	70-130	Pass	
Xylenes - Total*	%	110	70-130	Pass	
LCS - % Recovery	,,,		1 10.00	. 455	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene	%	123	70-130	Pass	
LCS - % Recovery					
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	%	86	70-130	Pass	
Acenaphthylene	%	87	70-130	Pass	
Anthracene	%	83	70-130	Pass	
Benz(a)anthracene	%	79	70-130	Pass	
Benzo(a)pyrene	%	80	70-130	Pass	
\-\/FJ:=::=		90	70-130	Pass	
Benzo(b&i)fluoranthene	%				1
Benzo(b&j)fluoranthene Benzo(a.h.i)pervlene	<u>%</u>			Pass	
Benzo(b&j)fluoranthene Benzo(g.h.i)perylene Benzo(k)fluoranthene	% % %	81 77	70-130 70-130	Pass Pass	

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Test			Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Dibenz(a.h)anthracene			%	83		70-130	Pass	
Fluoranthene			%	79		70-130	Pass	
Fluorene			%	83		70-130	Pass	
Indeno(1.2.3-cd)pyrene			%	84		70-130	Pass	
Naphthalene			%	84		70-130	Pass	
Phenanthrene			%	78		70-130	Pass	
Pyrene			%	80		70-130	Pass	
LCS - % Recovery								
Organochlorine Pesticides								
Chlordanes - Total			%	84		70-130	Pass	
4.4'-DDD			%	78		70-130	Pass	
4.4'-DDE			%	83		70-130	Pass	
4.4'-DDT			%	70		70-130	Pass	
a-HCH			%	78		70-130	Pass	
Aldrin			%	81		70-130	Pass	
b-HCH			%	78		70-130	Pass	
d-HCH			%	71		70-130	Pass	
Dieldrin			%	83		70-130	Pass	
Endosulfan I			%	81		70-130	Pass	
Endosulfan II			%	85		70-130	Pass	
Endosulfan sulphate			%	78		70-130	Pass	
Endrin			%	73		70-130	Pass	
Endrin aldehyde			%	77		70-130	Pass	
Endrin ketone			%	80		70-130	Pass	
g-HCH (Lindane)			%	79		70-130	Pass	
Heptachlor			%	82		70-130	Pass	
Heptachlor epoxide			%	80		70-130	Pass	
Hexachlorobenzene			%	82		70-130	Pass	
Methoxychlor			%	71		70-130	Pass	
LCS - % Recovery			70	/ /		70-130	1 033	
Organophosphorus Pesticides								
Diazinon			%	83		70-130	Pass	
Dimethoate			%	72		70-130	Pass	
Ethion			%	102		70-130	Pass	
Methyl parathion			%	83		70-130	Pass	
Mevinphos			%	75		70-130	Pass	
LCS - % Recovery			70	13		70-130	Fass	
Polychlorinated Biphenyls								
Aroclor-1016			%	83		70-130	Pass	
Aroclor-1260			%	105		70-130	Pass	
		QA				Acceptance	Pass	Qualifying
Test	Lab Sample ID	Source	Units	Result 1		Limits	Limits	Code
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	S23-De0052750	NCP	%	92		75-125	Pass	
Cadmium	S23-De0052750	NCP	%	100		75-125	Pass	
Chromium	S23-De0052750	NCP	%	83		75-125	Pass	
Copper	S23-De0052750	NCP	%	97		75-125	Pass	
Lead	S23-De0052750	NCP	%	102		75-125	Pass	
	S23-De0052750	NCP	%	100		75-125	Pass	
	S23-De0052750	NCP	%	92		75-125	Pass	
	S23-De0052750	NCP	%	92		75-125	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons				Result 1				
•	N23-De0039919	NCP	%	77		70-130	Pass	
			,,,	· · · · · ·	1	1 .0 .00		



Environment Testing

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	S23-De0053859	NCP	%	128			70-130	Pass	
TRH C6-C10	N23-De0039919	NCP	%	79			70-130	Pass	
TRH >C10-C16	S23-De0053859	NCP	%	123			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	N23-De0039919	NCP	%	90			70-130	Pass	
Toluene	N23-De0039919	NCP	%	81			70-130	Pass	
Ethylbenzene	N23-De0039919	NCP	%	88			70-130	Pass	
m&p-Xylenes	N23-De0039919	NCP	%	93			70-130	Pass	
o-Xylene	N23-De0039919	NCP	%	91			70-130	Pass	
Xylenes - Total*	N23-De0039919	NCP	%	92			70-130	Pass	
Spike - % Recovery	1.120 200000010		,,,	<u> </u>				. 455	
Total Recoverable Hydrocarbons	- 2013 NEPM Fract	ions		Result 1					
Naphthalene	N23-De0039919	NCP	%	75			70-130	Pass	
Spike - % Recovery	1120 00000010	1401	70	10			70 100	1 400	
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S23-De0044645	NCP	%	104			70-130	Pass	
4.4'-DDD	S23-De0044645	NCP	%	110			70-130	Pass	
4.4'-DDE	S23-De0044645	NCP	%	108			70-130	Pass	
4.4'-DDT	S23-De0044645	NCP	%	101			70-130	Pass	
a-HCH	S23-De0044645	NCP	%	104			70-130	Pass	
		NCP							
Aldrin	S23-De0044645	NCP	%	106			70-130	Pass	
b-HCH	S23-De0044645			99			70-130	Pass	
d-HCH	S23-De0044645	NCP	%	98			70-130	Pass	
Dieldrin	S23-De0044645	NCP	%	104			70-130	Pass	
Endosulfan I	S23-De0044645	NCP	%	104			70-130	Pass	
Endosulfan II	S23-De0044645	NCP	%	112			70-130	Pass	
Endosulfan sulphate	S23-De0044645	NCP	%	106			70-130	Pass	
Endrin	S23-De0044645	NCP	%	108			70-130	Pass	
Endrin aldehyde	S23-De0044645	NCP	%	103			70-130	Pass	
Endrin ketone	S23-De0044645	NCP	%	106			70-130	Pass	
g-HCH (Lindane)	S23-De0044645	NCP	%	101			70-130	Pass	
Heptachlor	S23-De0044645	NCP	%	107			70-130	Pass	
Heptachlor epoxide	S23-De0044645	NCP	%	105			70-130	Pass	
Hexachlorobenzene	S23-De0044645	NCP	%	106			70-130	Pass	
Methoxychlor	S23-De0044645	NCP	%	94			70-130	Pass	
Spike - % Recovery				I	1 1				
Organophosphorus Pesticides	1			Result 1					
Diazinon	S23-De0031501	NCP	%	97			70-130	Pass	
Dimethoate	S23-De0031501	NCP	%	96			70-130	Pass	
Mevinphos	S23-De0031501	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S23-De0044645	NCP	%	109			70-130	Pass	
Aroclor-1260	S23-De0031501	NCP	%	128			70-130	Pass	Qualifying
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
	1			Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	S23-De0043930	СР	uS/cm	89	78	13	30%	Pass	
pH (1:5 Aqueous extract at 25 °C as rec.)	S23-De0043930	СР	pH Units	7.3	7.2	<1	30%	Pass	



Environment Testing

Dunlicate									
Duplicate Tatal Bassystella Hudrosophana				Desided	D// 0	DDC			
Total Recoverable Hydrocarbons			,,	Result 1	Result 2	RPD		 _ 	
TRH C6-C9	N23-De0039918	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S23-De0051067	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S23-De0051067	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S23-De0051067	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C6-C10	N23-De0039918	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S23-De0051067	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S23-De0051067	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S23-De0051067	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate				l					
BTEX	T			Result 1	Result 2	RPD		 _ 	
Benzene	N23-De0039918	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	N23-De0039918	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	N23-De0039918	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	N23-De0039918	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	N23-De0039918	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	N23-De0039918	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate					,				
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
Naphthalene	N23-De0039918	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbor	ns			Result 1	Result 2	RPD			
Acenaphthene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S23-De0039714	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S23-De0039714	NCP	mg/kg	0.5	0.5	6.7	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	W23-De0033223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	_
d-HCH	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
			.59						
•	W23-De0033223	NCP	ma/ka	< 0.05	< 0.05	<1	1 30%	Pass	
Endrin Endrin aldehyde	W23-De0033223 W23-De0033223	NCP NCP	mg/kg mg/kg	< 0.05 < 0.05	< 0.05 < 0.05	<1 <1	30%	Pass Pass	

Page 26 of 29



Environment Testing

Dunlicata									
Duplicate Destining				D	D	DDD			
Organochlorine Pesticides				Result 1	Result 2	RPD		_	
g-HCH (Lindane)	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	W23-De0033223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	W23-De0033223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate							I		
Organophosphorus Pesticides	T			Result 1	Result 2	RPD		_	
Azinphos-methyl	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S23-De0031511	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S23-De0031511	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S23-De0031511	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S23-De0031511	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate			, ,						
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	W23-De0033223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	W23-De0033223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	W23-De0033223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	W23-De0033223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	W23-De0033223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	W23-De0033223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	W23-De0033223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	W23-De0033223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate	1 1120 200000220	1401	i mg/kg					1 433	
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S23-De0043935	CP	%	6.9	7.5	8.3	30%	Pass	
/v iviolature	020°DE0043835	Ur_	/0	1 0.9	1.5	0.5	JU /0	1 000	



Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S23-De0043936	СР	mg/kg	3.1	2.7	15	30%	Pass	
Cadmium	S23-De0043936	СР	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S23-De0043936	СР	mg/kg	6.1	5.9	3.2	30%	Pass	
Lead	S23-De0043936	CP	mg/kg	29	27	7.1	30%	Pass	
Mercury	S23-De0043936	СР	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S23-De0043936	СР	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S23-De0043936	СР	mg/kg	55	45	19	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S23-De0043945	СР	%	8.0	7.6	5.7	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	S23-De0043946	СР	uS/cm	91	82	11	30%	Pass	
pH (1:5 Aqueous extract at 25 °C as rec.)	S23-De0043946	СР	pH Units	7.6	7.6	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S23-De0043950	СР	mg/kg	3.1	3.6	15	30%	Pass	
Cadmium	S23-De0043950	СР	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S23-De0043950	СР	mg/kg	6.3	7.0	9.3	30%	Pass	
Copper	S23-De0043950	СР	mg/kg	47	53	11	30%	Pass	
Lead	S23-De0043950	СР	mg/kg	34	38	12	30%	Pass	
Mercury	S23-De0043950	СР	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S23-De0043950	СР	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S23-De0043950	СР	mg/kg	52	58	12	30%	Pass	



Comments

This report has been revised (V2) to include repeat PAH results for samples De0043935 & De0043945.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code Description

F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).

N01

Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.

F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes. N04

Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs N07

Authorised by:

N02

Ursula Long Analytical Services Manager Mickael Ros Senior Analyst-Metal Roopesh Rangarajan Senior Analyst-Organic Roopesh Rangarajan Senior Analyst-Volatile Rvan Phillips Senior Analyst-Inorganic



Final Report - this report replaces any previously issued Report

- Indicates Not Requested
- * Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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02nd May 2024

Civiltrak Sydney Pty Ltd 131 Stahls Road, Oakville NSW 2765

Dear Elias,

Re: Stockpiled Soil/ Excavated Natural Material (ENM) Classification Located @

1A Settlers Road, Wisemans Ferry NSW

1.0 Introduction

Geoteknix Solutions Group Pty Ltd was appointed by Civiltrak Sydney Pty Ltd to assess the stockpiled soils proposed to be removed off-site as Excavated Natural Material (ENM) from the above-named property (known as the "site" within this report). The site is located within The Hawkesbury City Council municipality presented as Lot 12 in Deposited Plan DP540634.

2.0 Objectives

The objectives of this ENM/ soil classification were to:

- Assess the size and composition of the material to be disposed of; (as per site plan attached)
- Assess the nature and extent of contamination (if any) in the material to be disposed of; and
- Determine the suitability of the material for offsite disposal in accordance with the Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014: The excavated natural material order 2014.

3.0 ENM Definition

NSW EPA (2014) The Excavated Natural Material Exemption defines ENM as:

"Excavated natural material means naturally occurring rock and soil (including but

not limited to materials such as sandstone, shale, clay and soil) that has:

a) been excavated from the ground, and

b) contains at least 98% (by weight) natural material, and

c) does not meet the definition of Virgin Excavated Natural Material in the Act.

Excavated natural material does not include material located in a hotspot; that has

been processed; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid

Sulfate soils (PASS) or sulfidic ores."

4.0 Field Work

Geoteknix Solutions Group Pty Ltd visited the site on the 29th of April 2024 to

undertake a field inspection and sample collection of the stockpiled soil material

proposed to be removed from site.

It has been inferred by the client that the production of the stockpiled soil has been

generated as subsidence of the cliff edge during heavy rains and flooding. The cliff

edge located on the upper side of the road had collapsed and caused issues within

the road/vehicular access. During the site inspection the stockpiled soil material that

was sampled/investigated, was inferred to be located between chainage 300m and

340m. The stockpile has been labelled as stockpile SP9 which can be seen in Figure 1-

Sample Plan/ ENM Stockpile Location.

During the site visit, test pits were excavated into the stockpiles using an excavator to

enable view of the soils and sample collection within areas of the stockpile as far as

practically possible. The stockpile of soil material of was generally consistent and

compromised predominantly CLAYEY GRAVELLY SAND, COBBLE & BOULDERS of

SANDSTONE.

The stockpile labelled SP9 between chainage 300m & 340m was calculated to be

approximately 640m3 and it is estimated to be approximately 1280 tonnes (using

2.0 tonne per cubic meter calculation). Dimensions of stockpile were 40m X 4.0m X

4.0m(above existing street level).

This ENM soil classification refers to the stockpiled material shown in the site plan

and photos attached. A site plan of the stockpile and test pit/ sample locations can

be seen in Figure 1- Sampling Plan/ ENM Stockpile Location.

To achieve the above objectives, Geoteknix Solutions Group completed the following

scope of work:

Collection of 5 discrete samples & 5 composite samples from the soil materials to be

disposed as per the ENM exemption for stockpile characterisation; (locations can be

seen in Figure 1- Sampling Plan/ ENM Stockpile Location.

• 5 composite samples were also submitted for Foreign Materials Testing

Submission of all samples were to a NATA accredited analytical laboratory for

analysis.

Desktop study; and

Production of this ENM/ soil classification report.

Sampling densities, methods and full suite of analytes are undertaken as per

reference guidance outlined in Section 11 of this report (specifically- Resource

Recovery Order under Part 9, Clause 93 of the Protection of the Environment

Operations (Waste) Regulation 2014: The excavated natural material order 2014.

Sampling methods as referenced in Australian Standard 1141.3.1- 2012 Methods for

sampling and testing aggregates – Sampling – Aggregates AS1141.3.1/6.9.3 "hand

sampling from the side of stockpiles" & AS1141.3.1/6.9.5 "sampling aided by power

equipment (samples collected on the day of the site visit were representative of the

soil materials within the stockpile).

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collected using a gloved hand, placed in jars and bags, which were then placed in a

chilled esky and provided to Envirolab in NSW a NATA Accredited laboratory

(Laboratory QA/QC was within acceptable limits). Foreign materials testing samples

were returned to Geoteknix Solutions Group laboratory for analysis, a NATA

accredited laboratory.

Following a visual assessment of the stockpiled soil material, the materials were

found to be:

Stockpile SP9 (samples EN1, EN1A, EN2, EN2A, EN3, EN3A, EN4, EN4A, EN5, EN5A) as

seen in Figure 1 attached was observed to be as follows;

1. Clayey Gravley Sand with Weathered Sandstone, medium to coarse grained,

brown/ orange & grey, with traces of tree rootlets.

Soils and materials that are outside the above descriptions and not shown in the site

plan attached do not form a part of this classification and are to be disposed of

appropriately and in accordance with relevant guideline criteria.

As part of this ENM soil classification report, Geoteknix Solutions Group undertook a

walkover of the works area and took into consideration the following points where

applicable:

Description and quality of the building structure & materials

o No buildings within the site area. Natural cliff edge

Current operations

Natural cliff edge

Waste Management Practices & trade waste

o N/A

Above & underground storage tanks

o No USTs and ASTs were identified within the work area.

Odours

- At the time of the visit no odours were evident within the test pits soils and/ or within the stockpile
- Site vegetation & sealed surfaces
 - o Healthy and free from stress within the site area & cliff edge
- Historical operations (if known)
 - o Natural cliff edge until present
- Former raw materials & transportation (if known)
 - o N/A
- Surface water
 - o surface water was observed during the site visit due to recent rain fall.
- Groundwater (if known)
 - o N/A- stockpile assessment
- Site Surrounding and their operations.
 - DHARUG National Park to the North & East
 - Settlers Road then Hawkesbury River to the South & West

Asbestos

- NO Asbestos was detected within the soils that have been analysed by a NATA accredited laboratory. During the site visit NO visible asbestos was observed within the inspected test pits/ samples in the stockpile.
- Contaminated Lands Register (NSW EPA)
 - The site was not on the EPA contaminated lands record of notices register.

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5.0 Geological Profile

Hawkesbury Sandstone consisting of medium to coarse-grained quartz sandstone with minor shale and laminite lenses. Sandstones are either massive or cross-bedded sheet facies with vertical or subvertical joint sets. The combination of bedding planes and widely spaced joints gives sandstone outcrops a distinctive blocky appearance.

Steep, rugged Hawkesbury Sandstone slopes and ridges of the Macdonald Ranges,

Hornsby Plateau and Hawkesbury Valleys. Examples occur in Muogamarra Nature

Reserve, Brisbane Water National Park and Ku-ring-gai Chase National Park. The soil

and bedrock material observed within the stockpiled soil were consistent with the

known geological profile of the area.

6.0 Acid Sulphate Soils

To determine whether there is a potential for acid sulphate soils to be present within

a site, reference was made to the NSW Department of Land & Water Conservation

(DLWC) Acid Sulphate Soil Risk Maps (Edition Two, December 1997, Scale 1:250,000)

and plans shown on the https://www.environment.nsw.gov.au/eSpade for acid

sulphate soils, the site is within "no known occurrence" the assessed area as per

eSapde, Given the laboratory pH levels (between 5.1-5.6 pH units) soil type and

inferred excavation depths (10m above the water level), potential for acid sulphate

were not indicated during the site inspection and not expected to be present within

the stockpiled soils.

7.0 Laboratory Testing

The samples collected were representative of the in-situ material. The samples were

analysed for chemicals and other attributes as per Table 4 of the Resource Recovery

Order under Part 9, Clause 93 of the Protection of the Environment Operations

(Waste) Regulation 2014: The excavated natural material order 2014.

A summary of the laboratory results can be seen in TABLE 1 & 2 below (See full

results in Appendix A- Laboratory Test Results).

TABLE 1- Summary of Results

1		1				Heavy M	etals (mg/l	(g)			pH (Units)	Electrical Conductivity (ds/m)	Foreign Materials (%)	Asbestos
	KNIX SOL		ARSENIC	САБМІИМ	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	ZINC	нd	EC	RUBBER, PLASTIC, BITUMEN, PAPER, CLOTH, PAINT AND	Asbetos Detected
Characteris	stic Average Con	centration	20	0.5	75	100	50	0.5	30	150	5 to 9	1.5	0.05	Not Detected
Absolute	Maximum Conc	entration	40	1	150	200	100	1	60	300	4.5 to 10	3	0.1	N/A
Limi	t of Resolution (I	LOR)	1	0.3	0.5	0.5	1	0.05	0.5	0.5	0.1	1	1	NA
Sample ID	Date Sampled	Depth												
EN1	01/05/2024	Stockpile	<4	<0.4	5	4	13	<0.1	3	21	5.5	0.048	<0.1	Not Detected
EN2	01/05/2024	Stockpile	<4	<0.4	5	4	15	<0.1	4	25	5.0	0.071	<0.1	Not Detected
EN3	01/05/2024	Stockpile	<4	<0.4	6	6	12	<0.1	5	25	5.4	0.048	<0.1	Not Detected
EN4	01/05/2024	Stockpile	<4	<0.4	7	5	10	<0.1	5	18	5.2	0.058	<0.1	Not Detected
EN5	01/05/2024	Stockpile	<4	<0.4	6	3	14	<0.1	5	22	5.2	0.054	<0.1	Not Detected
Ave	erage Concentrat	ion	<lor< th=""><th><lor< th=""><th>6.1</th><th>5.1</th><th>13.3</th><th><lor< th=""><th>3.8</th><th>21.5</th><th>5.5</th><th>0.06</th><th><lor< th=""><th>N/A</th></lor<></th></lor<></th></lor<></th></lor<>	<lor< th=""><th>6.1</th><th>5.1</th><th>13.3</th><th><lor< th=""><th>3.8</th><th>21.5</th><th>5.5</th><th>0.06</th><th><lor< th=""><th>N/A</th></lor<></th></lor<></th></lor<>	6.1	5.1	13.3	<lor< th=""><th>3.8</th><th>21.5</th><th>5.5</th><th>0.06</th><th><lor< th=""><th>N/A</th></lor<></th></lor<>	3.8	21.5	5.5	0.06	<lor< th=""><th>N/A</th></lor<>	N/A

TABLE 2- Summary of Results

()		втех (mg/kg)			mg/kg)	TRH (mg/kg)
	KNIX 501.		BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	BENZO(a)PYRENE	TOTAL PAH²	C10-C36 ¹
Characteris	tic Average Cor	centration	N/A	N/A	N/A	N/A	0.5	21	250
Absolute	Maximum Cond	entration	0.5	64	26	15	1	41	500
Limit	t of Resolution (LOR)	0.2	0.5	1	1	0.05	0.05	50
Sample ID	Date Sampled	Depth							
EN1A	01/05/2024	Stockpile	<0.2	<0.5	<1	<1	<0.05	<0.05	<50
EN2A	01/05/2024	Stockpile	<0.2	<0.5	<1	<1	<0.05	<0.05	<50
EN3A	01/05/2024	Stockpile	<0.2	<0.5	<1	<1	<0.05	<0.05	<50
EN4A	01/05/2024	Stockpile	<0.2	<0.5	<1	<1	<0.05	<0.05	<50
EN5A	01/05/2024	Stockpile	<0.2	<0.5	<1	<1	<0.05	<0.05	<50
Ave	rage Concentra	tion	<lor< td=""><td><lor< td=""><td><lor< td=""><td><lor< td=""><td><lor< td=""><td><lor< td=""><td><lor< td=""></lor<></td></lor<></td></lor<></td></lor<></td></lor<></td></lor<></td></lor<>	<lor< td=""><td><lor< td=""><td><lor< td=""><td><lor< td=""><td><lor< td=""><td><lor< td=""></lor<></td></lor<></td></lor<></td></lor<></td></lor<></td></lor<>	<lor< td=""><td><lor< td=""><td><lor< td=""><td><lor< td=""><td><lor< td=""></lor<></td></lor<></td></lor<></td></lor<></td></lor<>	<lor< td=""><td><lor< td=""><td><lor< td=""><td><lor< td=""></lor<></td></lor<></td></lor<></td></lor<>	<lor< td=""><td><lor< td=""><td><lor< td=""></lor<></td></lor<></td></lor<>	<lor< td=""><td><lor< td=""></lor<></td></lor<>	<lor< td=""></lor<>

8.0 Discussion

Visual inspection during sampling (within sample locations) and general inspection of

the each test pit/ sample location confirmed that the soils were generally free of any

unsuitable materials, however confirmation upon receipt of material should be

undertaken to confirm that any undesirable material has not entered during removal

as full time supervision has not/will not be undertaken during excavation works.

9.0 Classification

The soil concentrations of all tested analytes, as shown in the attached results and

summary tables above are within the minimum, maximum and average

concentrations of Table 4 of the Resource Recovery Order under Part 9, Clause 93 of

the Protection of the Environment Operations (Waste) Regulation 2014: The

excavated natural material order 2014.

With reference to the site inspection/ and stockpile sampling, the attached site plan,

following the laboratory analysis and with reference to NSW EPA guidelines, given

that no other parameters have been requested or required, the soil materials found

within stockpile SP9 as shown in the site plan attached have been classified as ENM

(Excavated Natural Material) and suitable for reuse in accordance with ENM (2014)

Exemption. The soils may be considered for re-use (depending on site specific

engineering standards and testing/requirements).

It is recommended that excavation be undertaken carefully and should the discovery

of any contamination be identified, works should cease immediately for further

assessment. An unexpected finds protocol should be developed as prudent planning in

case of such an event.

We would be pleased to provide further information on any aspects of this report.

For and behalf of

Geoteknix Solutions Group P/L

Samer Ghanem

Environmental Consultant

B.EnvPlan, Dip.LabOp

SafeWork Licenced Asbestos Assessor (LAA002071)

ATTACHMENTS:

Site Photos

Figure 1- Sampling Plan/ ENM Stockpile Location

Appendix A- Laboratory CoC & Results

10.0 Limitations of Assessment

Whilst to the best of our knowledge, information contained in this report is accurate at the date of issue, although subsurface conditions, including groundwater levels and contaminant concentrations, can change

in a limited time. This should be borne in mind if the report is used after a protracted delay.

There is always some disparity in subsurface conditions across a site that cannot be fully defined by

investigation. Hence it is unlikely that measurements and values obtained from sampling and testing during

environmental works carried out at a site will characterise the extremes of conditions that exist within the

site. All laboratory results should be checked by the client and receiver to ensure that the results of testing

meet the site-specific requirements and Geoteknix Solutions Group does not take any responsibility for

incorrect interpretation of results.

There is no investigation that is thorough enough to preclude the presence of material that presently or in

the future, may be considered hazardous at the site. Since regulatory criteria are constantly changing,

concentrations of contaminants presently considered low may, in the future, fall under different regulatory

standards that require remediation.

Opinions are judgements, which are based on our understanding and interpretation of current regulatory

standards/ guidelines and should not be construed as legal opinions.

Where relevant soils that are to be excavated below the identified investigation levels (stockpile) have not

being visually assessed and while it is not likely contamination (other than what has been found in this

report) will be discovered based on the site history and sample test results, excavations and/or removal of

soils should proceed with care below this depth and further assessment should be undertaken immediately

if indicators of contamination are identified.

Soils classified as Virgin Excavated Natural Material (VENM) are not classed as a scheduled activity and can

be applied to land as per accordance with schedule 1, section 39(2)(e) of the POEO Act 1997; assuming

compliance with all other legislation that may require a Development Application or the permission of the

landowner.

This report and associated documentation and the information herein have been prepared solely for the

use of "above named client" and any reliance assumed by third parties on this report shall be at such

parties' own risk. Any ensuing liability resulting from use of the report by third parties cannot be

transferred to Geoteknix Solutions Group Pty Ltd, directors, employees, sub-contractors/ consultants.

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11.0 References

- Australian Standards (1999) AS 1141.0–1999: Methods for Sampling and Testing Aggregates.
- Australian Standard 1141.3.1- 2012 Methods for sampling and testing aggregates – Sampling – Aggregates
- Australian Standards (2005) AS 4482.1-2005 Guide to the sampling and investigation of potentially contaminated soil, non-volatile and semi-volatile compounds.
- NSW DECC "Waste Classification Guidelines, Part 1: Classifying Waste" (2014).
 Department of Environment and Climate Change NSW, Sydney
- NSW EPA (1995) "Sampling Design Guidelines".
- Addendum to the Waste Classification Guidelines (2014) Part 1: classifying waste Table 2, October 2016 published by the Environment Protection Authority NSW for PFAS.
- Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014: The excavated natural material order 2014.
- ADE Consulting Group, Fill Management Protocol, Nepean Business
 Park, Penrith NSW, STC-1599-16207 | FMP | v3.f | 19 May 2021
- Compliance Health & Environmental Consulting (CHEC), Fill Importation Management Plan, The Yards, Mamre Road, Kemps Creek, Doc CH1206_D9498, April 2021

SITE PHOTOS

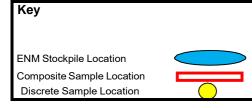












GEO-TEKNIX SOLUTIONS
Geotechnical & Environmental Testing

drawn SG	Sampling Plan/ ENM Stockpile SP9 Location
FIGURE 1 Scale: NTS	CivilTrak Sydney P/L
Job # E873	1A Settlers Road, Wisemans Ferry NSW

APPENDIX A- LABORATORY TEST RESULTS



Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au

www.envirolab.com.au

CERTIFICATE OF ANALYSIS 341856

Client Details	
Client	Geoteknix solutions group Pty Ltd
Attention	Samer Ghanem
Address	Unit 3 / 112 Fairfield St, FAIRFIELD EAST, NSW, 2165

Sample Details	
Your Reference	E873 - EMM Classification, Wisemans Ferry
Number of Samples	10 Soil
Date samples received	01/05/2024
Date completed instructions received	01/05/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details					
Date results requested by	01/05/2024				
Date of Issue	01/05/2024				
NATA Accreditation Number 2901. This document shall not be reproduced except in full.					
Accredited for compliance with ISO	D/IEC 17025 - Testing. Tests not covered by NATA are denoted with *				

Asbestos Approved By

Analysed by Asbestos Approved Analyst: Lucy Zhu Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Diego Bigolin, Inorganics Supervisor Loren Bardwell, Development Chemist Lucy Zhu, Asbestos Supervisor Tim Toll, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager



vTRH(C6-C10)/BTEXN in Soil						
Our Reference		341856-2	341856-4	341856-6	341856-8	341856-10
Your Reference	UNITS	EN1A	EN2A	EN3A	EN4A	EN5A
Date Sampled		01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Date analysed	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	87	88	87	100

svTRH (C10-C40) in Soil						
Our Reference		341856-2	341856-4	341856-6	341856-8	341856-10
Your Reference	UNITS	EN1A	EN2A	EN3A	EN4A	EN5A
Date Sampled		01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Date analysed	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	72	72	72	71	75

PAHs in Soil						
Our Reference		341856-2	341856-4	341856-6	341856-8	341856-10
Your Reference	UNITS	EN1A	EN2A	EN3A	EN4A	EN5A
Date Sampled		01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Date analysed	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	100	105	101	101	102

Acid Extractable metals in soil						
Our Reference		341856-1	341856-3	341856-5	341856-7	341856-9
Your Reference	UNITS	EN1	EN2	EN3	EN4	EN5
Date Sampled		01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Date analysed	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	6	7	6	6
Copper	mg/kg	3	6	5	7	4
Lead	mg/kg	14	16	11	11	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	4	5	3	4
Zinc	mg/kg	27	27	25	21	21

Misc Inorg - Soil						
Our Reference		341856-1	341856-3	341856-5	341856-7	341856-9
Your Reference	UNITS	EN1	EN2	EN3	EN4	EN5
Date Sampled		01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Date analysed	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
pH 1:5 soil:water	pH Units	5.6	5.0	5.2	5.2	5.3
Electrical Conductivity 1:5 soil:water	μS/cm	50	69	50	59	55

Moisture						
Our Reference		341856-1	341856-2	341856-3	341856-4	341856-5
Your Reference	UNITS	EN1	EN1A	EN2	EN2A	EN3
Date Sampled		01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Date analysed	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Moisture	%	11	8.4	9.5	8.4	12

Moisture						
Our Reference		341856-6	341856-7	341856-8	341856-9	341856-10
Your Reference	UNITS	EN3A	EN4	EN4A	EN5	EN5A
Date Sampled		01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Date analysed	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Moisture	%	9.0	9.5	11	9.2	11

Asbestos ID - soils						
Our Reference		341856-1	341856-3	341856-5	341856-7	341856-9
Your Reference	UNITS	EN1	EN2	EN3	EN4	EN5
Date Sampled		01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024
Sample mass tested	g	Approx. 35g	Approx. 30g	Approx. 45g	Approx. 50g	Approx. 30g
Sample Description	-	Brown coarse- grained soil & rocks				
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected				

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
	F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
	Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <pql "total="" 'eq="" +ve="" 2.="" 3.="" <pql="" a="" above.="" actually="" all="" and="" approach="" approaches="" are="" as="" assuming="" at="" be="" below="" between="" but="" calculation="" can="" conservative="" contribute="" contributing="" false="" give="" given="" half="" hence="" individual="" is="" least="" lowest="" may="" mid-point="" more="" most="" negative="" not="" note,="" of="" of<="" pahs="" pahs"="" positive="" pql="" pql'values="" pql.="" present="" present.="" reflective="" reported="" simply="" stipulated="" sum="" susceptible="" teq="" teqs="" th="" that="" the="" therefore="" this="" to="" total="" when="" zero'values="" zero.=""></pql>
	the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.

Envirolab Reference: 341856

Revision No: R00

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Envirolab Reference: 341856
Revision No: R00

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QUALITY CON	TROL: vTRH	(C6-C10)	/BTEXN in Soil			Du	plicate		Spike Red	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			01/05/2024	[NT]		[NT]	[NT]	01/05/2024	
Date analysed	-			01/05/2024	[NT]		[NT]	[NT]	01/05/2024	
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	[NT]		[NT]	[NT]	85	
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	[NT]		[NT]	[NT]	85	
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]		[NT]	[NT]	91	
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]		[NT]	[NT]	84	
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]		[NT]	[NT]	85	
m+p-xylene	mg/kg	2	Org-023	<2	[NT]		[NT]	[NT]	83	
o-Xylene	mg/kg	1	Org-023	<1	[NT]		[NT]	[NT]	84	
Naphthalene	mg/kg	1	Org-023	<1	[NT]		[NT]	[NT]	[NT]	
Surrogate aaa-Trifluorotoluene	%		Org-023	80	[NT]		[NT]	[NT]	86	

QUALITY CO	QUALITY CONTROL: svTRH (C10-C40) in Soil								Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	[NT]	
Date extracted	-			01/05/2024	[NT]	[NT]		[NT]	01/05/2024		
Date analysed	-			01/05/2024	[NT]	[NT]		[NT]	01/05/2024		
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	[NT]	[NT]		[NT]	130		
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	[NT]	[NT]		[NT]	123		
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	[NT]	[NT]		[NT]	137		
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	[NT]	[NT]		[NT]	130		
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	[NT]	[NT]		[NT]	123		
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	[NT]	[NT]		[NT]	137		
Surrogate o-Terphenyl	%		Org-020	94	[NT]	[NT]		[NT]	116		

QUA	LITY CONTRO	L: PAHs	in Soil			Du	plicate		Spike Rec	overy %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	[NT]
Date extracted	-			01/05/2024	[NT]			[NT]	01/05/2024	
Date analysed	-			01/05/2024	[NT]			[NT]	01/05/2024	
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	88	
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	[NT]	
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	87	
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	87	
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	88	
Anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	[NT]	
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	88	
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	89	
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	[NT]	
Chrysene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	90	
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	[NT]			[NT]	[NT]	
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	[NT]			[NT]	87	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	[NT]	
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	[NT]	
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	[NT]			[NT]	[NT]	
Surrogate p-Terphenyl-d14	%		Org-022/025	123	[NT]			[NT]	108	

QUALITY CONT	QUALITY CONTROL: Acid Extractable metals in soil								Duplicate Spike Reco				
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	[NT]			
Date prepared	-			01/05/2024	[NT]	[NT]		[NT]	01/05/2024				
Date analysed	-			01/05/2024	[NT]	[NT]		[NT]	01/05/2024				
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]		[NT]	102				
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]		[NT]	98				
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]		[NT]	106				
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]		[NT]	102				
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]		[NT]	119				
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]		[NT]	106				
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]		[NT]	101				
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]		[NT]	108				

QUALITY	CONTROL	: Misc Ino	rg - Soil		Duplicate Spike Re					covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	[NT]
Date prepared	-			01/05/2024	1	01/05/2024	01/05/2024		01/05/2024	
Date analysed	-			01/05/2024	1	01/05/2024	01/05/2024		01/05/2024	
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	1	5.6	5.6	0	101	
Electrical Conductivity 1:5 soil:water	μS/cm	1	Inorg-002	<1	1	45	45	0	100	[NT]

Result Definiti	ons
NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

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Quality Control	ol Definitions
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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Report Comments

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to ASB-001 asbestos subsampling procedure. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab/MPL recommends supplying 40-60g or 500ml of sample in its own container.

Note: Samples 341856-1, 3, 5, 7, 9 were sub-sampled from jars provided by the client.

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FOREIGN MATERIALS CONTENT TEST REPORT

METHOD RMS: T276

		WILLING KIV	.5. 1275	•	•	•					
Client:		Civ	viltrak Syndey	P/L							
Project :	Materials Testing for ENM										
Location:	1A Settlers Road, Wisemans Ferry NSW										
Project No.	E873										
Date Reported:	01/05/2024										
Report No.	E873/1										
TEST METHOD		RMS T276									
Sam	nple Number	EN1	EN2	EN3	EN4	EN5					
Da	ite Sampled	01/05/2024	01/05/2024	01/05/2024	01/05/2024	01/05/2024					
Sample	Location / Source	SP9	SP9	SP9	SP9	SP9					
	rial Description	Clayey Gravelly Sand/ Sandstone	Clayey Gravelly Sand/ Sandstone	Clayey Gravelly Sand/ Sandstone	Clayey Gravelly Sand/ Sandstone	Clayey Gravelly Sand/ Sandstone					
Foreig	n Material Type		Percei	ntage Retaine	ed (%)						
Metal, Glass, Asp	/PE 1 whalt,Stone, Ceramics and man blast furnace slag)	N/A	N/A	N/A	N/A	N/A					
Plaster, Clay lu	(PE 2 umps and other Friable Material	N/A	N/A	N/A	N/A	N/A					
Rubber, Plastic, Bitu	(PE 3 men, Paper, Cloth, Paint, Wood er Vegetable Matter	0.0	0.0	0.0	0.0	0.0					
NOTES:	WORLD RECOGNISED	dited for complia 17025- Tes ccreditation N	sting	Approved Signa Samer Ghane Date: 01/05/2024 Sign:	em						

Date Revised: 27/01/2017



Beyond Compliance

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