Newman Quarrying Pty Ltd

Quarry Expansion at Lot 2 DP 1055044, Tullymorgan-Jackybulbin Road, Mororo

Soil and Water Management Plan

December 2022

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1. Introduction

This Soil and Water Management Plan (SWMP) forms part of the Environmental Management Strategy (EMS) for Sly's Quarry located at Lot 2 DP 1055044, Tullymorgan – Jackbulbin Road, Mororo. This SWMP has been prepared to meet the requirements of the Ministers Conditions of Approval (CoA) outlined in Development Consent SSD 6624, the mitigation measures outlined in the Environmental Impact Statement (EIS) for Sly's Quarry and all relevant legislation.

1.1 Objectives

The key objective of the SWMP is to ensure that impacts on soil and water quality during operations are minimised and within the scope permitted by the development consent.

1.2 Targets

The following targets have been established for the management of soil and water impacts during the operational lifetime of Sly's Quarry:

- Ensure full compliance with the relevant legislative requirements and CoA.
- Meet Environment Protection Licence (EPL) water quality discharge parameters for all planned discharges.
- Ensure training on soil and water management is provided to all relevant personnel through site inductions.

1.3 Consultation

Extensive consultation was undertaken with the local community during preparation of the EIS. Any concerns identified by relevant stakeholders were addressed in the EIS and mitigation measures developed which have been incorporated into this SWMP. As per CoA 20(b), Schedule 3, the Environment Protection Authority (EPA) and Department of Primary Industries – Water (DPI Water) were consulted in relation to the SWMP. Evidence of the consultation is provided in Appendix A.

2. Relevant legislation

2.1 Legislation

Legislation relevant to soil and water management includes:

- Protection of the Environment Operations Act 1997 (POEO Act)
- Water Management Act 2000 (WM Act)
- Fisheries Management Act 1994 (FM Act)
- Water Act 1912 (Water Act)

Further discussion of the above legislation is covered in Section 3 of the EMS, as well as the EIS.

2.2 Guidelines

The following guidelines have been consulted during development of this SWMP:

- Landcom (Blue Book) (2004) Soils and Construction, Managing Urban Stormwater, Volume 2E Mines and Quarries, 4th Edition

2.3 Conditions of approval

The CoA relevant to this SWMP are listed below in Table 2-1. A cross reference is also included to indicate where the condition is addressed in this SWMP or other environmental management documents.

Table 2-1 Conditions of approval relevant to this SWMP

Condition No.	Requirement	Reference
Schedule 3, Condition 18	The Applicant must ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of operations under the consent to match its available water supply, to the satisfaction of the Secretary.	Table 4-1
Schedule 3, Condition 19	The Applicant must comply with the discharge limits in any EPL, or with section 120 of the POEO Act.	Table 4-1
Schedule 3, Condition 20	The Applicant must prepare a Soil and Water Management Plan for the development to the satisfaction of the Secretary. This plan must:	This plan
	(a) be prepared by suitably qualified and experienced person/s approved by the Secretary;	Appendix A
	(b) be prepared in consultation with the EPA and DPI Water;	Appendix A
	(c) be submitted to the Secretary for approval within 6 months of the date of this consent, unless otherwise agreed by the Secretary; and	Noted
	(d) include the EPA's requirements as set out in Appendix 5;	Refer below
		Section 3.2

Condition No.	Requirement	Reference
	(e) include a: (i) Site Water Balance that includes: • details of: – sources and security of water supply; – water use and management on site; – any off-site water transfers; and – reporting procedures; and • measures that would be implemented to minimise clean water use on site;	Section 4
	(ii) Surface Water Management Plan, that includes: • a program for obtaining detailed baseline data on surface water flows and quality in water	Section 5
	• bodies that could potentially be affected by the development;	Section 3.1.2 Section 4 and Appendix B
	• a detailed description of the surface water management system on site including the: – clean water diversion system; – erosion and sediment controls; – dirty water management system; – water storages; and – mitigation measures outlined in the EIS; and	
	• a program to monitor and report on: – any surface water discharges; – the effectiveness of the water management system, – the quality of water discharged from the site to the environment; – surface water flows and quality in local watercourses;	Section 5
	(iii) Groundwater Management Plan that includes: • a provision that requires the Applicant to obtain appropriate water licence(s) to cover the volume of any unforeseen groundwater inflows into the quarry from the quarry face or floor; and	Section 4
	• a monitoring program to manage potential impacts, if any, on the alluvium and associated surface water source near the proposed extraction area that includes: – a minimum of three monitoring bores with automatic water level recording instrumentation or other method agreed with DPI-Water; – identification of a methodology for determining threshold water level criteria; – contingency measures in the event of a breach of thresholds; and – a program to regularly report on monitoring.	Section 5

Condition No.	Requirement	Reference
Schedule 3, Condition 21	The Applicant must implement the approved Soil and Water Management Plan as approved from time to time by the Secretary.	NQ is committed to implementing the WMP
Schedule 5, Condition 3	The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
	(a) detailed baseline data;	Section 3
	(b) a description of: • the relevant statutory requirements (including any relevant approval, licence or lease conditions); • any relevant limits or performance measures/criteria; and • 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;	Section 2 Section 5 Section 5
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 4
	(d) a program to monitor and report on the: • impacts and environmental performance of the development; and • effectiveness of any management measures (see (c) above);	Section 5.1
	(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 5.2
	(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 6
	(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	Section 5.3
	(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.*	Section 6

Condition No.	Requirement	Reference
Schedule 5, Condition 4	**Revision of Strategies, Plans and Programs** Within 3 months of the submission of an: a) Annual Review under condition 9 below; b) incident report under condition 7 below; c) audit report under condition 10 below; and d) any modifications to this consent, the Applicant must review 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 the revised document must be submitted for the approval of the Secretary.	Section 6
Schedule 5, Condition 5	To ensure that strategies, plans or programs required under this consent are updated on a regular basis, and that they incorporate any appropriate additional measures to improve the environmental performance of the development, the Applicant may at any time submit revised strategies, plans or programs for the approval of the Secretary. With the agreement of the Secretary, the Applicant may also submit any strategy, plan or program required by this consent on a staged basis. The Secretary may approve a revised strategy, plan or program required under this consent, or the staged submission of any of these documents, at any time. With the agreement of the Secretary, the Applicant may prepare a revision of or a stage of a strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this consent. While any strategy, plan or program may be submitted on a staged basis, the Applicant will need to ensure that the operations associated with the development are covered by suitable strategies, plans or programs at all times. If the submission of any strategy, plan or program is to be staged; then the relevant strategy, plan or program must clearly describe the specific stage/s of the development to which the strategy, plan or program applies; the relationship of this stage/s to any future stages; and the trigger for updating the strategy, plan or program. Notes: While any strategy, plan or program may be submitted on a staged basis, the Applicant will need to ensure that the operations associated with the development are covered by suitable strategies, plans or programs at all times. If the submission of any strategy, plan or program is to be staged; then the relevant strategy, plan or program must clearly describe the specific stage/s of the development to which the strategy, plan or program applies; the relationship of this stage/s to any future stages;	Section 6

Condition No.	Requirement	Reference
	and the trigger for updating the strategy, plan or program.	
Schedule 5, Condition 6	**Adaptive Management** The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedule 3. 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 reoccur;	Section 4
	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;	Table 5-2
	c) within 14 days of the exceedance occurring, submit a report to the Secretary describing these remediation options and any preferred remediation measures or other course of action; and	Section 5.3
	d) implement remediation measures as directed by the Secretary; to the satisfaction of the Secretary.	Section 5.2
Schedule 5, Condition 8	The Applicant must immediately notify the Secretary (using the contact name, email address and phone number provided by the Department from time to time) and any other relevant agencies of any incident.	Section 5.3
Schedule 5, Condition 8A	Within 7 days of the date of the incident, the Applicant must provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested. This report must include the time and date of the incident, details of the incident, measures implemented to prevent re-occurrence and must identify and non-compliance with this consent	Section 5.3
Schedule 5, Condition 9	The Applicant must 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.	Section 5.3
Schedule 5, Condition 10	By the end of September each year, or other timing as may be agreed by the Secretary, the Applicant must review the environmental performance of the development to the satisfaction of the Secretary. This review must:	Section 5.3

Condition No.	Requirement	Reference
	a) describe the development (including any rehabilitation) that was carried out in the previous financial year, and the development that is proposed to be carried out over the current financial year;	Section 5.3
	b) include a comprehensive review of the monitoring results and complaints records of the development over the previous financial year, which includes a comparison of these results against the: • relevant statutory requirements, limits or performance measures/criteria; • requirements of any plan or program required under this consent; • monitoring results of previous years; and relevant predictions in the documents listed in condition 2(a) of Schedule 2;	Section 5.3
	c) identify any non-compliance over the past financial year, and describe what actions were (or are being) taken to ensure compliance;	Section 5.3
	d) identify any trends in the monitoring data over the life of the development;	Section 5.3
	e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and	Section 5.3
	f) describe what measures will be implemented over the current financial year to improve the environmental performance of the development.	Section 5.3
Schedule 5, Condition 13	Within 6 months of the date of this consent, the Applicant must:	Section 6.2
	a) make the following information publicly available on its website: • the documents listed in condition 2(a) of Schedule 2; • current statutory approvals for the development; • all 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, updated monthly; • the annual reviews of the development; • any independent environmental audit, and the Applicant's response to the recommendations in any audit; and any other matter required by the Secretary; and	
	b) keep this information up-to-date, to the satisfaction of the Secretary.	

Condition No.	Requirement	Reference
Appendix 5	The Soil and Water Management Plan required under condition 20 of Schedule 3 must: a) describe stormwater management measures to control pollutants at the source and contain them within the site;	Section 4
	b) describe erosion and sediment control measures to minimise disturbance of land, minimise water flow through the site and filter, trap or detain sediment;	Section 4
	c) describe measures to maintain and monitor any stormwater controls;	Section 5
	d) describe methods of storage of topsoil and associated erosion and sediment control measures;	Section 4
	e) describe waste water treatment measures, including systems for the reuse and/or recycling of waste water and measures for treating the unavoidable discharges from the site to meet specific water quality requirements;	Section 3.2 Section 4
	f) describe the size and location of sediment basins for each stage of the quarry development in accordance with the sizing requirements of the *Managing Urban Stormwater Soils and Construction:* *Volume 1 and 2E* guidelines based on a minimum standard of 90th percentile five-day rainfall event (75 mm); and	Appendix A
	g) include a water balance to ensure the design of the volume of sediment basins required for stormwater capture and treatment is not compromised by water storage required for re-use purposes. Such dual purpose basins must be designed and managed to accommodate both stormwater management and water re-use objectives.	Section 3.2

2.4 Environment Protection Licence

The quarry has obtained an Environmental Protection Licence (EPL) (11649). The EPL conditions relevant to this SWMP are listed in Table 2-2. A cross reference is also included to indicate where the condition is addressed in this SWMP or other environmental management documents.

Table 2-2 EPL conditions relevant to the SWMP

Condition No.	Requirement	Reference
P1.2	The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point. *Water and land* EPA Identification no. / Type of Monitoring Point / Type of Discharge Point / Location Description 1 / Sediment Basin Discharge / Sediment Basin Discharge / Discharge from final sediment basin located at 518323E and 6757911N.	Figure 5-2
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.	Noted

<table>
<tr><th>Condition No.</th><th>Requirement</th><th>Reference</th></tr>
<tr><td>L1.2</td><td>The licensee must take all practical measures to avoid or minimise oil and grease, TSS etc. contained in wet weather discharges.</td><td>Section 4</td></tr>
<tr><td>L2.1</td><td>For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.</td><td>Table 5-1</td></tr>
<tr><td>L2.2</td><td>Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.</td><td>Table 5-1</td></tr>
<tr><td>L2.3</td><td>To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\s.</td><td>Table 5-1</td></tr>
<tr><td>L2.4</td><td>Water and/or Land Concentration Limits
POINT 1
<table><tr><th>Pollutant</th><th>Units of Measure</th><th>50 percentileconcentrationlimit</th><th>90 percentileconcentrationlimit</th><th>3DGM concentrationlimit</th><th>100 percentile concentration limit</th></tr><tr><td>Oil and Grease</td><td>Visible</td><td></td><td></td><td></td><td>Nil Visible</td></tr><tr><td>pH</td><td>pH</td><td></td><td></td><td></td><td>6.5-8.5</td></tr><tr><td>Total suspended solids</td><td>milligrams per litre</td><td></td><td></td><td></td><td>50</td></tr></table></td><td>Table 5-1</td></tr>
<tr><td>L2.5</td><td>The concentration limits in the above table do not apply to any discharge from the final sediment basin arising from rainfall exceeding 75 mm in total falling over any consecutive five day period.</td><td>Table 5-1</td></tr>
<tr><td>L2.6</td><td>Turbidity v's Total Suspended Solids</td><td>NA</td></tr>
<tr><td>L2.7</td><td>If the licensee uses turbidity (NTU) in place of total suspended solids (TSS) to determine compliance with Condition L2.4, the licensee must first develop a statistical correlation which identifies the relationship between NTU and TSS for water quality in the sediment basins. The licensee must develop and implement a method to enable the ongoing verification of the relationship between NTU and TSS.</td><td>NA</td></tr>
<tr><td>L2.8</td><td>The licensee must provide the EPA with a copy of the statistical correlation assessment methodology and results before using NTU in place of TSS.</td><td>NA</td></tr>
<tr><td>L2.9</td><td>The licensee must develop and implement a method to enable the ongoing verification of the relationship between NTU and TSS.</td><td>NA</td></tr>
<tr><td>L2.10</td><td>The licensee must provide the EPA with any amendments the licensee makes to the statistical correlation as a result of the ongoing verification required by Condition L2.7 before using the revised statistical correlation.</td><td>NA</td></tr>
<tr><td>L2.11</td><td>Controlled discharges from any sediment basins must not exceed a 100th percentile limit for Total Suspended Solids concentration of 50 mg/L. All discharges are to fall within the pH range of between 6.5 and 8.5. There is to be no visible oils and greases in any controlled discharges from sediment basins.</td><td>NA</td></tr>
<tr><td>O4.1</td><td>Emergency Response:
Note: The licensee must maintain, and implement as necessary, a current Pollution Incident Response Management Plan (PIRMP) for the premises. Details of the requirements can be found on the EPA website via the following link http://www.epa.nsw.gov.au/legislation/poefaqspirmps.htm</td><td>Section 5.3.2</td></tr>
</table>

Condition No.	Requirement	Reference
O5.1	Soil and Water Management	
O5.2	The sites sediment basin/s must be maintained and operated to ensure that: a) All runoff from a 5 – day rainfall event up to 75 mm (the 90th percentile 5 day rain event) is captured. b) Any discharge from the sediment basin that occurs as a result of rainfall below the 5-day total of 75mm must meet the limit conditions specified in condition L2.4.	Table 5-1
O5.3	Sediment basins shall be treated, if required, to reduce the Total Suspended Solids level to the licensed concentration limit of 50 mg/L before being released to the environment. Treatment can be with gypsum or any other material that has been approved by the EPA.	Table 5-1
O5.4	The licensee must maximise the diversion of run-on waters from lands upslope and around the site whilst land disturbance activities are being undertaken.	Appendix B
O5.5	The licensee must maximise the diversion of stormwater runoff containing suspended solids to sediment basins installed on the premises.	Table 5-1
O5.6	Where sediment basins are necessary, all sediment basins and associated drainage must be installed and commissioned prior to the commencement of any clearing or grubbing works within the catchment area of the sediment basin that may cause sediment to leave the site.	Table 5-1
O5.7	The licensee must ensure the design storage capacity of the sediment basins installed on the premises is reinstated within 5 days of the cessation of a rainfall event that causes runoff to occur on or from the premises.	Table 5-1
O5.8	The applicant must ensure that sampling point(s) for water discharged from the sediment basin(s) are provided and maintained in an appropriate condition to permit: a) the clear identification of each sediment basin and discharge point; b) the collection of representative samples of the water discharged from the sediment basin(s); and c) access to sampling point(s) at all times by an authorised officer of the EPA.	Table 5-1
O5.10	Each sedimentation basin must have a marker (the “sedimentation basin marker”) that identifies the upper level of the sediment storage zone.	Table 5-1
O5.11	Whenever the level of liquid and other material in any sedimentation basin exceeds the level indicated by the sedimentation basin marker, the licensee must take all practical measures as soon as possible to reduce the level of liquid and other material in the sedimentation basin.	Table 5-1
O5.12	The licensee must endeavour to maximise the reuse of captured stormwater on the premises.	Section 3.2
M1.1	M1 Monitoring Records 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.	

Condition No.	Requirement	Reference
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.	Section 5.3
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.	Section 5.3
M2.1	M2 Requirement to monitor concentration of pollutants discharged For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:	Table 5-1
M2.2	Water and/ or Land Monitoring Requirements (see Table M2.2 Point 1)	Table 5-1
M2.3	Special Frequency 1 means sampling once <24 hours prior to actively emptying the ponds and during each discharge event arising from rainfall less than 75 mm falling in total over a period of up to five days duration.	Table 5-1
M3.1	Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.	Table 5-1
M4.1	M4 Environmental monitoring The licensee is required to install and maintain a rainfall depth measuring device.	Table 5-1
M4.2	Rainfall at the premises must be measured and recorded in millimetres per 24 hour period, at the same time each day. Note: The rainfall monitoring data collected in compliance with Condition M4.2 can be used to determine compliance with L2.5.	Section 5.3.1
M5.1	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.	Section 5.3.1
M5.2	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.	Section 5.3.1

Condition No.	Requirement	Reference
M5.3	The record of a complaint must be kept for at least 4 years after the complaint was made.	Section 5.3.1
M5.4	The record must be produced to any authorised officer of the EPA who asks to see them.	Section 5.3.1
M6.1	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.	Section 5.3.1
M6.2	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.	Section 5.3.1
M6.3	The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.	Section 5.3.1
R2.1	R2 Notification of environmental harm Notifications must be made by telephoning the Environment Line service on 131 555.	Section 5.3.2
R2.2	The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred. 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.	Section 5.3.2
R3.1	R3 Written report 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.	Section 5.3.2
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.	Section 5.3.2
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	Section 5.3.2

Condition No.	Requirement	Reference
	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 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.	Section 5.3.2
E1.1	E1 Soil and Water Management A Soil and Water Management Plan (SWMP) must be developed which outlines all management and mitigation measures relating to stormwater management, erosion and sediment control. This must be prepared in accordance with Managing Urban Stormwater Soils and Construction Volume 1 and Volume 2 E. Mines and quarries. The Soil and Water Management Plan must:	
	• outline of stormwater management measures to control pollutants at the source and contain them within the site.	Section 4 and Appendix B
	• outline of erosion and sediment control measures to minimise disturbance of land, minimising water flow through the site and filtering, trapping or detaining sediment.	Section 4 and Appendix B
	• describe measures for maintaining and monitoring any stormwater controls.	Section 5
	• provide details of method of storage of topsoil and associated erosion and sediment control	Table 4-1
	• describe waste water treatment measures; systems for reusing/recycling waste water; and methods of treating any unavoidable discharge from the site to meet specified water quality requirements.	Table 4-1 and Appendix C
	• describe the size and location of the sediment basins for each stage of the development of the quarry. The sediment basins must meet the design and operational standards of Managing Urban Stormwater Soils and Construction: Volume 1 and Volume 2 E. Mines and quarries. This document requires a minimum standard of 90 percentile five-day rainfall event (75 mm) to be used to determine basin sizing for quarries.	Appendix B
	• If sediment basins are proposed to be used as water storage for re-use purposes on site (e.g. for dust suppression, process water, etc) a water balance must be conducted to ensure that the design volume of the basin required for stormwater capture and treatment is not compromised by water storage required for re-use purposes. Such dual purpose basins need to be accurately designed and managed to accommodate both stormwater management and water re-use objectives.	Section 3.2
	• Detail a progressive rehabilitation plan for the quarry, including the exhausted quarry areas “B” and “C”.	Table 4-1
	• The SWMP is to be submitted to the EPA by 31 August 2016.	Noted

3. Existing environment and impacts

The following sections summarise the existing environment, based upon the information provided in Section 6.5.1 of the EIS.

3.1 Existing environment

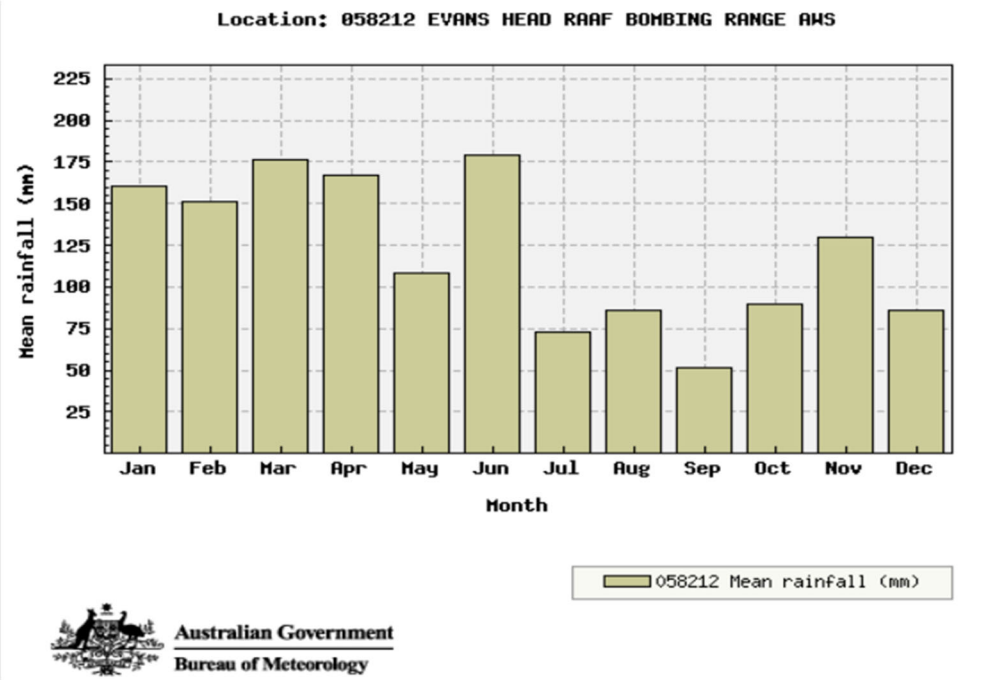
3.1.1 Climate

The region is considered to be sub-tropical with warm, wet summers and dry, mild winters.

Using the Evans Head RAAF Bombing Range Weather Station (BOM 058212) as a reference, mean summer temperatures range from a maximum of approximately 29°C and a minimum of approximately 20°C. Mean winter temperatures range from a maximum of approximately 20°C and a minimum of approximately 10°C. The mean annual rainfall is 1472 mm, and Table 3-1 below lists typical rainfall data. Rainfall falls relatively evenly for the first four calendar months, with March having the highest mean monthly rainfall of 171 mm. Rainfall then eases during May to September (with exception of June) before slowly increasing again from October onwards. Evaporation at the site is estimated at 730 mm per annum.

Table 3-1 Typical rainfall data (after BOM 058212)

Description	Rainfall (mm)
Average	1464.8
Typical dry rainfall year (2002)	903.8
Typical wet rainfall year (1999)	2080.2
Typical average rainfall year (2012)	1554.0



3.1.2 Soil

The area surrounding the quarry is undulating with an elevation ranging from approximately 40 m Australian Height Datum (AHD) (near Tullymorgan-Jackybulbin Road) to approximately 229 m AHD at the peak of Mount Doubleduke outside the northern boundary of the quarry site.

The geology of the area is 'Kangaroo Creek' sandstone formations. The area generally has poor soils of sandy composition, mostly derived from the underlying sandstone. In lower-lying areas soils may be derived from stream deposition.

Clarence Valley Council (CVC) mapping indicates the site does not contain acid sulfate soils.

3.1.3 Surface water

The site is located within the Clarence River catchment with unnamed ephemeral drainage lines flowing in a southwest direction to Tabbimoble Creek. Tabbimoble Creek drains via the Bundjalung National Park marshes to the Clarence River near Iluka. A State Environmental Planning Policy (SEPP) 14 Coastal Wetland No. 153a is located on Tabbimoble Creek, about 1 km to the east of the Pacific Highway. The Woolgoolga to Ballina Pacific Highway Upgrade EIS (Roads and Maritime, 2014) determined that Tabbimoble Creek is key fish habitat with the potential for threatened species habitat, although it has not been mapped as such or found (through field survey) to contain Oxleyan Pygmy Perch.

For the existing quarry:

- The ephemeral drainage lines in the vicinity of the site are diverted around the works area and bypass the site sediment basins, discharging to Tabbimoble Creek under Tullymorgan-Jackybulbin Road.
- Surface water from within the works area, the pit floor and stockpiled areas is directed to an initial sediment pond (approx. 2.4 ML), which overflows to the main sediment basin.
- Surface waters from the site office, weighbridges, wash plant and other outbuildings along the site is directed to three smaller sediment basins (total approx. 0.55 ML). These basins also overflow to the main sediment basin.
- The main sediment basin (7 m deep, appox.12.6 ML) is the primary discharge point from the site.

Limited water quality information is available, however Roads and Maritime (2014) notes that existing data indicates that the majority of the waterways in the area have a history of water quality problems, with conditions commonly found to be below the standards required for protection of aquatic ecosystems. The occurrence of poor water quality can be attributed to a number of factors, including modification of channel structure, macrophyte and weed growth, soil erosion, acid sulfate soils and nutrient enrichment as a result of runoff from agricultural land. Samples taken from Tabbimoble Creek in 2009 failed to meet the ANZECC guidelines for electrical conductivity and dissolved oxygen (RMS 2014). Furthermore, Tabbimoble Creek was found to have high concentrations of aluminium, which could be a result of aluminium leaching from soils due to the effects of acid sulfate soils.

3.1.4 Groundwater

The primary aquifers in the vicinity of the site are the Quaternary alluvial/colluvial groundwater source and the porous and fractured rock groundwater source.

The alluvial/colluvial groundwater source in the site forms a shallow, unconfined aquifer with reported thickness up to 17 metres to the east of the site.

Bores located to the east of the site within the alluvial groundwater source indicate that depth to groundwater is in the order of 2 metres below ground level (bgl). This suggests the groundwater elevation in the alluvial aquifer is approximately 23 m AHD. These bores are located down gradient of the site and therefore alluvial/colluvial groundwater would be anticipated to be slightly higher in the vicinity of the site. Porous and fractured rock aquifer underlies the alluvial/colluvial aquifer and outcrops across the site.

The level of extraction in the existing quarry pit has reached a level of 44 m AHD and the quarry has reportedly remained free from groundwater inflows. This indicates that the water table is below a level of 44 m AHD.

A search of the NSW Groundwater Bore Database was undertaken to identify registered bores within a 5 km radius of the site. The search identified six bores, with three bores being registered as domestic stock or stock, two bores registered as monitoring bores and one bore registered for oil exploration.

3.2 Site water balance

In order to assess the water quantity discharging from the site due to the proposed works, a MUSIC model was developed for the site. MUSIC node parameters were adopted from the Draft NSW MUSIC Modelling Guidelines in order to best represent the surface types and conditions present on the site.

For the purpose of this assessment, parameters adopted are based on the site being rural in nature, with the majority of surfaces best described as unsealed road and eroding gullies. The parameters adopted are shown in Table 3-2.

Table 3-2 Adopted MUSIC node parameters (Source Nodes >10 Ha)

Parameters	Value (Mean Annual Rainfall >1000 mm)
Impervious Area Parameters	
• Daily Rainfall Threshold Values (mm)	1.5
Pervious Area Parameters	
• Soil Storage Capacity (mm)	175
• Initial Storage (% of capacity)	30
• Field capacity (mm)	55
• Infiltration Capacity Coefficient – a	215
• Infiltration Capacity Coefficient – b	2.4
Groundwater Properties	
• Initial Depth (mm)	10
• Daily Recharge Rate (%)	55
• Daily Base Flow Rate (%)	10
• Daily Deep Seepage Rate (%)	0

Under existing conditions surface runoff from a natural catchment area (17.36 Ha) upstream of site is diverted around the quarry area and discharges into the downstream receiving waterway, bypassing the existing large sediment basin on site.

The proposed works will expand the quarry footprint to include some of these upstream areas which will become part of the operating quarry footprint. These areas will then discharge to the existing large sediment basin on site, instead of bypassing the basin. In order to mitigate the expected increase inflow from the proposed larger catchment under developed conditions, the existing large sediment basin is proposed to be expanded. The expansion would require doubling the existing basin volume in order to manage runoff volumes discharging from the site. Catchment characteristics are summarised below in Table 3-3.

To model the existing and proposed scenarios, both the existing and developed quarry footprints are assumed to have limited hardstand areas, however a portion of the quarry footprint is likely to be impervious exposed sandstone and therefore some impervious surfaces would be present within the quarry. The existing large sediment basin was included in the model for both scenarios, however in the proposed scenario the basin volume was doubled. The basin configuration details were based on findings from site inspections, details provided by existing quarry operators and the basin footprint area calculated from aerial imagery.

Table 3-3 Catchment characteristics

	Existing Scenario	Developed Scenario
Catchment Area (Ha)	12.73 (+17.36 Ha undeveloped)	30.08
Impervious Area (%)	15	15
Basin footprint (m^2)	2,700	5,700
Estimated Basin Capacity (m^3)	12,590	25,000
Basin Depth (m)	7	7
Basin outlet (diam.)	NA	NA
Basin weir length (m)	20	20

Where available, and of appropriate quality, the quarry operation will use recycled runoff for quarry activities. A site water balance was undertaken during preparation of the EIS, with estimated operational water requirements (amenities 300L/person/day, road/site dust control 750L/ha/day and crushers 1000L/hr) provided in Table 3-4. The extraction rates are based on an annual extraction of 500,000 t/year achieved under maximum production and average production over a full year. The latter requiring significantly more water for dust control over a longer time frame.

The results in Table 3-4 show that sufficient runoff would be generated from the quarry operational area to meet operational water requirements. In addition, surplus water captured in the settling basin on site will need to be discharged to remove excess runoff, so no offsite water transfers are required.

Table 3-4 Quarry operational site water balance

Extraction Rate	Runoff from proposed quarry operational area	Discharge from site	Water Demand
4000 t/day (maximum production i.e. 125 days operation)	136.16 ML/year (average year) 11.40 ML/year (dry year) 292.90 ML/year (wet year)	92.05 ML/year (average year) 0.65 ML/year (dry year) 248.23 ML/year (wet year)	4.05 ML/year
1500 t/day (production over a full year)			6.81 ML/year

4. Environmental control measures

Environmental requirements and control measures are identified in the Conditions of Approval and the EIS. All reasonable and feasible measures and requirements to address soil and water quality impacts are outlined in Table 4-1 below.

Table 4-1 Environmental control measures

Ref	Environmental Management Measure	Timing	Responsibility
Soil			
SW01	Extract the resource in stages to minimise the area of disturbance at any one time.	Operation	Quarry Manager
SW02	Remove soil and stockpile for use in the rehabilitation works. Place stockpiles in a cleared area at least 20 m from a drainage line. Install a diversion bund immediately upgradient and a sediment fence immediately downgradient Seed the stockpile with sterile grass cover to stabilise it.	Operation	Quarry Manager
SW03	Implement erosion and sediment controls in accordance with *Managing Urban Stormwater Soils and Construction – Volume 2e Mines and quarries* (Landcom, 2004) (Appendix B) to maximise the diversion of clean water and the capture and treatment of dirty water.	Construction Operation	Quarry Manager
SW04	Implement the rehabilitation plan – refer to the Biodiversity and Rehabilitation Management Plan.	Post-operation	Quarry Manager
Surface water			
SW05	Comply with all relevant EPL conditions relating to soil and water management.	Operation	Quarry Manager
SW06	Construct and maintain diversion bunds, as shown in Appendix B, to prevent clean water from entering the site.	Operation	Quarry Manager
SW07	Where available, and of appropriate quality, the quarry operation will recycle wastewater from the basin for quarry activities e.g. dust control, washing.	Operation	Quarry Manager
SW08	In the event that water is limited, the operations will be adjusted to match the available water supply. Actions could include: – Reducing or ceasing washing – Using a soil binder for dust control on haul roads	Operation	Quarry Manager
SW09	Prior to clearing the capacity of the existing sediment basin will be increased to accommodate the required volume, as outlined in Appendix B, depending on the Stage.	Construction	Quarry Manager
SW10	Designated, impervious bunded facilities will be provided for cleaning and/or maintenance of vehicles, plant or equipment. These facilities will be located at least 20 metres away from natural and built drainage lines.	Construction	Quarry Manager

Ref	Environmental Management Measure	Timing	Responsibility
SW11	All chemicals, fuels and oils stored at the premises must be contained within appropriately designed bunded areas that meet the following requirements: a) comply with any relevant Australian Standards for the liquids being stored b) have impervious flooring and walls c) have a minimum capacity of 110% of the volume of the largest container stored within the bund.	Construction Operation	Quarry Manager
SW12	Spill kits will be provided at all chemical storage facilities/compound sites and staff trained in their use.	Operation	Quarry Manager
SW13	Where refuelling on site is required, the following management practices will be implemented: – Refuelling will be undertaken on level ground, within the designated refuelling areas with appropriate bunding and/or absorbent material, at least 20 metres from drainage lines, waterways and/or environmentally sensitive areas. – Spill kits will be readily available and personnel trained in their use. – Hand tools will be refuelled within lined trays of site vehicles wherever possible. Any contaminated material will be disposed at an appropriately licensed facility and used spill kit materials replaced.	Operation	Quarry Manager
SW14	Regular checks of vehicles working at the quarry will be conducted to ensure that no oils or fuels are leaking.	Operation	Quarry Manager
SW15	A suitable meteorological station is to be installed in the vicinity of the site that complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline.	Operation	Quarry Manager
SW16	Mulch stockpiles will be constructed with an impervious perimeter bund at least 300 mm high, a sump capable of capturing 75 mm of rainfall and a stable outlet.	Operation	Quarry Manager
SW17	Install bollards or fencing to protect the waste oil storage tank inlet pipe.	Operation	Quarry Manager
Groundwater			
SW18	If the quarry intercepts groundwater, NRAR will be contacted to obtain the appropriate licence.	Operation	Quarry Manager
SW19	Install the three wells, shown on Figure 5-2, in accordance with *Minimum Construction Requirements for Water Bores in Australia* (NUDLC, 2011).	Pre Operation	Quarry Manager

5. Monitoring and reporting

5.1 Environmental inspections and monitoring

General environmental inspection requirements are detailed in Section 8 of the EMS. Inspections, monitoring and reporting specific to the management of soil and water that will be implemented during operation of the quarry are listed below in Table 5-1, along with who is responsible. Records of all monitoring shall be maintained.

Table 5-1 Typical erosion and sediment control monitoring program

Aspect	Frequency	Details	Responsibility
Weather	Daily	Weather forecasts will be monitored to inform quarry operations, for example: • If rain is forecast, sediment and erosion controls will be checked and maintained. • If dry weather and winds are forecast, dust controls will be implemented.	Quarry Manager
Rainfall	Daily	Rainfall at the premises must be measured and recorded in millimetres per 24 hour period, at the same time each day. The location of the rain gauge is shown on Figure 5-1.	Quarry Manager
Erosion and sediment controls	Weekly and following rain (>10 mm in 24hr)	Erosion and sediment controls, including any surface water discharges, are to be monitored and maintained, as required.	Quarry Manager
Baseline monitoring	Following rain (>10 mm in 24hr and at least once every quarter)	Baseline monitoring locations (WQ1 and WQ2) are shown on Figure 5-2. Water quality samples are to be collected and analysed for: • Oil and grease – Visible • pH • TSS	Quarry Manager
Basin monitoring	Within 24 hours of discharging either naturally or manually (i.e. pumped) but not if reused on site (e.g. dust suppression, wash plant)	The Monitoring Point (MP1) is the outlet of the main basin, as shown in Figure 5-2. The MP1 is to be monitored for TSS, pH and oil and grease in accordance with the Approved Methods Publication. The following EPL concentration limits must be achieved before discharge offsite: • Oil and grease – Visible • pH – 6.5-8.5 • TSS – 50mg/L If the above concentration limits are not achieved or other pollutants are detected, the water will need to be treated in accordance with Appendix C. Note: Monitoring and the above concentration limits do not apply, if rainfall exceeding 75 mm falls over any consecutive five day period. Note: Turbidity can be used in place of TSS, as per the EPL	Quarry Manager

Aspect	Frequency	Details	Responsibility
Basin capacity	Following rain	The volume of water in the sediment basin and vehicle washdown sump is to be monitored (e.g. via a permanent stake) following rain. As per the EPL, if, within 5 days of rainfall, the remaining capacity of the basin is insufficient, the basin must be discharged to restore the design capacity. The volume of sediment is to be monitored (e.g. via a permanent stake in the basin and sump with a mark showing depth of sediment) and removed to maintain an 80% capacity within the sediment storage zone.	Quarry Manager
Spill kit	Monthly and following use	The spill kit is to be checked and any missing materials to be replaced.	Quarry Manager
Groundwater	Annually	The groundwater monitoring wells (GW1, GW2, GW3) are shown on Figure 5-2. The location of the monitoring wells is to focus on impacts to the alluvial groundwater source. Water level (manually), pH and electrical conductivity is to be monitored.	Quarry Manager
Underground waste oil tank	Annually	Test pit around the perimeter of the tank to detect leaks	Quarry Manager

Sampling point(s) for water discharged from the sediment basin(s) are provided and maintained in an appropriate condition to permit:

a) the clear identification of each sediment basin and discharge point;

b) the collection of representative samples of the water discharged from the sediment basin(s); and

c) access to sampling point(s) at all times by an authorised officer of the EPA

Figure 5-1 Rain gauge/weather station location

5.2 Contingency plan

If the above monitoring detects an impact, a contingency plan or trigger and response plan is to be implemented, as shown in Table 5-2. If DPE provides a direction in relation to remediation, NQ will implement the direction to the satisfaction of DPE.

Table 5-2 Contingency plan

Aspect	Trigger	Response
Baseline monitoring	WQ2 results are more than 20% different than WQ1	The controls at the quarry will be inspected in detail and improved, as required. If the change persists for three consecutive months, engage an Environmental Consultant to undertake an investigation.
Unauthorised discharge	Unauthorised discharge of water off site from the basin or other erosion and sediment control	• Immediately put measures in place to stop the discharge • Collect and analyse water quality samples from downstream of the event and at WQ2. • Review practices to minimise the potential for a repeat of the incident
Spill	A spill of fuel or oil	• If safe, stop the spill • Clean up the spill using the spill kit • Remove contaminated soil (if any) • Dispose of used spill kit material and contaminated soil at a suitably licenced facility • If the spill is >100L or has contaminated a large area or waterway, contact an Environmental Consultant immediately
Groundwater	A greater than 20% difference in groundwater level compared to the previous sampling event or quality between GW1 and GW2 or GW3 in two successive monitoring events	Increase monitoring frequency to monthly. If the change persists for three consecutive months, engage a Hydrogeologist to undertake an investigation

5.3 Reporting

The general reporting requirements are described in Section 8.5 of the EMS. In relation to the water monitoring, the routine water monitoring will be recorded on the *Environmental Inspection Checklist*.

When collecting water samples the records must include:

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

d. the name of the person who collected the sample.

A sampling record form is provided in Appendix D.

A summary of any monitoring results will be presented in the Annual Report (refer to Section 8.5 of the EMS) and the NQ website. In the Annual Report the monitoring results are to discuss:

- The relevant statutory requirements, limits or performance measures/criteria
- Requirements of relevant plans or programs
- Non-compliances and what actions were taken to ensure compliance

- Trends
- Discrepancies between the predicted and actual impacts
- Any measures implemented to improve the environmental performance of the operation

All records will be:

- Maintained in a legible form
- Kept for at least 4 years
- Produced to any authorised officer of the EPA and/or DPE upon request

5.3.1 Complaint records

NQ will operate a telephone complaints line, during its operating hours, for the purpose of receiving any complaints from members of the public in relation to activities conducted at the site or by the vehicles or mobile plant associated with the operation. All residents within 2 km of the site and along Tullymorgan-Jackybulbin Road east of the quarry are to be notified of the complaints line and it is to be displayed on the sign at the entrance to the quarry.

A legible record of all complaints in relation to water must include:

- The date and time of the complaint
- The method by which the complaint was made
- Any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect
- The nature of the complaint
- The action taken in relation to the complaint, including any follow-up contact with the complainant
- If no action was taken, the reason why no action was taken

Any complaint needs to be entered into the complaints register on the NQ website at least monthly.

Further details regarding complaints are provided in the EMS.

5.3.2 Incident notification

The Quarry Manger will immediately (within 24 hours) notify DPE, EPA (131 555) and any other relevant agency of any incident. The incident is to be investigated in detail and within 7 days of the incident, a detailed report is to be submitted to DPE, EPA and any other relevant agency. The report is to include:

- The cause, time and duration of the event
- The type, volume and concentration of every pollutant discharged as a result of the event
- 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
- 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
- Action taken by the licensee in relation to the event, including any follow-up contact with any complainants

- Details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event
- Any other relevant matters

The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided. The additional information must be provided to the EPA within the time specified in the request.

The EPA may also request a written report if they suspect an event has occurred that has caused, is causing or has the potential to cause material harm to the environment.

Further details regarding incidents are provided in the EMS and Pollution Incident Response Management Plan (PIRMP).

Figure 5-2 Monitoring locations

6. Review and improvement

6.1 Review

To continuously improve the environmental performance of the operations, the Quarry Manager will review the SWMP and its implementation. The review will be completed within 3 months of the submission of an:

- Annual Review
- Incident report
- Audit report
- Any modifications

The purpose of the review is to ensure that the system is meeting the requirements of the standards, policies and objectives. Between the scheduled reviews, a register of issues will be maintained to ensure that any issue raised by internal and external personnel associated with the quarry is recorded.

The review will consider (where available or applicable):

- Changes to the operation
- Site personnel comments
- Agency comments
- Audit findings
- Environmental monitoring records
- Complaints
- Details of corrective and preventative actions taken
- Environmental non-conformances, environmental inspection notices, inspection reports, and non-conformance reports
- Incident reports
- Changes in organisation structures and responsibilities
- The extent of compliance with objectives and targets
- The effect of changes in standards and legislation
- Co-ordination of environmental management of sub-contractors

A record of the review is maintained by the Quarry Manager and kept on site.

6.2 Updates

The outcomes of the above reviews may include amendments to the SWMP and supporting documentation, updates to the Project aspects and impacts register, re-evaluation of the Project objectives and targets, or reallocation of Project resources. If any amendments are considered necessary, these need to be submitted to DPE within 4 weeks of the review for approval. With the agreement of the Secretary, the SWMP can be submitted on a staged basis and without consultation with all parties nominated to be consulted. If the submission of SWMP is to be staged; then it must clearly describe the specific stage/s of the development to which the SWMP applies; the relationship of this stage/s to any future stages; and the trigger for updating the plan.

During the revision of the SWMP, the operations associated with the development are to be managed as per the existing SWMP until the revised WMP is approved by DPE.

Once approved, a copy of the revised SWMP will be made available on the NQ website and any amendments made communicated to relevant personnel.

7. References

- Landcom (Blue Book) (2004). *Soils and Construction, Managing Urban Stormwater, Volume 2E Mines and Quarries, 4th Edition.*
- NUDLC (2011). *Minimum Construction Requirements for Water Bores in Australia*. National Uniform Drillers Licencing Committee.
- Roads and Maritime (2014). *Woolgoolga to Ballina Pacific Highway Upgrade EIS*. Roads and Maritime, Sydney.

Appendices

Appendix A – Agency Consultation

Ben Luffman

From: Christie Jackson <christie.jackson@dpi.nsw.gov.au>
Sent: Wednesday, 26 April 2017 2:31 PM
To: Ben Luffman
Subject: Re: Sly's Quarry

CompleteRepository: 2217528
Description: Sly's Quarry EIS
JobNo: 17528
OperatingCentre: 22
RepoEmail: 2217528@ghd.com
RepoType: Job

Ben,
Once the references to WaterNSW is changed, it is fine to submit to DPE.
Christie

Kind regards

Christie Jackson, Water Regulation Officer
Water Regulation North North Coast
Department of Primary Industries - Water
4 Marsden Park Road Calala NSW 2340 | PO Box 550 | Tamworth NSW 2340
T: 02 6763 1426 | **F:** 02 6701 9682
E: christie.jackson@dpi.nsw.gov.au
W: www.water.nsw.gov.au

Part Time: Monday-Thursday

MAKING IT HAPPEN

On 26 April 2017 at 14:24, Ben Luffman <Ben.Luffman@ghd.com> wrote:

> Hi Christie,
>
> No problem, I'll change the reference as requested. Once done, would you like to see it again or is it ok to submit to DPE for approval?
>
> Regards
>
> **Ben Luffman**
> **Senior Environmental Scientist/Planner**
>
> **GHD**

T: +61 2 6650 5613 | V: 225613 | M: +61 415 271 319 | E: ben.luffman@ghd.com
PO Box 1340 Coffs Harbour NSW 2450 | Level 1 230 Harbour Drive Coffs Harbour NSW 2450 Australia | www.ghd.com

WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

From: Christie Jackson [mailto:christie.jackson@dpi.nsw.gov.au]
Sent: Monday, 24 April 2017 2:07 PM
To: Ben Luffman <Ben.Luffman@ghd.com>
Subject: Re: Sly's Quarry

Hi Ben,

I apologise for the delayed response. DPI Water notes you have included our requirements from my previous email into the Soil and Water Management Plan for Sly's Quarry. I did notice you had made reference to WaterNSW, these references should be changed to DPI Water.

Kind regards,

Christie

Kind regards

Christie Jackson, Water Regulation Officer

Water Regulation North North Coast

Department of Primary Industries - Water

4 Marsden Park Road Calala NSW 2340 | PO Box 550 | Tamworth NSW 2340

T: 02 6763 1426 | **F:** 02 6701 9682

E: christie.jackson@dpi.nsw.gov.au

W: www.water.nsw.gov.au

Part Time: Monday-Thursday

MAKING IT HAPPEN

On 10 April 2017 at 16:09, Ben Luffman <Ben.Luffman@ghd.com> wrote:

Hi Christie,

Please find attached the revised SWMP for Slys Quarry. In summary, our response to the WaterNSW comments are:

- The monitoring locations in the EIS were existing wells which are inappropriate for monitoring. The proposed wells have been located to monitor the alluvial aquifer
- Water quality parameters updated to be the same as suggested in the EIS.
- Inclusion of the ability to reduce the frequency of sampling following 2 years of stable results and consultation with WaterNSW
- Inclusion of data loggers
- Appendix B reference updated
- No existing monitoring wells to be used
- Inclusion of a reference to the proposed wells being constructed in accordance with Minimum Construction Requirements for Water Bores in Australia (NUDLC, 2011).

I trust the above addresses WaterNSW comments but let me know if you have any questions.

Regards

Ben Luffman
Senior Environmental Scientist/Planner

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PO Box 1340 Coffs Harbour NSW 2450 | Level 1 230 Harbour Drive Coffs Harbour NSW 2450 Australia | www.ghd.com

WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

From: Christie Jackson [mailto:christie.jackson@dpi.nsw.gov.au]
Sent: Tuesday, 21 March 2017 2:01 PM
To: Ben Luffman <Ben.Luffman@ghd.com>
Subject: Sly's Quarry

Hi Ben,

I apologise for the delay.

I spoke with DPI Water's hydrogeologist about your request to monitor Sly's Quarry more frequently in the first two years and then decrease water quality monitoring after two years.

DPI Water's Hydrogeologist said the proponent can submit a request to reduce the frequency of water quality monitoring with justification after 2 years assuming they are at the lowest proposed depth of the quarry. This request will need to identify trigger levels for further action and a return to increased sampling.

In relation to your request regarding data loggers, DPI Water's Hydrogeologist said the proponent can submit a request to go from loggers to dipped levels with justification after 2 years assuming they are at the lowest proposed depth of the quarry. This request will need to identify trigger levels for further action and a return to logger collection.

Kind regards

Christie Jackson, Water Regulation Officer

Water Regulation North North Coast

Department of Primary Industries - Water

4 Marsden Park Road Calala NSW 2340 | PO Box 550 | Tamworth NSW 2340

T: 02 6763 1426 | **F:** 02 6701 9682

E: christie.jackson@dpi.nsw.gov.au

W: www.water.nsw.gov.au

Part Time: Monday-Thursday

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Ben Luffman

From: Scott Ensbey <Scott.Ensbey@epa.nsw.gov.au>
Sent: Monday, 14 November 2016 5:28 PM
To: Ben Luffman
Subject: RE: EPL 11649

CompleteRepository: 2217528
Description: Sly's Quarry EIS
JobNo: 17528
OperatingCentre: 22
RepoEmail: 2217528@ghd.com
RepoType: Job

Hi Ben,

Sorry, I thought I'd spoken to you about the plan review issue.

I understand that it's a condition of consent that Newman's consult with the EPA on the development of the plans. The EPA does not typically review/endorse Environmental Management Plans, Noise Management Plans, etc. It is up to the licensee (usually via their consultant) to ensure that the plans comply with the relevant guidelines. In this case, the SWMP needs to be based on the Blue Book, Volumes 2 and 2E, the Noise Management Plan should be guided by the principles of the Industrial Noise Policy.

I'm happy to discuss this position if needed, otherwise I'll leave it with you.

Regards

Scott Ensbey
Operations Officer – North Coast
NSW Environment Protection Authority
(02) 6640 2522 MOB: 0447142916
scott.ensbey@epa.nsw.gov.au www.epa.nsw.gov.au @EPA_NSW
Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555

From: Ben Luffman [mailto:Ben.Luffman@ghd.com]
Sent: Friday, 11 November 2016 4:45 PM
To: Scott Ensbey <Scott.Ensbey@epa.nsw.gov.au>
Subject: RE: EPL 11649

Hi Scott,

How are you going with the review of the plans? Another discrepancy between the EPL and consent is the consent allows for receiving 10,000 tonnes of topsoil and 5,000 m3 of mulch during any calendar year but the EPL does not.

Appendix B – Soil and Erosion Control Plan

BASIN CALCULATIONS			
STAGE	1	2	3
CATCHMENT (Ha)	19.1	24.8	30
SOIL TYPE	D	D	D
5 DAY/90%	74.9	74.9	74.9
SOIL LOSS (m^3/Ha/yr)	226	226	226
SETTLING ZONE (m^3)	1658	2156	2604
SEDIMENT STORAGE ZONE (m^3)	11302	14674	17751
TOTAL VOLUME (m^3)	12960	16827	20355

LEGEND

- STAGE 1 - EXISTING EXTRACTION LIMIT
- STAGE 2 - INTERIM STAGE
- STAGE 3 - PROPOSED EXTRACTION LIMIT
- EXISTING VEHICLE TRACK
- TREE LINE
- POND
- BUILDING
- PROPOSED FINAL BATTER
- PROPOSED FENCE
- DIVERSION BUND WITH CHECK EVERY 40m
- DISSIPATOR / LEVEL SPREADER
- WATER FLOW DIRECTION
- OVERFLOW CHANNEL

N

0 20 40 60 80 100m

SCALE 1:2000 AT ORIGINAL SIZE

PRELIMINARY

rev	description	app'd	date
B	MINOR CHANGES		
A	INITIAL ISSUE		

NEWMAN QUARRYING

SLYS QUARRY

SOIL AND EROSION PLAN

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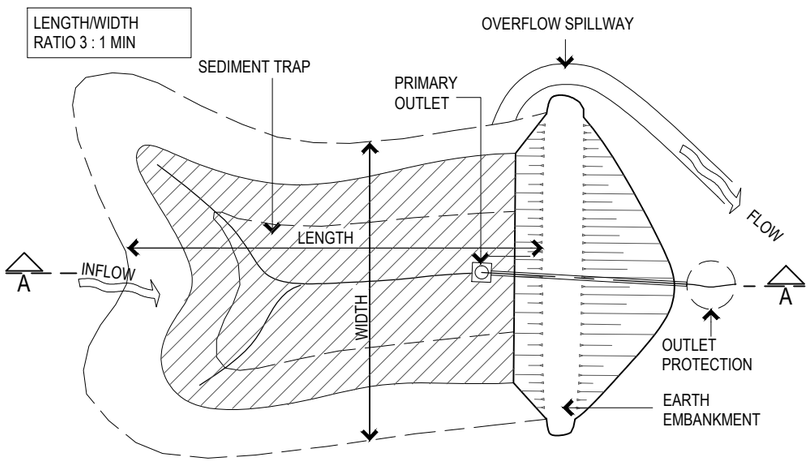
scale	1:2000 for A3	job no.	22-17528
date	JANUARY 2018	rev no.	B

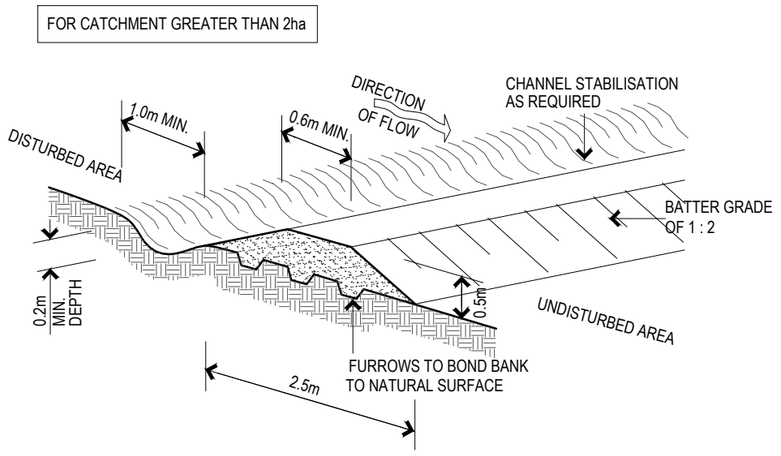
approved (PD) .....

SK003

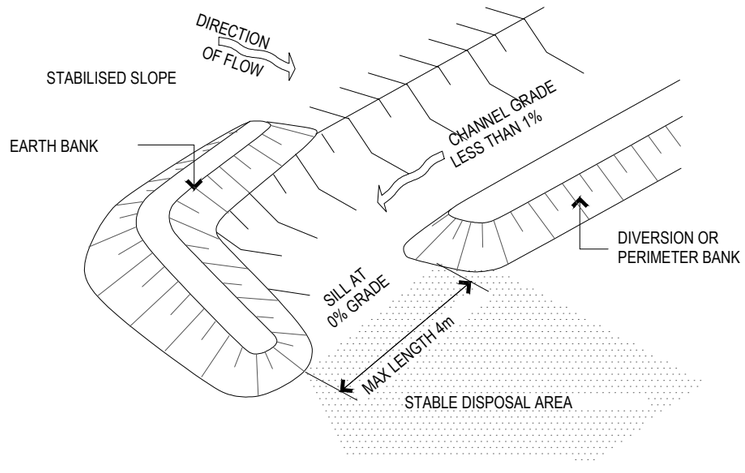
Plot Date: 25 January 2018 - 1:08 PM Plotted by: Steve Young Cad File No: G:\22\17528\CADD\Drawings\22-17528-SK003.dwg



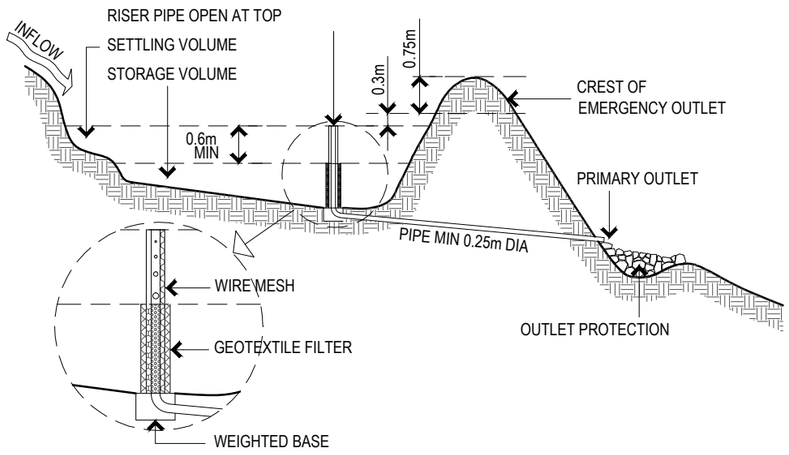
SEDIMENT BASIN PLAN



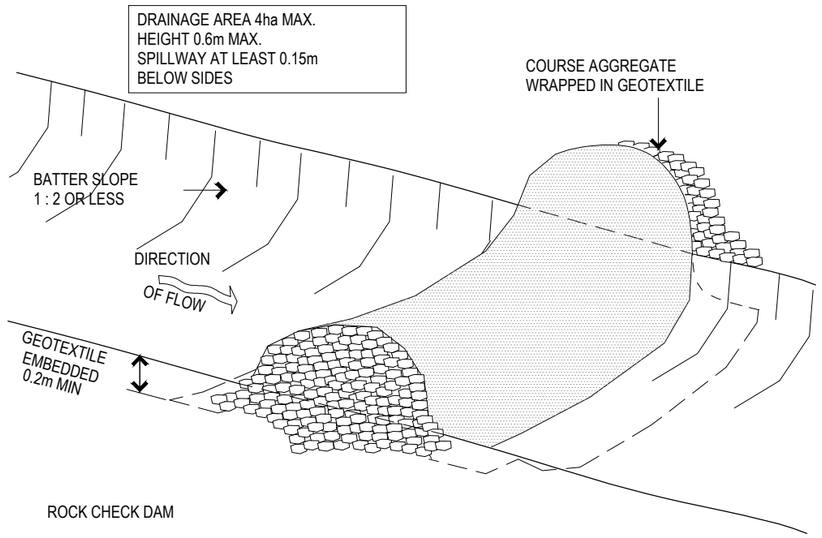
DIVERSION BANK AND CHANNEL



LEVEL SPREADER



SEDIMENT BASIN SECTION A.A



ROCK CHECK DAM

rev	description	app'd	date
A	INITIAL ISSUE		

NEWMAN QUARRYING
SLYS QUARRY

EROSION CONTROLS DETAIL DRAWINGS

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scale	NTS	for A3	job no. 22-17528
date	OCTOBER 2016		rev no. A

approved (PD) .....

SK005

Plot Date: 14 November 2016 - 11:11 AM Plotted by: Steve Young Cad File No: N:\AU\Coffs Harbour\Projects\22\17528\CADD\Drawings\22-17528-SK005.dwg

Appendix C – Water treatment procedure

pH Treatment

- Treat for pH prior to T.S.S.
- Hydrochloric acid (32% Muriatic) or sulfuric acid will be used to lower pH when the pH exceeds 8.5.
- Agricultural Lime (Aglime) or Hydrated lime will be used to treat water with a pH lower than 6.5.
- Determine the volume of water in basin.
- Determine percentage of lime or acid required by taking a 10 litre sample of basin water and adding a known amount of lime or acid (initially 0.004%). If the pH is still not acceptable, vary the amount of lime or acid until within the limits.
- Repeat the above procedure to confirm the amount of acid or lime required.
- Once the required percentage has been determined, calculate the actual amount of lime or acid to be added by multiplying the volume of water in the basin by the determined percentage.
- Spread the required amount of lime or acid evenly across the basin.
- After at least 2 hours test the water to confirm it is within pH of 6.5 to 8.5.

TSS Treatment

- If the basin requires treatment/flocculation (e.g. T.S.S. >50mg/l), gypsum is to be immediately applied evenly across the top of the water at the manufacturers recommended dosage initially, then at an acceptable rate should more flocculants be required.
- The basin should be monitored daily after flocculation until desired TSS is achieved and to assist in determination of optimal dosage levels.
- Methods of application involves mixing in a drum with water and spraying across the whole surface of the basin
- When spraying flocculants, the mixture must hit the water at between 10 to 20 degrees to increase surface area of the basin exposed to the mixture.
- When using liquid gypsum such as “Hydra-Gyp” the solution must be mixed before use to ensure gypsum is evenly suspended throughout mixture. This is best achieved using an aeration device at 3 bars of pressure for approximately 15 minutes.
- Flocculation of sediment basins must occur within 24 hours of the conclusion of each rain event. Ongoing visual monitoring of the basins should occur during this time.
- Test water to confirm it is less than 50mg/L.
- Alternative flocculation agents may be investigated if gypsum is found to be unsuitable. Use of alternative flocculating agent will only occur after approval from the EPA.

Appendix D – Monitoring Record Forms

Water Quality Monitoring

Monitoring Date :	Inspection Conducted By:
Weather Conditions: Dry ☐ Slight Wind ☐ Calm ☐ Rain ☐ Strong Wind ☐	
Rainfall (Past 24 hours):	
Rainfall (Past 5 Days):	

Monitoring Point	Discharging?	TSS/Turbidity	pH	Oil/Grease	Treated?	Dishcharged
Criteria		50mg/L	6.5 to 8.5	Visible		

Comments:

Water Quality Monitoring

Monitoring Date :	Inspection Conducted By:
Weather Conditions: Dry ☐ Slight Wind ☐ Calm ☐ Rain ☐ Strong Wind ☐	
Rainfall (Past 24 hours):	
Rainfall (Past 5 Days):	

Monitoring Point	Discharging?	TSS/Turbidity	pH	Oil/Grease	Treated?	Dishcharged
Criteria		50mg/L	6.5 to 8.5	Visible		

Comments:

Groundwater Monitoring

Monitoring Date :	Inspection Conducted By:
Weather Conditions: Dry ☐ Slight Wind ☐ Calm ☐ Rain ☐ Strong Wind ☐	
Rainfall (Past 24 hours):	
Rainfall (Past 5 Days):	

Monitoring Point	Water level (m below top of casing)

Comments:

Groundwater Monitoring

Monitoring Date :	Inspection Conducted By:
Weather Conditions: Dry ☐ Slight Wind ☐ Calm ☐ Rain ☐ Strong Wind ☐	
Rainfall (Past 24 hours):	
Rainfall (Past 5 Days):	

Monitoring Point	Water level (m below top of casing)

Comments:

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Document Status

Rev	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	B Luffman	M Pignatelli		S Lawer		03/05/2017
1	B Luffman	M Pignatelli		S Lawer		22/01/2018
2	B Luffman	S Lawer		S Lawer		31/01/2020
3	B Luffman	S Lawer		S Lawer		14/10/2021
4	B Luffman	S Lawer		S Lawer		27/09/2022
5	B Luffman	S Lawer		S Lawer		16/12/2022

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