



Newman Quarrying
Slys Quarry, Tullymorgan-Jackybulbin Road, Mororo
Annual Review

December 2020

Annual Review title block


Feature	Details
Name of operation	Slys Quarry
Name of operator	Newman Quarrying Pty Ltd
Development consent/project approval #	SSD 6624
Name of holder of development consent/project approval	Newman Quarrying Pty Ltd
Mining lease #	NA
Name of holder of mining lease	NA
Water licence #	NA
Name of holder of water licence	NA
MOP/RMP start date	NA
MOP/RMP end date	NA
Annual Review start date	01 July 2019
Annual Review end date	30 June 2020
<p>I, Mark Newman, certify that this annual review is a true and accurate record of the compliance status of Slys Quarry for the period 01 July 2019 to 30 June 2020 and that I am authorised to make this statement on behalf of Newman Quarrying Pty Ltd.</p> <p><i>Note.</i></p> <p><i>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.</i></p> <p><i>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).</i></p>	
Name of authorised reporting officer	Mark Newman
Title of authorised reporting officer	Director
Signature of authorised reporting officer	
Date: 17 August 2020	

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- Appendix D – Water quality results
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Abbreviations

Abbreviations	Terms
AQMP	Air Quality Management Plan
BMP	Blast Management Plan
BRMP	Biodiversity and Rehabilitation Management Plan
CoA	Conditions of Approval
CVC	Clarence Valley Council
EIS	Environmental Impact Statement
EMS	Environmental Management Strategy
EPL	Environmental Protection Licence
HMP	Heritage Management Plan
LGA	Local Government Area
Newman Quarrying	Newman Quarrying Pty Ltd
NMP	Noise Management Plan
SEPP	State Environmental Planning Policy
SWMP	Soil and Water Management Plan
TMP	Traffic Management Plan
TSS	Total suspended solids
WMP	Waste Management Plan

1. Statement of compliance

The expansion of Slys Quarry was approved by Project Approval SSD 6624 and has an Environmental Protection Licence (EPL 11649). In regards to the compliance of the operations with the Project Approval (SSD 6624) and EPL, a statement of compliance, as at the end of the reporting period, is provided in Table 1-1. Table 1-2 provides more detail in regards to the non-compliances, including the compliance status, in accordance with Table 1-3.

Table 1-1 Statement of compliance

Were all conditions of the relevant approvals complied with	
SSD 6624	Yes
EPL 11649	Yes

Table 1-2 Non-compliances

Relevant approval	Condition	Condition description	Compliance status	Comment	Where addressed in Annual Review
No non-compliances identified					

Table 1-3 Compliance status

Risk level	Colour code	Description
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-compliant	Non-compliance with: <ul style="list-style-type: none"> potential for serious environmental consequences, but is unlikely to occur; or potential for moderate environmental consequences, but is likely to occur
Low	Non-compliant	Non-compliance with: <ul style="list-style-type: none"> potential for moderate environmental consequences, but is unlikely to occur; or potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Non-compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

2. Introduction

Newman Quarrying Pty Ltd (Newman Quarrying) operate a sandstone quarry known as Sly's Quarry at Tullymorgan-Jackybulbin Road, Mororo, NSW. Sly's Quarry is located at Lot 2 DP 1055044, approximately 2.6 km west of the Pacific Highway, in the Clarence Valley Local Government Area (LGA). The location of the site is presented in Figure 2-1. The primary purpose of the quarry is to supply quarry materials required for current and proposed Pacific Highway works, and for supply to local councils and contractors.

Newman Quarrying have been operating since the early 1990's, however the site has reportedly been used as a quarry since the 1950's. On 5 May 2016, development consent (SSD 6624) was granted for the expansion of the quarry and involved the following:

- Expand main quarry pit (Site A) by 11.1 hectares to 18 hectares
- Close and rehabilitate other quarry pits (Sites B and C)
- Extraction depth 44 m AHD
- Increase the extraction rate up to 500,000 tonnes per annum
- Estimated resource 7,000,000 tonnes
- Estimated operating period 15-40 years with approval to 31 May 2041

2.1 Quarry contacts

Table 2-1 provides contact details for key personnel who are responsible for the environmental management of Sly's Quarry.

Table 2-1 **Sly's Quarry Contacts**

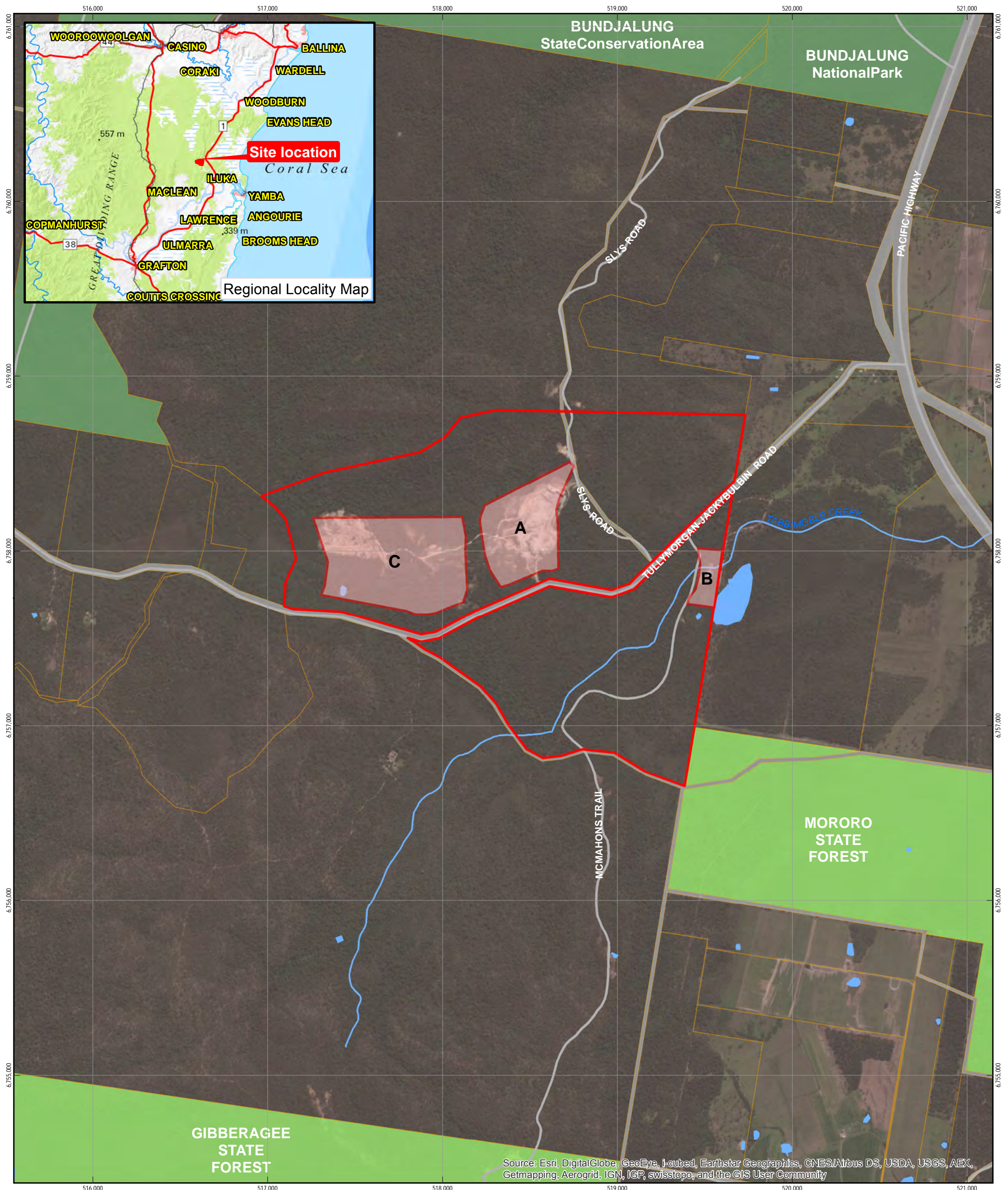
Quarry Owner/Manager:	Mark Newman
Company:	Newman Quarrying Pty Ltd
Address:	Tullymorgan-Jackybulbin Road, Mororo
Phone:	0427 822 667
Email:	newmanquarrying@gmail.com

2.2 Purpose and scope of this report









This Annual Review has been prepared to satisfy the Conditions of Development Consent (SSD 6624), in particular Condition 10 of Schedule 5. The Annual Review covers the period from 1 July 2019 until 30 June 2020 (herein referred to as the reporting period).

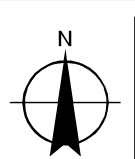
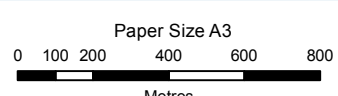
This Annual Review provides a summary of actual operational and environmental management activities undertaken at Sly's Quarry during the reporting period. The Annual Review also addresses any complaints made during the reporting period.

The Annual Review has been prepared generally in accordance with the *Annual Review Guideline* (2015) where practicable.



LEGEND

	Current Quarry Areas		Road		Waterbody
	Lot 2 DP 1055044		Lot		Natural Parks
			Waterways		State Forest



Newman Quarrying
Sly's Quarry Environmental Impact Statement

Job Number | 22-17528
Revision | A
Date | 11 Dec 2014

Site location

Figure 2-1

2.3 Limitations

This report has been prepared by GHD for Newman Quarrying Pty Ltd and may only be used and relied on by Newman Quarrying Pty Ltd for the purpose agreed between GHD and the Newman Quarrying Pty Ltd.

GHD otherwise disclaims responsibility to any person other than Newman Quarrying Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this Report are based on conditions encountered and information reviewed at the date of preparation of the Report. GHD has no responsibility or obligation to update this Report to account for events or changes occurring subsequent to the date that the Report was prepared. Specifically, this Report does not take into account the effects, implications and consequences of or responses to COVID-19, which is a highly dynamic situation and rapidly changing. These effects, implications, consequences of and responses to COVID-19 may have a material effect on the opinions, conclusions, recommendations, assumptions, qualifications and limitations in this Report, and the entire Report must be re-examined and revisited in light of COVID-19. Where this Report is relied on or used without obtaining this further advice from GHD, to the maximum extent permitted by law, GHD disclaims all liability and responsibility to any person in connection with, arising from or in respect of this Report whether such liability arises in contract, tort (including negligence) or under statute.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Newman Quarrying Pty Ltd and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

3. Approvals and licences

Table 3-1 summarises the key approvals currently held by Newman Quarrying which are relevant to the operations at Sly's Quarry.

Table 3-1 Key approvals, consents and licences

Description	Date granted/ commencement date	Expiry/duration
Project Approvals		
Development Consent (SSD 6624)	5 May 2016. Modified 19 October 2017	31 May 2041
Environmental Protection Licences		
EPL 11649	12 June 2002. Licence varied 10 October 2017	In perpetuity (Anniversary 1 January) until surrendered

The requirements of the Development Consent, relevant to the Annual Review, are shown in Table 3-2.

Table 3-2 Annual Review Requirements

Licence, Approval or Guideline	Section Reference	Requirement	Reference in this report
Development consent and CoA SSD 6624	Schedule 2, Condition 16	The Applicant must: (a) provide annual quarry production data to DRG using the standard form for that purpose; and (b) include a copy of this data in the Annual Review (see condition 9 of Schedule 5).	Appendix A
	Schedule 2, Condition 19	The Applicant must pay to Council an annual financial contribution toward the maintenance of Tullymorgan-Jackybulbin Road. The contribution must be determined in accordance with the Maclean Shire Council S.94 Contribution Plan for Maintenance of Quarry Roads, November 1994, or any subsequent relevant contributions plan adopted by Council. The annual contribution must be paid to Council prior to 31 July each year and reported in the Annual Review required in condition 9 of Schedule 5.	Appendix B
	Schedule 3, Condition 1	The Applicant must comply with the operating hours set out in Table 1. <i>Table 1: Operating Hours</i>	Not applicable – the quarry has not operated on Saturday afternoons during the reporting period

Activity	Permissible Hours
Employee arrival	<ul style="list-style-type: none"> From 6:30 am Monday to Saturday inclusive From 7:30 am Sundays or public holidays if engaged in maintenance, site security or other similar activities
Quarrying operations including loading and dispatch of laden trucks	<ul style="list-style-type: none"> 7 am to 6 pm Monday to Friday 7 am to 1 pm Saturday 7 am to 4 pm Saturday if fulfilling a contract for the supply of quarry products to the Pacific Highway update project (SSD 4963)* At no time on Sundays or public holidays
Blasting	<ul style="list-style-type: none"> 9 am to 3 pm Monday to Friday (except public holidays)
Maintenance	<ul style="list-style-type: none"> May be conducted at any time, provided that these activities are not audible at any privately-owned residence

*Note: Evidence of contracts that cover those periods during which extended Saturday afternoon operating hours are undertaken must be reported in the Annual Review required by condition 9 of Schedule 5.

Licence, Approval or Guideline	Section Reference	Requirement	Reference in this report
	Schedule 3, Condition 36	The Applicant must: a) manage on-site sewage treatment and disposal in accordance with the requirements of its EPL, and to the satisfaction of the EPA and Council; b) minimise the waste generated by the development; c) ensure that the waste generated by the development is appropriately stored, handled, and disposed of; and d) report on waste management and minimisation in the Annual Review, to the satisfaction of the Secretary.	Section 6.7
	Schedule 5, Condition 10	Annual Review 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:	Entire Report
		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 4
		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: <ul style="list-style-type: none"> • 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 Environmental Impact Statement (EIS); 	Section 5 and 7
		c) identify any non-compliance over the past financial year, and describe what actions were (or are being) taken to ensure compliance;	Section 8
		d) identify any trends in the monitoring data over the life of the development;	Section 5
		e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and	Section 8
		f) describe what measures will be implemented over the current financial year to improve the environmental performance of the development.	Section 5

4. Operations summary

During the reporting period, the quarry has continued to extract material from the north of Stage 1, as shown on Figure 4-1. Extraction has involved a process of blasting, crushing, screening and stockpiling as described in the *Environmental Impact Statement* (GHD, 2015) submitted with the development application.

In the reporting period, there have been six blasts, as shown in Table 4-1. The table also shows the volume and tonnes extracted from the quarry during each blast. The volume of material transported from Slys Quarry during the reporting period was 214,567.97 tonnes. This shows the material extracted and transported during the reporting period was within the approved limit of 500,000 tonnes.





Table 4-1 Blast and production summary

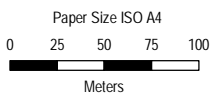
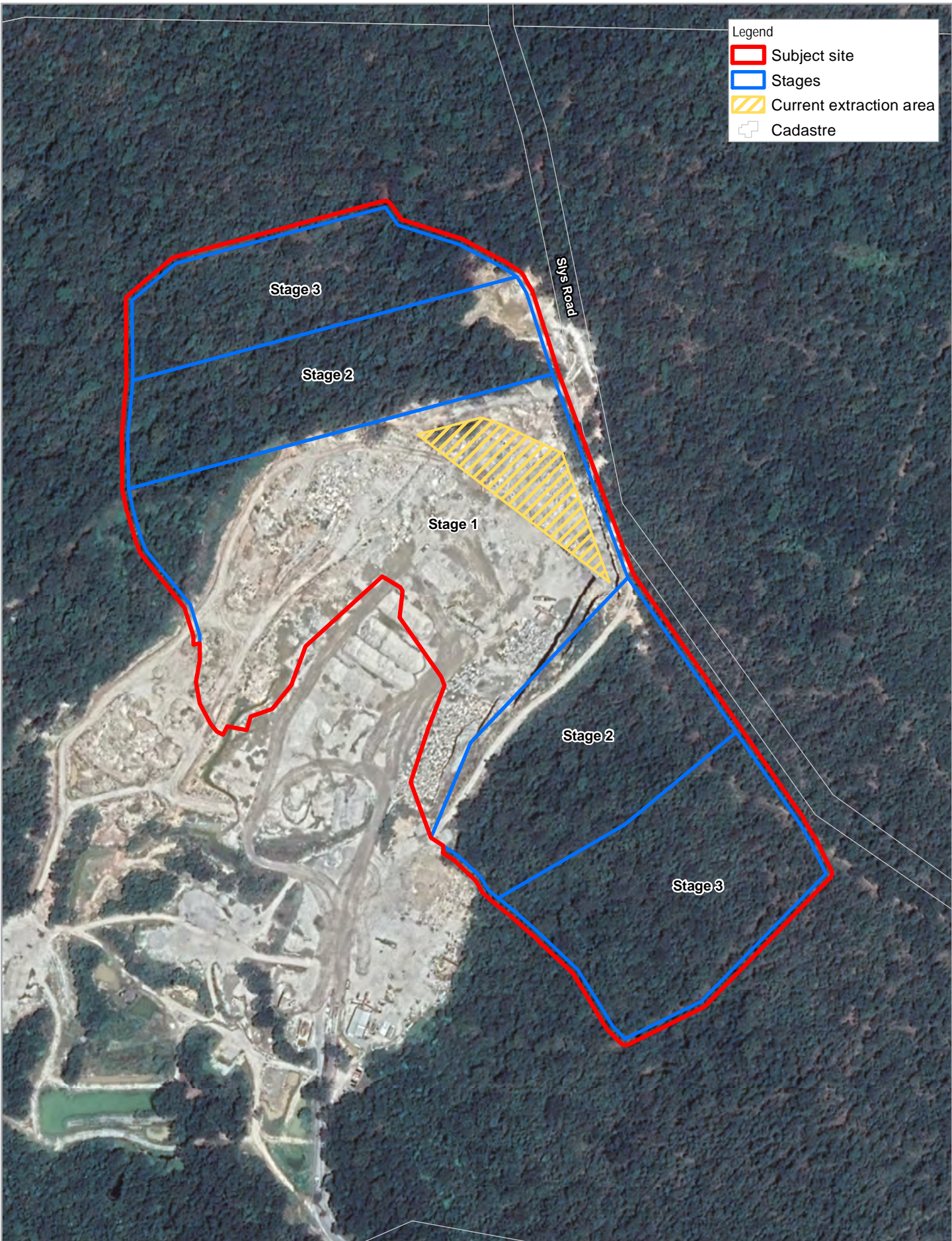
Date	Time	Volume (m ³)	Tonnes
17/07/2019	1.20 pm	10,887.43	27,218.58
20/08/2019	1.10 pm	10,074.37	25,185.93
9/09/2019	1.20 pm	13,426.25	33,565.63
8/10/2019	1.32 pm	10,074.37	25,185.93
22/10/2019	1.10 pm	9,711.25	24,278.13
21/05/2020	1.45 pm	7,691.87	19,229.68
Total		61,865.54	154,663.88

Other activities during the reporting period include:

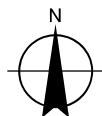
- Monitoring rehabilitation of Area C.
- Ongoing environmental monitoring.
- Recovery following the bushfires in November 2019.

Legend

-  Subject site
-  Stages
-  Current extraction area
-  Cadastre



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 56



Newman Quarrying
 Sly's Quarry
 Annual Review

Project No. 22-17528
 Revision No. 0
 Date 04 Dec 2019

Current extraction area

FIGURE 4-1

5. **Actions from previous Annual Review**

The actions identified during the previous Annual Review for implementation during the current Annual Review reporting period are presented in Table 5-1, along with the current status.

Table 5-1 Status of actions from previous Annual Review

Action required from previous Annual Review	Requested by	Action taken by the Operator	Reference
The requirements of the management plans, EPL and CoA will continue to be implemented at Sly's Quarry over the next reporting period.	A commitment from the previous Annual Review	Continued to operate the quarry in accordance with the management plans, EPL and CoA	Section 6
Biodiversity and Rehabilitation Management Plan (BRMP) to include the Biodiversity Offset Strategy (which is the BioBank Agreement)	A commitment from the previous Annual Review	The BRMP was updated to include the BioBank Agreement	Section 6

6. Environmental performance

6.1 Noise

6.1.1 Environmental management

Operational noise is managed by Newman Quarrying in accordance with the approved Noise Management Plan (NMP). The NMP covers all operational activities with the potential to generate noise at Sly's Quarry. It details specific noise management and mitigation measures, outlines monitoring and reporting requirements and provides clear definition of the roles and responsibilities for noise management. The objectives of the NMP are:

- Ensure full compliance with the relevant legislative requirements and CoA.
- No exceedance of the operational noise limits.
- No justified complaints from adjacent residents in relation to noise generation.
- No out of hours work.

Newman Quarrying proactively implements a range of noise mitigation measures for operational activities at Sly's Quarry. During the reporting period these included, but were not limited to the following:

- Ensuring machines were operated at low speed and were switched off when not being used.
- Progressive replacement of components of the existing fleet found to be generating excessive noise.
- Maintaining plant and equipment to manufacturer's standards.
- Scheduling noisy activities between 7:00 am and 6:00 pm where possible.
- Closing all engine covers while equipment is operating.
- Avoiding dropping materials from height and avoiding metal to metal contact on material.

6.1.2 Environmental performance

As reported in the 2018/19 Annual Review, Newman Quarrying ceased noise monitoring following approval from DPIE. Although no noise monitoring was carried out during the reporting period, there was less extraction than previous years and no complaints, so it is expected the noise impacts were less than previous years.

6.1.3 Improvements and initiatives

Noise monitoring for the NMP and CoA will be resumed during next year's reporting period.

6.2 Blasting

6.2.1 Environmental management

Blast operations at Sly's Quarry are managed in accordance with the Blast Management Plan (BMP), which covers blasting activities associated with the quarry and appropriate mitigation measures. The objectives of blast management at Sly's Quarry are:

- Ensure full compliance with the relevant legislative requirements and CoA.
- No exceedance of the blasting criteria.
- No justified complaints from adjacent residents in relation to blasting and vibrations.

In order to meet these objectives Newman Quarrying proactively implements a range of mitigation measures for blasting activities at Sly's Quarry. During the reporting period these included:

- Only undertaking blasting operations between 09:00 and 15:00 Monday to Friday.
- Providing all sensitive receivers at least 24 hours notice when blasting operations were undertaken.

Newman Quarrying completed blast monitoring in accordance with the CoA and BMP.

6.2.2 Environmental performance

Blast monitoring was undertaken for all blasts at Sly's Quarry during the reporting period. Monitoring was undertaken from Receiver 3, as outlined in the EPL. Receiver 3 is located approximately 1.5 km south of the quarry boundary.

Project specific blast criteria are outlined in EPL 11649 and CoA SSD 6624. A summary of the blast criteria is provided in Table 6-1.

Table 6-1 **Sly's Quarry blast criteria**

Receiver	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
Any residence on privately-owned land	120	10	0%
	115	5	5% of the total number of blasts over a period of 12 months

A total of 6 blasts were undertaken during the reporting period and only exceeded the trigger value but they were all less than the compliance criteria. A summary of the blast monitoring is provided in Table 6-2.

Table 6-2 Summary of blast monitoring

Date	Time	Vibration (mm/s)	Pressure (dBL)	Complies
Blast criteria		5	115	
Trigger value		0.4	106	
17/07/2019	1.20 pm	Not triggered	Not triggered	Yes
20/08/2019	1.10 pm	0.08	114.8	Yes
9/09/2019	1.20 pm	Not triggered	Not triggered	Yes
8/10/2019	1.32 pm	Not triggered	Not triggered	Yes
22/10/2019	1.10 pm	Not triggered	Not triggered	Yes
21/05/2020	1.45 pm	Not triggered	Not triggered	Yes

Based on the predicted results in the EIS, presented in Figure 6-1, the actual results are less. This is similar to previous year's results when most did not trigger and the others were less than the criteria.

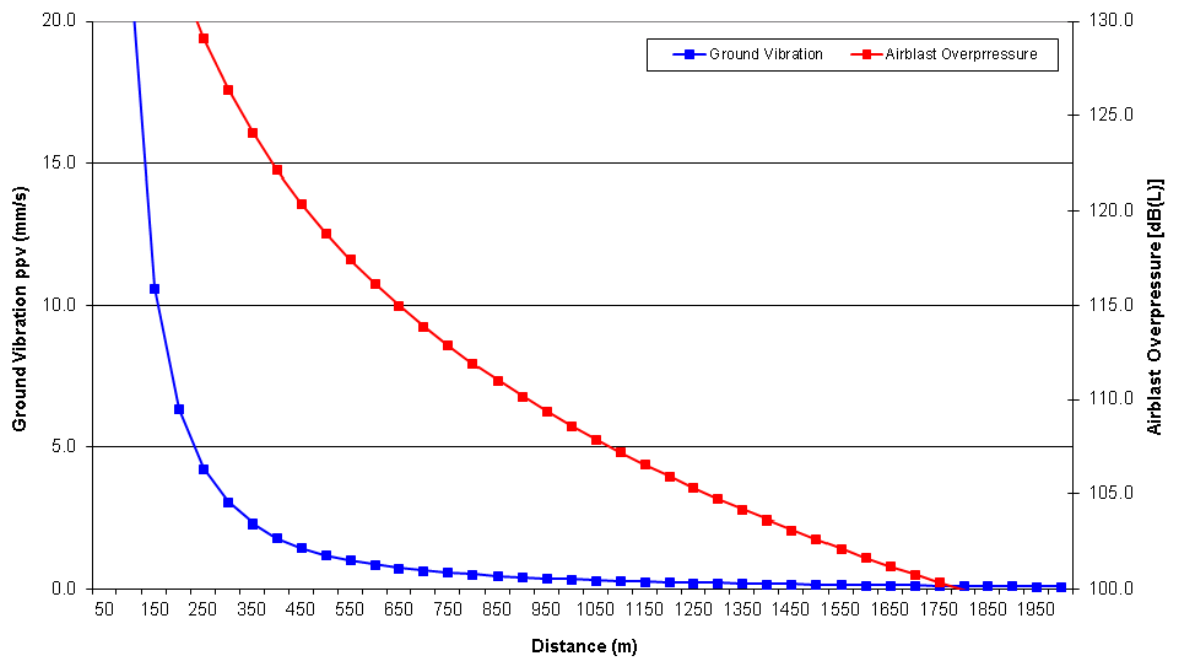


Figure 6-1 EIS estimated ground vibration and airblast overpressure levels from blasting

6.2.3 Improvements and initiatives

Given that no exceedances of the blast criteria were recorded in the reporting period, no improvements are considered necessary. Monitoring and mitigation measures identified in the CoA, EPL and BMP will continue to be implemented.

6.3 Air quality

6.3.1 Environmental management

Air quality at Sly's Quarry is managed in accordance with the Air Quality Management Plan (AQMP), CoA and EPL. The objectives of the AQMP are:

- Minimise and manage potential air quality/dust impacts from the development in accordance with relevant legislative requirements and CoA.
- Control dust and exhaust emissions of plant and equipment from quarrying activities.
- Achieve particulate matter and dust concentrations that meet the approved air quality criteria.
- No visible offsite dust emissions as a result of site operations.
- No justifiable complaints related to air quality attributable to site operation.

6.3.2 Environmental performance

Dust monitoring ceased in August 2018 following approval from DPIE given there was no exceedances during previous years. Air quality monitoring will recommence, in accordance with the AQMP, if the site receives a dust complaint or makes an operational change that is likely to increase dust emissions from the site.

6.3.3 Improvements and initiatives

Monitoring and mitigation measures identified in the CoA, EPL and AQMP will continue to be implemented.

6.4 Soil and water quality

6.4.1 Environmental management

Soil and water quality at Sly's Quarry are managed in accordance with the Soil and Water Management Plan (SWMP), which outlines appropriate mitigation measures for soil, surface water and groundwater management. The objectives of soil and water management at Sly's Quarry are:

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

In order to meet these objectives, Newman Quarrying implements a range of mitigation measures and monitoring requirements as outlined in the SWMP, which include:

- Daily weather monitoring
- Daily rainfall monitoring
- Weekly monitoring of erosion and sediment controls, and following rain
- Baseline monitoring following rain
- Basin monitoring when discharging
- Basin capacity monitoring following rain
- Spill kit checks monthly and following use
- Quarterly groundwater monitoring

Newman Quarrying completed water quality monitoring in accordance with the EPL.

6.4.2 Environmental performance

Basin monitoring

Monitoring was undertaken for total suspended solids (TSS), pH and oil and grease at the outlet of the main basin (MP1) prior to discharging. This location is the EPL monitoring point. The criteria outlined in the SWMP and EPL is presented in Table 6-3.

Table 6-3 Basin monitoring criteria

Pollutant	Concentration/Limit
Oil and grease	Nil visible
pH	6.5-8.5
Total suspended solids (TSS)	50 mg/L

Results of the basin monitoring are summarised in Table 6-4. Full water quality records are provided in Appendix D. This shows the water quality complied with the EPL criteria prior to discharging, as predicted in the EIS. The results are reasonably consistent with previous years, with the results less than 50 mg/L and between a pH of 7 and 8.

Table 6-4 Summary of basin monitoring results

Date	Rain		Discharging	TSS (mg/L)	pH	Oil	Treated?	Discharged
	24 hrs	5 Days						
Criteria				50	6.5-8.5	Nil		
08.07.19	22	41.2	no	32	7.46	no	no	yes
4.2.20	11.5	11.5	no	19	7.5	no	no	yes
31.3.20	17	22.5	no	22	8.03	no	no	yes

Surface water

Surface water sampling was collected at WQ1 and WQ2 following greater than 10 mm of rain in a 24 hour period. A total of 29 samples were collected during the reporting period. A summary of the results are presented in Table 6-5 with full water quality records provided in Appendix D. This shows the water quality at the two monitoring locations were relatively consistent. The water quality is also relatively good, which is as predicted in the EIS.

There was greater than 55% difference between the TSS concentrations at the two monitoring locations on a regular basis with a solid trend of WQ2 being higher than WQ1. The concentrations are relatively low, so this was not considered an issue.

Table 6-5 Baseline surface water monitoring results summary

Site	TSS (mg/L)		pH		Oil (visible)	
	WQ1	WQ2	WQ1	WQ2	WQ1	WQ2
Median	9.24	16.7	6.1	6.1	None	None
Maximum	40	67	6.54	6.28	None	None
Minimum	1	2	5.83	5.53	None	None

Groundwater

Quarterly groundwater monitoring was undertaken at the three groundwater wells. The wells were partially burnt by the bushfires in November 2019, which prevented testing in February 2020. Figure 6-2 shows the damaged wells.



Figure 6-2 Bushfire damaged groundwater wells

A summary of the results are presented in Table 6-6, with full water quality records provided in Appendix D. This shows GW1 results were fairly consistent with the well dry in October 2019 and showing a moderate increase in salinity from April to June 2020 which is difficult to determine a probable cause. GW2 was more consistent with a slight rise in conductivity in April 2020 which then dropped again in June 2020 and the pH was slightly more acidic than the other sites each quarter. GW3 was also dry in October 2019 however with increased rainfall in February the well had pH trending more acidic and conductivity slightly increasing.

Table 6-6 Quarterly groundwater monitoring results

Date	Rain		GW1		GW2		GW3	
	24 hrs	5 days	pH	Cond	pH	Cond	pH	Cond
8.10.19	0	0	Dry	Dry	5.32	210	Dry	Dry
4.2.20	11.5	11.5	NA*	NA*	NA*	NA*	NA*	NA*
8.4.20	5	5	5.8	170	4.65	454	5.46	101
24.6.20	10.2	13.6	5.92	426	4.51	366	4.98	141

*Wells affected by bushfires and unable to be tested.

Groundwater levels have also been monitored at the three groundwater wells with an automatic data logger. Note data has not been downloaded since April 2020 and data from GW3 was not available from Oct 2019 due to the memory being full.

The data logger records the water level at hourly intervals and a summary of the levels are provided in Figure 6-3. This shows ground water level fluctuation in all three wells appear to be relatively consistent and reflective of rainfall.

As predicted in the EIS, the quarry has not intercepted groundwater, so it's not impacting groundwater quality or groundwater level.

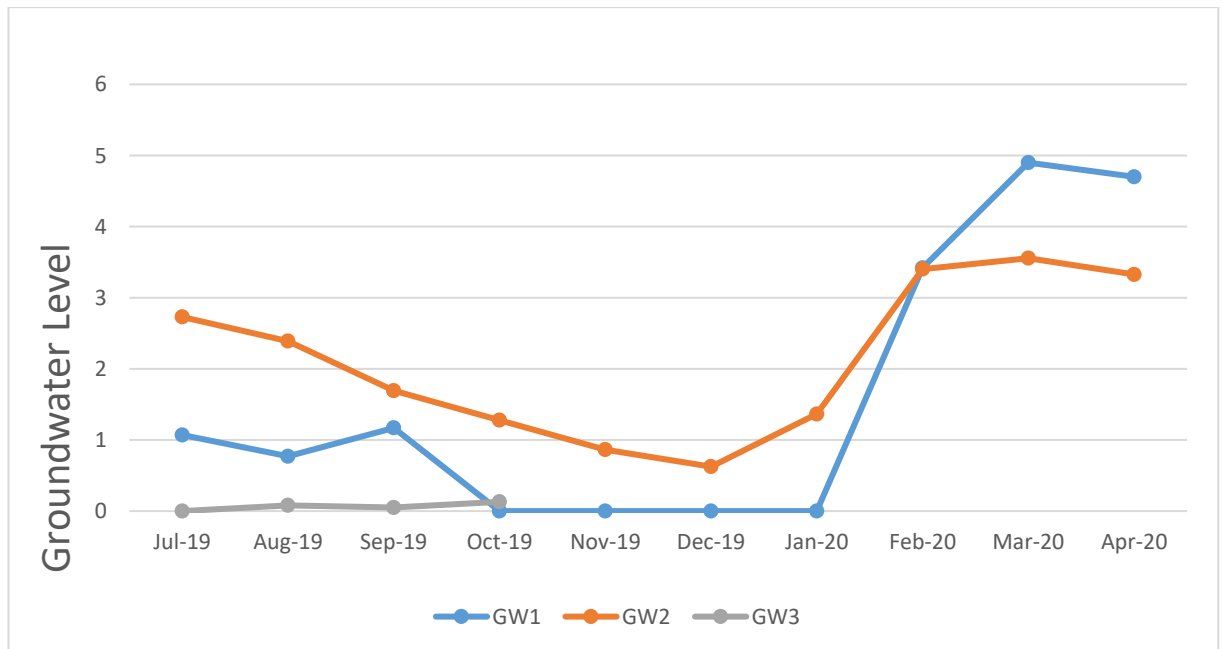


Figure 6-3 Groundwater levels

Due to the relatively consistent results and lack of impact from the quarry, Newman Quarrying have requested surface water and groundwater monitoring cease. This request is currently being assessed by DPIE.

6.4.3 Improvements and initiatives

Newman Quarrying will continue to follow the SWMP and implement the appropriate mitigation measures and monitoring.

6.5 Biodiversity and rehabilitation

6.5.1 Environmental management

Biodiversity and rehabilitation at Sly's Quarry is managed in accordance with the Biodiversity and Rehabilitation Management Plan (BRMP) and CoA. The targets outlined in the BRMP include:

- Ensure full compliance with the relevant legislative requirements and CoA
- No fauna fatalities
- No unapproved disturbance of vegetation
- No new occurrences of weeds or pathogens on-site

6.5.2 Environmental performance

Newman Quarrying has implemented the mitigation measures outlined in the BRMP, including:

- Restricting vehicle movements to daylight hours
- Implementing speed limits at the site
- Revegetating Area C in accordance with the Rehabilitation Plan
- Clearly marked the limits of clearing
- Nest box monitoring in accordance with the Nest Box Management Plan
- Finalised the BioBanking Agreement and established the Biobank site, including fencing and weed control. Figure 6-6 shows the extent of the Biobank site

Due to the minimal clearing, the actual impacts are considered to be less than those predicted. Detailed monitoring of the revegetation of Area C has not been completed previously but from opportunistic observations and Figure 6-4, the natural revegetation appears to have progressed with plants growing and additional species observed. Some areas are slow to revegetate and may require assistance if natural revegetation continues to fail in the next few years. The latest imagery available is still 2018 so revegetation would be even further progressed than below.

The bushfires in November 2019 burnt most of the property but largely avoided Area C. Photos of the site showing the recovery from the bushfire are provided below. The fire also burnt eight of the 12 nest boxes, as reported in the Nest Box Monitoring (Lewis 2020) report in Appendix E. It is recommended that these be replaced.

Newman Quarrying have been progressing the removal of the 317 Common Planigale credits from Condition 27, Schedule 3, with this currently being assessed by BDC and DPIE.



Figure 6-4 Aerial photograph of Area C rehabilitation between 5/10/2013 (left) and 25/10/2018 (right)



Figure 6-5 Photographs of the recovery of the biobank site following the bushfires

6.5.3 Improvements and initiatives

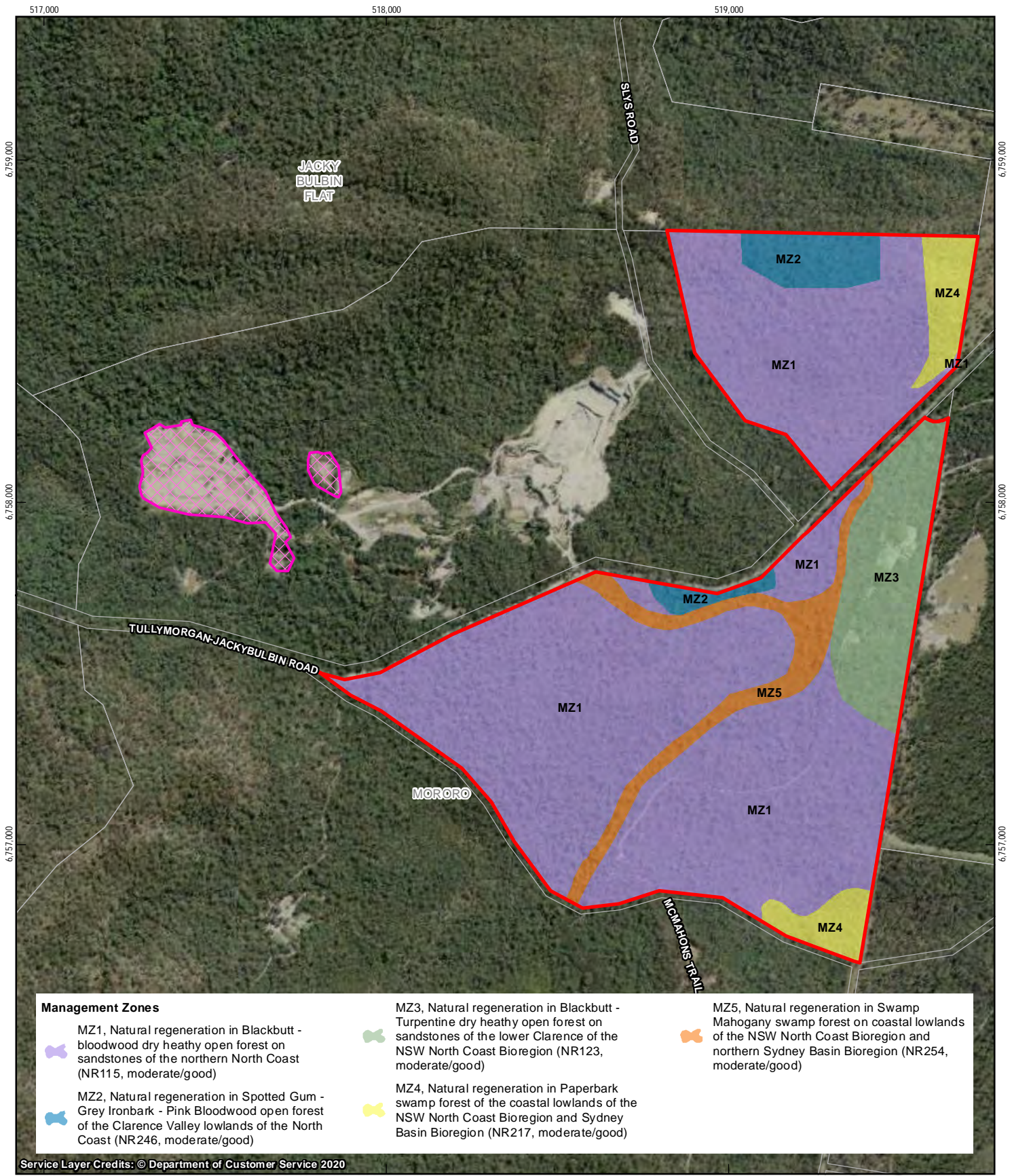
Newman Quarrying will continue to implement the BRMP and BioBank Agreement requirements to minimise impacts on biodiversity.

6.6 Heritage



6.6.1 Environmental management



Management of both historical and Aboriginal cultural heritage at Sly's Quarry is in accordance with the Heritage Management Plan (HMP) and CoA. The targets outlined in the HMP are to:


- Ensure full compliance with the relevant legislative requirements and CoA.
- No damage to heritage items.
- All site staff and contractors trained on unexpected finds protocol.



Management Zones




-  MZ1, Natural regeneration in Blackbutt - bloodwood dry heathy open forest on sandstones of the northern North Coast (NR115, moderate/good)
-  MZ2, Natural regeneration in Spotted Gum - Grey Ironbark - Pink Bloodwood open forest of the Clarence Valley lowlands of the North Coast (NR246, moderate/good)

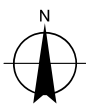
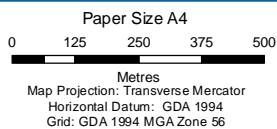
-  MZ3, Natural regeneration in Blackbutt - Turpentine dry heathy open forest on sandstones of the lower Clarence of the NSW North Coast Bioregion (NR123, moderate/good)
-  MZ4, Natural regeneration in Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion (NR217, moderate/good)

-  MZ5, Natural regeneration in Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion (NR254, moderate/good)

Service Layer Credits: © Department of Customer Service 2020

LEGEND

-  Cadastre
-  Tabbimoble Creek biobank site
- Revegetation Areas**
-  Stage 1



Markyl Pty Ltd
 Tabbimoble Creek
 Biobanking Assessment

Job Number | 22-17528
 Revision | 1
 Date | 23 Dec 2020

Biobank and revegetation areas **Figure 6-6**

6.6.2 Environmental performance

During the reporting period, Newman Quarrying has followed the protocols outlined in the HMP. As predicted in the EIS, no unexpected finds of historical or Aboriginal heritage items have been recorded during the reporting period.

6.6.3 Improvements and initiatives

The HMP and CoA will continue to be implemented at Sly's Quarry over the next reporting period.

6.7 Waste

6.7.1 Environmental management

Waste at Sly's Quarry is managed in accordance with the Waste Management Plan (WMP), CoA and EPL. The objectives of the WMP are to:

- Ensure full compliance with the relevant legislative requirements and CoA.
- Waste generation minimised through the hierarchy of waste management priorities.
- Separable waste bins provided.

The WMP encouraged using the waste management hierarchy of avoid, reuse/recycle and then dispose to mitigate the impacts of waste from a number of sources, including excavated material, green waste, general construction waste, contaminated soil, liquid waste, wastewater, biological waste and domestic waste.

6.7.2 Environmental performance

The following mitigation measures were implemented by Newman Quarrying during the reporting period to manage waste on-site:

- Re-using excess materials.
- Recycling metal, waste oil and old batteries.
- Appropriate storage of chemicals and fuels in bunded areas with 110% capacity.
- Diverting clean water from the site.
- Routine weekly inspection to ensure the site is clean and tidy.

A summary of the type and quantity of wastes generated by the quarry during the 2019/2020 reporting period are presented in Table 6-7. The volumes of waste were not predicted in the EIS, however the type of wastes and disposal option is generally as predicted.

Table 6-7 Waste records

Waste	Amount	Management option
General rubbish	21 m ³	Landfill
Scrap steel	0 tonnes	Recycled
Cardboard	6 m ³	Recycled
Oil	2,500 L	Recycled
Aluminium cans	4 m ³	Recycled

6.7.3 Improvements and initiatives

Newman Quarrying will continue to implement the waste mitigation measures and conditions outlined in the WMP, CoA and EPL.

6.8 Traffic

6.8.1 Environmental management

Traffic at Sly's Quarry is managed in accordance with the Traffic Management Plan (TMP), CoA and EPL. The objectives of the TMP are:

- Ensure full compliance with the relevant legislative requirements and CoA.
- No justified complaints related to site traffic.
- No road damage from quarry vehicle movements beyond normal wear and tear.

6.8.2 Environmental performance

In order to meet these objectives Newman Quarrying implemented the following mitigation measures during the reporting period:

- Implementation of a code of conduct.
- No more than 150 laden trucks dispatched from the quarry on any day.

Newman Quarrying present a truck movement summary on their website, which is summarised in Table 6-8. Truck movements were compliant with the CoA and TMP.

Table 6-8 Truck movement summary

DAY	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1ST	58	7	0	88	16	0	0	5	0	15	47	63
2ND	70	21	89	127	0	18	0	0	10	16	27	62
3RD	127	0	25	87	0	16	0	26	25	29	0	86
4TH	63	0	31	47	18	8	0	13	20	0	12	89
5TH	0	37	36	0	13	21	0	24	13	0	32	107
6TH	0	24	50	0	12	14	14	3	13	10	37	5
7TH	0	49	28	0	10	9	22	0	0	17	24	0
8TH	0	49	0	63	4	0	9	0	0	5	5	0
9TH	48	38	79	64	0	12	7	0	5	17	0	39
10TH	66	28	24	63	0	20	10	0	4	0	0	0
11TH	93	0	69	78	4	14	0	20	9	0	34	0
12TH	110	62	48	0	8	9	0	10	18	0	20	10
13TH	36	60	65	0	6	10	15	4	14	0	19	0
14TH	0	102	23	36	23	3	10	0	3	12	23	0
15TH	65	116	0	66	12	0	9	0	0	31	24	4
16TH	47	142	38	45	0	42	13	0	7	52	0	8
17TH	50	91	34	13	0	23	4	15	20	60	0	6
18TH	41	0	64	41	6	26	0	12	33	21	9	16
19TH	60	84	85	0	9	13	0	20	31	0	25	3
20TH	77	28	81	0	9	4	2	9	8	24	10	0
21ST	0	11	15	12	7	0	25	27	0	39	14	0
22ND	95	43	0	49	0	0	21	0	0	5	11	9
23RD	126	25	27	24	0	0	16	0	24	10	0	9
24TH	138	9	24	16	0	0	23	3	19	22	0	21

DAY	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
25TH	105	0	21	14	13	0	0	8	20	0	21	31
26TH	6	50	41	6	16	0	0	15	8	0	35	23
27TH	2	16	63	0	11	0	0	6	28	11	11	5
28TH	0	72	28	26	19	0	15	15	0	11	63	0
29TH	6	122	0	12	3	0	46	0	0	16	34	14
30TH	66	100	85	3	0	0	12	0	23	14	0	13
31ST	22	25	0	7	0	0	14		22	0	0	

The traffic impacts were generally consistent with those predicted, however truck numbers have decreased by over 5,000 compared to the previous reporting period.

6.8.3 Improvements and initiatives

Newman Quarrying will continue to implement the traffic mitigation measures and conditions outlined in the TMP, CoA and EPL.

7. **Community**

In accordance with the CoA, an Environmental Management Strategy (EMS) was prepared, which included details of a complaints handling process for the quarry. In accordance with the EMS, a complaints telephone line was established, with the number advertised on the Sly's Quarry entrance and on the Newman Quarrying website. The EMS requires all complaints to 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.

Newman Quarrying records all complaints regarding quarry operations, in accordance with the EMS. The complaints are publically available on their website.

During the reporting period, no complaints were received.

8. **Independent audit**

The last independent environmental audit (IEA) of the Sly's Quarry Expansion was conducted in August 2017. An IEA was due during this reporting period but due to the bushfires and COVID 19 situation, DPIE granted an extension for undertaking the independent environmental audit for up to 12 months. This letter is attached in Appendix C.

9. **Incidents and non-compliance**

9.1 Incidents

No incidents occurred during the reporting period.

9.2 Non compliance

As identified in Section 1, there have been no non-compliances identified during the reporting period.

9.3 Regulatory agency actions

There has been no regulatory agency action during the reporting period.

10. **Activities to be completed in the next reporting period**

In the next 12 months, activities at the quarry are anticipated to include:

- Continue extraction from Stage 1.
- Total expected extraction of 180,000 tonnes.
- Detailed review of management plans within 3 months of submission of the Annual Report, as per Condition 4, Schedule 5.
- Review implementation of EMS.
- Nest box monitoring.
- Modify the consent to update the biobank credit requirements and possibly modify the limits on importing mulch and topsoil.
- The requirements of the management plans, EPL and CoA will continue to be implemented.
- Rehabilitation will continue.
- Implement Biobank management as per the agreement.
- Conduct 3 year independent review.

11. Conclusion

This Annual Review has been completed for Sly's Quarry, on behalf of Newman's Quarrying, in accordance with the CoAs (SSD 6624), to assess environmental compliance at the site from 1 July 2019 to 30 June 2020.

The primary quarry operations undertaken during the reporting period included:

- Extraction from Stage 1.
- Total extraction of 214,567.97 tonnes.
- Area C rehabilitation has been ongoing.
- Recovering following the bushfires in November 2019.

Activities proposed for the next reporting period include:

- Continue extraction from Stage 1.
- Total expected extraction of 180,000 tonnes.
- Detailed review of management plans within 3 months of submission of the Annual Report, as per Condition 4, Schedule 5.
- Review implementation of EMS.
- Nest box monitoring.
- Modify the consent to update the biobank credit requirements and possibly modify the limits on importing mulch and topsoil.
- The requirements of the management plans, EPL and CoA will continue to be implemented.
- Rehabilitation will continue.
- Implement Biobank management as per the agreement.
- Conduct 3 year independent review.

An assessment of the environmental monitoring completed at Sly's Quarry was undertaken, with compliance against CoA SSD 6624, EPL 11649 and the relevant management plans also assessed. Generally, environmental management at Sly's Quarry, during the reporting period, was as predicted, consistent with previous reporting periods and compliant.

Environmental management will continue to comply with the CoA of SSD 6624, EPL 11649 and the relevant management plans.

12. **References**

GHD 2015. *Environmental Impact Statement*. May 2015.

GHD 2017. *Air Quality Management Plan*. May 2017.

GHD 2017. *Biodiversity and Rehabilitation Management Plan*. May 2017.

GHD 2017. *Blast Management Plan*. May 2017.

GHD 2017. *Environmental Management Strategy*. May 2017.

GHD 2017. *Heritage Management Plan*. May 2017.

GHD 2017. *Noise Management Plan*. May 2017.

GHD 2017. *Soil and Water Management Plan*. May 2017.

GHD 2017. *Traffic Management Plan*. May 2017.

GHD 2017. *Waste Management Plan*. May 2017.

NSW Government 2015, *Post-approval requirements for State Significant mining developments – Annual Review Guideline*.

Appendices

Appendix A – Production data



RETURN FOR EXTRACTIVE MATERIALS: YEAR ENDED 30 JUNE 2020

Quote RIMS ID in all correspondence

Quarry Id: _____ Rims ID: <u>400563</u> Operators Name: <u>NEWMAN QUARRYING PT</u> Address: <u>PO Box 2912</u> <u>YAMBA 2464</u> Email: <u>newmanquarrying@gmail.com</u> Quarry Name: <u>Sty's Quarry</u> Quarry Address: <u>Jacobsbulbin Rd, Mororo 2469</u>	Inquiries please telephone: (02) 4063 6713 Completed or Nil Returns Email – mineral.royalty@planning.nsw.gov.au Postal Address (see below)
Please amend name, postal address and location of mine or quarry if incorrect or incomplete.	

2019-2020

The return should be completed and forwarded to Senior Advisory Officer, RESOURCE ECONOMICS, RESOURCE PLANNING & PROJECTS, NSW DEPARTMENT OF PLANNING, INDUSTRY & ENVIRONMENT, PO BOX 344 HUNTER REGION MAIL CENTRE NSW 2310 on or before 31 October 2019.

The return should relate to the above quarrying establishment and should cover the operations of quarrying and treatment (such as crushing, screening, washing etc.) carried out at or near the quarry.

Director, Resource Planning & Projects

Please complete all of the following information to assist in identifying the location of the Quarry

Typical Geology SANDSTONE

Nearest Town to Quarry MAUREN

Local Council Name Clarence Valley Council

Deposited Plan and Lot Number/s of Quarry Lot 2 DP1055044

Email Address of Operator newmanquarrying@gmail.com

Name of Owner or Licensee Mark Newman

Postal Address of Licensee PO Box 2912, Yamba 2464

Licence/Lease Number/s (if any)
 From Mineral Resources NSW (Industry & Investment NSW) N/A
 From Department of Lands or other Department SS06624

If any output was obtained from land NOT held under licence from the above Departments, state the Name/s and Address/es of the Owners of the land N/A

To the best of my knowledge, information entered in this return is correct and no blank spaces left where figures should have been inserted.

- SIGNATURE of PROPRIETOR or MANAGER [Signature] DATE 20-7-20
- CONTACT PERSON for this return MARK NEWMAN
- NAME (Block letters) MARK NEWMAN Telephone 0427822667

SALES During 2018-2019

Production information may be published in aggregated form for statistical reporting. However, production data for individual operations is kept strictly confidential.

Product	Description	Quantity Tonnes
Virgin Materials		
• Crushed Coarse Aggregates		
Over 75mm	cobble	15,575.36
Over 30mm to 75mm	cobble	3,090.28
5mm to 30mm	cobble	1,797.62
Under 5mm		
Natural Sand		
Manufactured Sand	WASHED SAND	3,400.64
Prepared Road Base & Sub Base		163,133.37
Other Unprocessed Materials	rough fill	7,223.80
Recycled Materials		
• Crushed Coarse Aggregates		
Over 75mm		
Over 30mm to 75mm		
5mm to 30mm		
Under 5mm		
Natural Sand		
Manufactured Sand		
Prepared Road Base & Sub Base		
Other Unprocessed Materials		
• River Gravel		
Over 30mm		
5mm to 30mm		
Under 5mm		
• Construction Sand	Excluding Industrial Fill SAND	10,796.19
• Industrial Sand		
Foundry, Moulding		
Glass		
Other (Specify)		
• Dimension Stone	Building, Ornamental, Monumental	
Quarried in Blocks	block stone	9,550.71
Quarried in Slabs		
• Decorative Aggregate	Including Terrazzo	
• Loam	Soil for Topdressing, Garden soil, Horticultural purposes)	
• TOTAL SITE PRODUCTION		214,567.97
• Gross Value (\$) of all Sales	\$ 2,145,679.70	
• Type of Material	SANDSTONE	
• Number of Full-Time Equivalent (FTE) Employees	Employees: 6	Contractors: 1

Please Note: A return for clay based products can be obtained by contacting the inquiry number.

Appendix B – Council contributions



ABN: 85864095684

Locked Bag 23
Grafton NSW 2460

Tax Invoice
Official Receipt

20/07/2020 **Receipt No:** 837704

To: Newman Quarrying Pty.Ltd
PO Box 292
YAMBA NSW 2464

Applic	Reference	Amount
GL Receipt		
GL S94QuryRdsJacky		\$6,840.00
1 - Newman Quarry - Annual S94 Contribution		

Transaction Total: **\$6,840.00**
Includes GST of: **\$0.00**

Amounts Tendered

Cash	\$0.00
Cheque	\$0.00
Db/Cr Card	\$6,840.00
Money Order	\$0.00
Agency	\$0.00
Total	\$6,840.00
Rounding	\$0.00
Change	\$0.00
Nett	\$6,840.00

You are a valued customer of Clarence Valley Council. We thank you for your payment.

Please Note: The print quality of this receipt will diminish over time.

A surcharge of 0.6% applies to payments by Credit Card

Printed 20/07/2020 11:41:05AM

Appendix C – DPIE Correspondence



Planning Services - Compliance

Contact: Shelley McPhee

Phone: (02) 6670 8675

Email: Shelley.McPhee@planning.nsw.gov.au

SSD 6624 (as modified)

21 April 2020

Mr Mark Newman
Newman Quarrying Pty Ltd
Jackybulbin Road,
Mororo NSW 2469

Dear Mr Newman,

**Newman Quarrying Pty Ltd – Sly's Quarry (SSD 6624)
Request for an extension for undertaking 3 year independent environmental audit**

I refer to your email to the Department of Planning, Industry and Environment ("Department") on 8 April 2020, requesting an extension for undertaking the Independent Environmental Audit as required by Schedule 5, Condition 11 of SSD 6624 ("Approval").

The Department has reviewed the information you have provided in support of your request for an extension of time to undertake the Independent Environmental Audit. In light of the impact that the recent bushfires and the current COVID-19 situation have had on your business, the Department will grant an extension of up to 12 months to undertake this Independent Environmental Audit to be submitted to the Department by 21 April 2021.

You are reminded of the requirements to have the Independent Auditor endorsed by the Secretary before the audit is undertaken.

Should you have any questions, or wish to discuss the matter further, please contact me on 6670 8675 or email to compliance@planning.nsw.gov.au.

Yours sincerely,

Shelley McPhee
Team Leader Compliance
As Nominee of the Secretary

CC **Ben Luffman**
Senior Environmental Consultant
GHD
230 Harbour Drive, Coffs Harbour NSW 2450

Appendix D – Water quality results

WATER QUALITY MONITORING RESULTS JUNE 2017 - JUNE 2018
SLY'S QUARRY
JACKYBULBIN RD , MORORO

DATE	WHO	WEATHER	RAIN PAST 24 HRS	RAIN PAST 5 DAYS	POINT	DISCHARGING?	TSS/TURB	PH	conduct	OIL	TREATED?	DISCHARGED?		
3.7.17	mark n	fine	0	28	pond e	no	13		7.2 n/a	no	no	yes		
20.7.17	markn	fine	0	5	pond e	no	24		7.9 n/a	no	no	yes		
1.9.17	mark n	fine	0	0	gw1	n/a	n/a		5.8	153 n/a	n/a	n/a	quarterly test	
1.9.17	mark n	fine	0	0	gw2	n/a	n/a		5.7	256 n/a	n/a	n/a	quarterly test	
1.9.17	mark n	fine	0	0	gw3	n/a	n/a		6.1	165 n/a	n/a	n/a	quarterly test	
3/10/2017	mark n	raining	18	18	wq1	n/a	3		6.5 n/a	no	n/a	n/a	surface water >10mm	stagnant
3/10/2017	mark n	raining	18	18	wq2	n/a	18		6.1 n/a	no	n/a	n/a	surface water >10mm	stagnant
16/10/2017	mark n	raining	87	87	wq1	n/a	5		6.2 n/a	no	n/a	n/a	surface water >10mm	running
16/10/2017	mark n	raining	87	87	wq2	n/a	5		6.2 n/a	no	n/a	n/a	surface water >10mm	running
17/10/2017	mark n	raining	24	111	wq1	n/a	5		6.2 n/a	no	n/a	n/a	surface water >10mm	running
17/10/2017	mark n	raining	24	111	wq2	n/a	6		5.9 n/a	no	n/a	n/a	surface water >10mm	running
23/10/2017	mark n	dry	24	53	wq1	n/a	3		6.4 n/a	no	n/a	n/a	surface water >10mm	running
23/10/2017	mark n	dry	24	53	wq2	n/a	4		6.2 n/a	no	n/a	n/a	surface water >10mm	running
1/11/2017	mark n	dry	0	0	pond e	no	9		7.8 n/a	no	n/a	yes		
6/11/2017	mark n	raining	39	39	wq1	n/a	10		6.1 n/a	no	n/a	n/a	surface water >10mm	running
6/11/2017	mark n	raining	39	39	wq2	n/a	5		6.1 n/a	no	n/a	n/a	surface water >10mm	running
7/11/2017	mark n	raining	19	58	wq1	n/a	10		6.6 n/a	no	n/a	n/a	surface water >10mm	running
7/11/2017	mark n	raining	19	58	wq2	n/a	17		6.5 n/a	no	n/a	n/a	surface water >10mm	running
21/11/2017	markn	raining	10.5	25.5	pond e	no	20		7.7 n/a	no	no	yes		
21/11/2017	markn	raining	10.5	25.5	wq1	n/a	5		6.3 n/a	no	n/a	n/a	surface water >10mm	running
21/11/2017	markn	raining	10.5	25.5	wq2	n/a	5		6.2 n/a	no	n/a	n/a	surface water >10mm	running
30/11/2017	markn	raining	18	18	wq1	n/a	7		6.2 n/a	no	n/a	n/a	surface water >10mm	running
30/11/2017	markn	raining	18	18	wq2	n/a	6		6.1 n/a	no	n/a	n/a	surface water >10mm	running
30.11.17	mark n	raining	18	18	gw1	n/a	n/a		5.7	209 n/a	n/a	n/a	quarterly test	

30.11.17	mark n	raining	18	18 gw2	n/a	n/a	5.8	298 n/a	n/a	n/a	quarterly test	
30.11.17	mark n	raining	18	18 gw3	n/a	n/a	5.1	250 n/a	n/a	n/a	quarterly test	
1.12.17	mark n	raining	10	10 wq1	n/a	12	6.1 n/a	no	n/a	n/a	surface water >10mm	running
1.12.17	mark n	raining	10	10 wq2	n/a	9	6.2 n/a	no	n/a	n/a	surface water >10mm	running
2.12.17	mark n	raining	26	36 wq1	n/a	7	6.2 n/a	no	n/a	n/a	surface water >10mm	running
2.12.17	mark n	raining	26	36 wq2	n/a	7	6.2 n/a	no	n/a	n/a	surface water >10mm	running
6.12.17	mark n	raining	37	45.5 pond e	n/a	24	6.5 n/a	no	n/a	yes		
6.12.17	mark n	raining	37	45.5 wq1	n/a	3	6.8 n/a	no	n/a	n/a	surface water >10mm	running
6.12.17	mark n	raining	37	45.5 wq2	n/a	13	6.3 n/a	no	n/a	n/a	surface water >10mm	running
21.12.17	mark n	raining	18.6	20.4 wq1	n/a	9	6.13 n/a	no	n/a	n/a	surface water >10mm	running
21.12.17	mark n	raining	18.6	20.4 wq2	n/a	6	6.14 n/a	no	n/a	n/a	surface water >10mm	running
25.12.17	mark n	raining	35.4	54.6 wq1	n/a	11	6.09 n/a	no	n/a	n/a	surface water >10mm	running
25.12.17	mark n	raining	35.4	54.6 wq2	n/a	15	6.04 n/a	no	n/a	n/a	surface water >10mm	running
26.12.17	mark n	raining	13.8	49.8 wq1	n/a	9	6.22 n/a	no	n/a	n/a	surface water >10mm	running
26.12.17	mark n	raining	13.8	49.8 wq2	n/a	10	6.07 n/a	no	n/a	n/a	surface water >10mm	running
3.1.18	mark n	raining	19.5	27 pond e	no	9	6.23 n/a	no	no	no		
3.1.18	mark n	raining	19.5	27 wq1	n/a	4	6.15 n/a	no	n/a	n/a	surface water >10mm	running
3.1.18	mark n	raining	19.5	27 wq2	n/a	3	6.43 n/a	no	n/a	n/a	surface water >10mm	running
12.1.18	mark n	fine	0	2 pond e	no	47	7.53 n/a	no	no	yes		
22.1.18	mark n	raining	20.1	26.5 wq1	n/a	8	6.13 n/a	no	n/a	n/a	surface water >10mm	running
22.1.18	mark n	raining	20.1	26.5 wq2	n/a	11	6.25 n/a	no	n/a	n/a	surface water >10mm	running
23.1.18	mark n	raining	27.6	51.3 wq1	n/a	17	6.19 n/a	no	n/a	n/a	surface water >10mm	running
23.1.18	mark n	raining	27.6	51.3 wq2	n/a	22	6.29 n/a	no	n/a	n/a	surface water >10mm	running
29.1.18	mark n	raining	14.7	60.9 pond e	no	7	8.12 n/a	no	no	yes		
29.1.18	mark n	raining	14.7	60.9 wq1	n/a	2	6.47 n/a	no	n/a	n/a	surface water >10mm	running
29.1.18	mark n	raining	14.7	60.9 wq2	n/a	26	6.14 n/a	no	n/a	n/a	surface water >10mm	running
3.2.18	mark n	raining	21	56 wq1	n/a	4	6.59 n/a	no	n/a	n/a	surface water >10mm	running
3.2.18	mark n	raining	21	56 wq2	n/a	8	6.49 n/a	no	n/a	n/a	surface water >10mm	running

12.2.18	mark n	raining	18.6	20.4 wq1	n/a		2	6.52 n/a	no	n/a	n/a	surface water >10mm	running
12.2.18	mark n	raining	18.6	20.4 wq2	n/a		24	6.18 n/a	no	n/a	n/a	surface water >10mm	running
19.2.18	mark n	fine	0	0 gw1	n/a	n/a		5.61	136 no	n/a	n/a	quarterly test	
19.2.18	mark n	fine	0	0 gw2	n/a	n/a		5.36	235 no	n/a	n/a	quarterly test	
19.2.18	mark n	fine	0	0 gw3	n/a	n/a		4.8	615 no	n/a	n/a	quarterly test	
21.2.18	mark n	raining	22.9	25 wq1	n/a		6	6.38 n/a	no	n/a	n/a	surface water >10mm	running
21.2.18	mark n	raining	22.9	25 wq2	n/a		12	6.04 n/a	no	n/a	n/a	surface water >10mm	running
24.2.18	mark n	raining	12.9	46.5 wq1	n/a		7	6.29 n/a	no	n/a	n/a	surface water >10mm	running
24.2.18	mark n	raining	12.9	46.5 wq2	n/a		9	6.25 n/a	no	n/a	n/a	surface water >10mm	running
27.2.18	mark n	raining	26	39 wq1	n/a		7	6.39 n/a	no	n/a	n/a	surface water >10mm	running
27.2.18	mark n	raining	26	39 wq2	n/a		8	6.3 n/a	no	n/a	n/a	surface water >10mm	running
6.3.18	mark n	raining	38.7	47.7 wq1	n/a		13	6.09 n/a	no	n/a	n/a	surface water >10mm	running
6.3.18	mark n	raining	38.7	47.7 wq2	n/a		7	6.25 n/a	no	n/a	n/a	surface water >10mm	running
6.3.18	mark n	raining	38.7	47.7 pond e	no		67	7.53 n/a	no	yes	no	to be retested before release	
15.3.18	mark n	raining	28.5	37.5 pond e	no		12	7.53 n/a	no	no	yes	retest tss passed prior to release	
7.3.18	mark n	raining	10	51 wq1	n/a		4	6.33 n/a	no	n/a	n/a	surface water >10mm	running
7.3.18	mark n	raining	10	51 wq2	n/a		5	6.27 n/a	no	n/a	n/a	surface water >10mm	running
10.3.18	mark n	raining	10	60 wq1	n/a	<1		6.16 n/a	no	n/a	n/a	surface water >10mm	running
10.3.18	mark n	raining	10	60 wq2	n/a	<1		6.24 n/a	no	n/a	n/a	surface water >10mm	running
15.3.18	mark n	raining	28.5	37.5 wq1	n/a		3	6.5 n/a	no	n/a	n/a	surface water >10mm	running
15.3.18	mark n	raining	28.5	37.5 wq2	n/a		6	6.54 n/a	no	n/a	n/a	surface water >10mm	running
24.3.18	mark n	raining	44	48.5 wq1	n/a		3	6.23 n/a	no	n/a	n/a	surface water >10mm	running
24.3.18	mark n	raining	44	48.5 wq2	n/a		4	6.3 n/a	no	n/a	n/a	surface water >10mm	running
9.4.18	mark n	raining	10	15 wq1	n/a		7	6.17 n/a	no	n/a	n/a	surface water >10mm	running
9.4.18	mark n	raining	10	15 wq2	n/a		7	6.68 n/a	no	n/a	n/a	surface water >10mm	running
18.4.18	mark n	raining	10	10 wq1	n/a		10	6.27 n/a	no	n/a	n/a	surface water >10mm	running
18.4.18	mark n	raining	10	10 wq2	n/a		4	6.29 n/a	no	n/a	n/a	surface water >10mm	running
23.4.18	mark n	dry	29.1	36.9 wq1	n/a		4	6.33 n/a	no	n/a	n/a	surface water >10mm	running

23.4.18	mark n	dry	29.1	36.9 wq2	n/a		4	6.38 n/a	no	n/a	n/a	surface water >10mm	running
23.4.18	mark n	dry	29.1	36.9 pond e	no		18	7.89 n/a	no	no	yes		
8.5.18	mark n	raining	10	10 wq1	n/a		5	6.4 n/a	no	n/a	n/a	surface water >10mm	running
8.5.18	mark n	raining	10	10 wq2	n/a		16	6.21 n/a	no	n/a	n/a	surface water >10mm	running
8.5.18	mark n	raining	10	10 pond e	no		23	7.7 n/a	no	no	yes		
21.5.18	mark n	dry	0	10 gw1	n/a	n/a		5.48	113 no	n/a	n/a	quarterly test	
21.5.18	mark n	dry	0	10 gw2	n/a	n/a		5.2	222 no	n/a	n/a	quarterly test	
21.5.18	mark n	dry	0	10 gw3				well dry not obtainable				quarterly test	
30.5.18	mark n	raining	52.8	52.8 wq1	n/a		4	6.56 n/a	no	n/a	n/a	surface water >10mm	running
30.5.18	mark n	raining	52.8	52.8 wq2	n/a		6	6.48 n/a	no	n/a	n/a	surface water >10mm	running
15.6.18	mark n	dry	0	6 pond e	no		7	7.37 n/a	no	no	yes		
6.7.18	mark n	dry	11.5	24 wq1	n/a	<1		6.4 n/a	no	n/a	n/a	surface water >10mm	running
6.7.18	mark n	dry	11.5	24 wq2	n/a		4	6.3 n/a	no	n/a	n/a	surface water >10mm	running
8.8.18	mark n	dry	0	0 gw1	n/a	n/a		5.4	106 no	n/a	n/a	quarterly test	
8.8.18	mark n	dry	0	0 gw2	n/a	n/a		5.3	236 no	n/a	n/a	quarterly test	
8.8.18	mark n	dry	0	0 gw3				well not obtainable				quarterly test	
27.8.18	mark n	dry	19	22 wq1	n/a		23	6.4 n/a	no	n/a	n/a	surface water >10mm	running
27.8.18	mark n	dry	19	22 wq2	n/a		30	6.4 n/a	no	n/a	n/a	surface water >10mm	running
4.9.18	mark n	raining	12	15 wq1	n/a		2	6.7 n/a	no	n/a	n/a	surface water >10mm	running
4.9.18	mark n	raining	12	15 wq2	n/a		6	6.4 n/a	no	n/a	n/a	surface water >10mm	running
5.9.18	mark n	raining	26	41 wq1	n/a		2	7 n/a	no	n/a	n/a	surface water >10mm	running
5.9.18	mark n	raining	26	41 wq2	n/a		11	6.4 n/a	no	n/a	n/a	surface water >10mm	running
14.9.18	mark n	dry	0	0 pond e	no		21	7.7 n/a	no	no	yes		
21.9.18	mark n	dry	13	13 wq1	n/a		15	6.4 n/a	no	n/a	n/a	surface water >10mm	running
21.9.18	mark n	dry	13	13 wq2	n/a		11	5.8 n/a	no	n/a	n/a	surface water >10mm	running
11.10.18	mark n	raining	11	11 wq1	n/a		10	6.4 n/a	no	n/a	n/a	surface water >10mm	running
11.10.18	mark n	raining	11	11 wq2	n/a		31	6.2 n/a	no	n/a	n/a	surface water >10mm	running

12.10.18	mark n	raining	34.8	45.8 wq1	n/a		9	6.3 n/a	no	n/a	n/a	surface water >10mm	running
12.10.18	mark n	raining	34.8	45.8 wq2	n/a		30	6.1 n/a	no	n/a	n/a	surface water >10mm	running
13.10.18	mark n	raining	24	69.8 wq1	n/a		8	6.2 n/a	no	n/a	n/a	surface water >10mm	running
13.10.18	mark n	raining	24	69.8 wq2	n/a		35	6.2 n/a	no	n/a	n/a	surface water >10mm	running
15.10.18	mark n	raining	57	116 wq1	n/a		9	6.3 n/a	no	n/a	n/a	surface water >10mm	running
15.10.18	mark n	raining	57	116 wq2	n/a		35	6.2 n/a	no	n/a	n/a	surface water >10mm	running
16.10.18	mark n	raining	18.9	134.9 wq1	n/a		4	7.1 n/a	no	n/a	n/a	surface water >10mm	running
16.10.18	mark n	raining	18.9	134.9 wq2	n/a		10	6.9 n/a	no	n/a	n/a	surface water >10mm	running
17.10.18	mark n	dry	24	147.9 wq1	n/a		3	7 n/a	no	n/a	n/a	surface water >10mm	running
17.10.18	mark n	dry	24	147.9 wq2	n/a		8	6.9 n/a	no	n/a	n/a	surface water >10mm	running
21.10.18	mark n	dry	38.5	38.5 wq1	n/a		15	6.4 n/a	no	n/a	n/a	surface water >10mm	running
21.10.18	mark n	dry	38.5	38.5 wq2	n/a		11	5.8 n/a	no	n/a	n/a	surface water >10mm	running
31.10.18	mark n	dry	0.6	0.6 pond e	no		8	7.4 n/a	no	no	yes		
5.11.18	mark n	dry	5	5 gw1	n/a	n/a		5.9	147	no	n/a	n/a	quarterly test
5.11.18	mark n	dry	5	5 gw2	n/a	n/a		5.4	492	no	n/a	n/a	quarterly test
5.11.18	mark n	dry	5	5									
19.11.18	mark n	dry	17	19 wq1	n/a		5	6.2 n/a	no	n/a	n/a	surface water >10mm	stagnant
19.11.18	mark n	dry	17	19 wq2	n/a		9	6 n/a	no	n/a	n/a	surface water >10mm	stagnant
22.11.18	mark n	dry	18	37 wq1	n/a		3	6.3 n/a	no	n/a	n/a	surface water >10mm	stagnant
22.11.18	mark n	dry	18	37 wq2	n/a		2	6.1 n/a	no	n/a	n/a	surface water >10mm	stagnant
28.11.18	mark n	dry	12.3	12.3 wq1	n/a	<1		6.4 n/a	no	n/a	n/a	surface water >10mm	stagnant
28.11.18	mark n	dry	12.3	12.3 wq2	n/a		13	6 n/a	no	n/a	n/a	surface water >10mm	stagnant
17.12.18	mark n	dry	21	31.5 wq1	n/a		12	6.5 n/a	no	n/a	n/a	surface water >10mm	stagnant
17.12.18	mark n	dry	21	31.5 wq2	n/a		13	6.1 n/a	no	n/a	n/a	surface water >10mm	stagnant
21.12.18	mark n	dry	31	41 wq1	n/a		21	6.3 n/a	no	n/a	n/a	surface water >10mm	stagnant
21.12.18	mark n	dry	31	41 wq2	n/a	<1		6.1 n/a	no	n/a	n/a	surface water >10mm	stagnant
7.1.19	mark n	dry	0	0 pond e	no		17	8.1 n/a	no	no	yes		
4.2.19	mark n	dry	16.8	16.8 wq1	n/a		25	6.1 n/a	no	n/a	n/a	surface water >10mm	stagnant

4.2.19	mark n	dry	16.8	16.8 wq2	n/a		52	6.1 n/a	no	n/a	n/a	surface water >10mm	stagnant
8.2.19	mark n	dry	10.2	13.6 wq1	n/a		30	6.4 n/a	no	n/a	n/a	surface water >10mm	stagnant
8.2.19	mark n	dry	10.2	13.6 wq2	n/a		39	5.8 n/a	no	n/a	n/a	surface water >10mm	stagnant
8.2.19	mark n	dry	10.2	13.6 gw1	n/a	n/a	well dry not obtainable					quarterly test	
8.2.19	mark n	dry	10.2	13.6 gw2	n/a	n/a		5.3	186 no	n/a	n/a		
8.2.19	mark n	dry	10.2	13.6 gw3	n/a	n/a	well dry not obtainable					quarterly test	
22.2.19	mark n	rain	48.9	49.8 wq1	n/a		15	6.4 n/a	no	n/a	n/a	surface water >10mm	stagnant
22.2.19	mark n	rain	48.9	49.8 wq2	n/a		29	5.8 n/a	no	n/a	n/a	surface water >10mm	stagnant
4.3.19	mark n	dry	10	22 wq1	n/a		32	6.8 n/a	no	n/a	n/a	surface water >10mm	stagnant
4.3.19	mark n	dry	10	22 wq2	n/a		6	5.9 n/a	no	n/a	n/a	surface water >10mm	stagnant
8.3.19	mark n	dry	27.3	27.3 wq1	n/a		9	6.2 n/a	no	n/a	n/a	surface water >10mm	stagnant
8.3.19	mark n	dry	27.3	27.3 wq2	n/a		9	5.3 n/a	no	n/a	n/a	surface water >10mm	stagnant
15.3.19	mark n	dry	0	0 pond e	no		9	7.3 n/a	no	no	yes		
16.3.19	mark n	rain	70.1	70.1 wq1	n/a		13	6.2 n/a	no	n/a	n/a	surface water >10mm	stagnant
16.3.19	mark n	rain	70.1	70.1 wq2	n/a		8	5.8 n/a	no	n/a	n/a	surface water >10mm	stagnant
27.03.19	mark n	rain	14.4	14.4 wq1	n/a		19	6.3 n/a	no	n/a	n/a	surface water >10mm	stagnant
27.03.19	mark n	rain	14.4	14.4 wq2	n/a		38	5.7 n/a	no	n/a	n/a	surface water >10mm	stagnant
01.04.19	mark n	dry	17.4	35.9 wq1	n/a		10	6.4 n/a	no	n/a	n/a	surface water >10mm	stagnant
01.04.19	mark n	dry	17.4	35.9 wq2	n/a		7	5.8 n/a	no	n/a	n/a	surface water >10mm	stagnant
03.04.19	mark n	dry	38.4	55.8 wq1	n/a		3	5.9 n/a	no	n/a	n/a	surface water >10mm	stagnant
03.04.19	mark n	dry	38.4	55.8 wq2	n/a		22	5.3 n/a	no	n/a	n/a	surface water >10mm	stagnant
03.04.19	mark n	dry	38.4	55.8 pond e	no		32	6.9 n/a	no	no	yes		
06.04.19	mark n	dry	10	48.4 wq1	n/a		3	6.3 n/a	no	n/a	n/a	surface water >10mm	stagnant
06.04.19	mark n	dry	10	48.4 wq2	n/a		11	5.6 n/a	no	n/a	n/a	surface water >10mm	stagnant
13.04.19	mark n	dry	13	14.2 wq1	n/a		17	5.8 n/a	no	n/a	n/a	surface water >10mm	stagnant
13.04.19	mark n	dry	13	14.2 wq2	n/a		10	6.1 n/a	no	n/a	n/a	surface water >10mm	stagnant
20.04.19	mark n	rain	25.2	26.7 wq1	n/a		7	6.2 n/a	no	n/a	n/a	surface water >10mm	stagnant
20.04.19	mark n	rain	25.2	26.7 wq2	n/a		8	5.8 n/a	no	n/a	n/a	surface water >10mm	stagnant

21.04.19	mark n	rain	26.1	52.8 wq1	n/a		13	5.9 n/a	no	n/a	n/a	surface water >10mm	stagnant
21.04.19	mark n	rain	26.1	52.8 wq2	n/a		9	6.1 n/a	no	n/a	n/a	surface water >10mm	stagnant
17.05.19	mark n	dry	25	28.9 wq1	n/a		18	6 n/a	no	n/a	n/a	surface water >10mm	stagnant
17.05.19	mark n	dry	25	28.9 wq2	n/a		4	5.7 n/a	no	n/a	n/a	surface water >10mm	stagnant
21.05.19	mark n	dry	0	1.8 gw1	n/a	n/a	well dry not obtainable					quarterly test	
21.05.19	mark n	dry	0	1.8 gw2	n/a	n/a		5.4	231 no	n/a	n/a	quarterly test	
21.05.19	mark n	dry	0	1.8 gw3	n/a	n/a	well dry not obtainable					quarterly test	
25.06.19	mark n	rain	15.3	17.4 wq1	n/a		5	6.3 n/a	no	n/a	n/a	surface water >10mm	stagnant
25.06.19	mark n	rain	15.3	17.4 wq2	n/a		11	5.3 n/a	no	n/a	n/a	surface water >10mm	stagnant
27.06.19	mark n	rain	10.2	27.6 wq1	n/a		3	5.5 n/a	no	n/a	n/a	surface water >10mm	stagnant
27.06.19	mark n	rain	10.2	27.6 wq2	n/a		14	6.5 n/a	no	n/a	n/a	surface water >10mm	stagnant
28.06.19	markn	rain	10.2	37.8 wq1	n/a		4	6.3 n/a	no	n/a	n/a	surface water >10mm	stagnant
28.06.19	markn	rain	10.2	37.8 wq2	n/a		19	5.3 n/a	no	n/a	n/a	surface water >10mm	stagnant
DATE	WHO	WEATHER	RAIN PAST	RAIN PAST	POINT	DISCHARGING?	TSS/TURB	PH	conduct	OIL	TREATED?	DISCHARGED?	
2019-2020			24 HRS	5 DAYS									
05.07.19	mark n	rain	19.2	27.6 wq1	n/a		1	6.54 n/a	no	n/a	n/a	surface water >10mm	stagnant
05.07.19	mark n	rain	19.2	27.6 wq2	n/a		17	5.6 n/a	no	n/a	n/a	surface water >10mm	stagnant
08.07.19	mark n	rain	22	41.2 wq1	n/a		3	6.08 n/a	no	n/a	n/a	surface water >10mm	stagnant
08.07.19	mark n	rain	22	41.2 wq2	n/a		6	5.53 n/a	no	n/a	n/a	surface water >10mm	stagnant
08.07.19	mark n	rain	22	41.2 pond e	no		32	7.46 n/a	no	no	yes		
01.08.19	mark n	rain	16.8	26.4 wq1	n/a		40	6.38 n/a	no	n/a	n/a	surface water >10mm	stagnant
01.08.19	mark n	rain	16.8	26.4 wq2	n/a		42	5.62 n/a	no	n/a	n/a	surface water >10mm	stagnant
08.10.19	mark n	fine	0	0 gw1	n/a		well dry not obtainable					quarterly test	
08.10.19	mark n	fine	0	0 gw2	n/a	n/a		5.32	210.5 no	n/a	n/a	quarterly test	
08.10.19	mark n	fine	0	0 gw3	n/a		well dry not obtainable					quarterly test	
11.1.20	mark n	fine	16	16 wq1	n/a		6	6.12 n/a	no	n/a	n/a	surface water >10mm	stagnant
11.1.20	mark n	fine	16	16 wq2	n/a		8	5.88 n/a	no	n/a	n/a	surface water >10mm	stagnant
16.1.20	mark n	rain	15	19.2 wq1	n/a		11	6.22 n/a	no	n/a	n/a	surface water >10mm	stagnant
16.1.20	mark n	rain	15	19.2 wq2	n/a		16	5.96 n/a	no	n/a	n/a	surface water >10mm	stagnant

17.1.20	mark n	rain	33	52.5 wq1	n/a	8	6.42 n/a	no	n/a	n/a	surface water >10mm	running
17.1.20	mark n	rain	33	52.5 wq2	n/a	14	6.02 n/a	no	n/a	n/a	surface water >10mm	running
18.01.20	mark n	rain	77	129.5 wq1	n/a	1	6.05 n/a	no	n/a	n/a	surface water >10mm	running
18.01.20	mark n	rain	77	129.5 wq2	n/a	2	6.14 n/a	no	n/a	n/a	surface water >10mm	running
19.01.20	mark n	rain	87	216.5 wq1	n/a	1	6.17 n/a	no	n/a	n/a	surface water >10mm	running
19.01.20	mark n	rain	87	216.5 wq2	n/a	2	6.13 n/a	no	n/a	n/a	surface water >10mm	running
25.1.20	mark n	fine	23	23 wq1	n/a	6	5.98 n/a	no	n/a	n/a	surface water >10mm	running
25.1.20	mark n	fine	23	23 wq2	n/a	6	5.98 n/a	no	n/a	n/a	surface water >10mm	running
4.2.20	mark n	fine	11.5	11.5 gw1	wells affected by bushfire waiting on advice						quarterly test	
4.2.20	mark n	fine	11.5	11.5 gw2	wells affected by bushfire waiting on advice						quarterly test	
4.2.20	mark n	fine	11.5	11.5 gw3	wells affected by bushfire waiting on advice						quarterly test	
4.2.20	mark n	fine	11.5	11.5 wq1	n/a	8	6.05 n/a	no	n/a	n/a	surface water >10mm	running
4.2.20	mark n	fine	11.5	11.5 wq2	n/a	25	6.02 n/a	no	n/a	n/a	surface water >10mm	running
4.2.20	mark n	fine	11.5	11.5 pond e	no	19	7.5 n/a	no	no	yes		
7.2.20	mark n	rain	93	107.5 wq1	n/a	34	5.83 n/a	no	n/a	n/a	surface water >10mm	running
7.2.20	mark n	rain	93	107.5 wq2	n/a	67	6.04 n/a	no	n/a	n/a	surface water >10mm	running
8.2.20	mark n	rain	17	124.5 wq1	n/a	2	5.94 n/a	no	n/a	n/a	surface water >10mm	running
8.2.20	mark n	rain	17	124.5 wq2	n/a	12	6.04 n/a	no	n/a	n/a	surface water >10mm	running
9.2.20	mark n	rain	200	313 wq1	n/a	2	5.99 n/a	no	n/a	n/a	surface water >10mm	running
9.2.20	mark n	rain	200	313 wq2	n/a	12	6.07 n/a	no	n/a	n/a	surface water >10mm	running
11.2.20	mark n	rain	14	129 wq1	n/a	2	6.01 n/a	no	n/a	n/a	surface water >10mm	running
11.2.20	mark n	rain	14	129 wq2	n/a	8	6.13 n/a	no	n/a	n/a	surface water >10mm	running
13.2.20	mark n	rain	55	279 wq1	n/a	24	5.92 n/a	no	n/a	n/a	surface water >10mm	running
13.2.20	mark n	rain	55	279 wq2	n/a	55	6.08 n/a	no	n/a	n/a	surface water >10mm	running
14.2.20	mark n	rain	34	133 wq1	n/a	3	6.06 n/a	no	n/a	n/a	surface water >10mm	running
14.2.20	mark n	rain	34	133 wq2	n/a	11	5.96 n/a	no	n/a	n/a	surface water >10mm	running
18.2.20	mark n	rain	64	99 wq1	n/a	12	5.92 n/a	no	n/a	n/a	surface water >10mm	running
18.2.20	mark n	rain	64	99 wq2	n/a	27	6 n/a	no	n/a	n/a	surface water >10mm	running

22.2.20	mark n	fine	14.5	78.5 wq1	n/a		4	6.13 n/a	no	n/a	n/a	surface water >10mm	running
22.2.20	mark n	fine	14.5	78.5 wq2	n/a		9	6.27 n/a	no	n/a	n/a	surface water >10mm	running
24.2.20	mark n	fine	19	33.5 wq1	n/a		1	6.21 n/a	no	n/a	n/a	surface water >10mm	running
24.2.20	mark n	fine	19	33.5 wq2	n/a		8	6.28 n/a	no	n/a	n/a	surface water >10mm	running
25.2.20	mark n	rain	19	52.5 wq1	n/a		7	6.14 n/a	no	n/a	n/a	surface water >10mm	running
25.2.20	mark n	rain	19	52.5 wq2	n/a		15	6.2 n/a	no	n/a	n/a	surface water >10mm	running
27.2.20	mark n	rain	21	41.5 wq1	n/a		2	6.1 n/a	no	n/a	n/a	surface water >10mm	running
27.2.20	mark n	rain	21	41.5 wq2	n/a		7	6.22 n/a	no	n/a	n/a	surface water >10mm	running
28.2.20	mark n	fine	38	79.5 wq1	n/a		3	6.1 n/a	no	n/a	n/a	surface water >10mm	running
28.2.20	mark n	fine	38	79.5 wq2	n/a		6	6.19 n/a	no	n/a	n/a	surface water >10mm	running
8.3.20	mark n	rain	36	44.5 wq1	n/a		5	6.06 n/a	no	n/a	n/a	surface water >10mm	running
8.3.20	mark n	rain	36	44.5 wq2	n/a		7	6.22 n/a	no	n/a	n/a	surface water >10mm	running
16.3.20	mark n	fine	20	36 wq1	n/a		12	6.08 n/a	no	n/a	n/a	surface water >10mm	running
16.3.20	mark n	fine	20	36 wq2	n/a		9	6.23 n/a	no	n/a	n/a	surface water >10mm	running
31.3.20	mark n	fine	17	22.5 wq1	n/a		6	6.22 n/a	no	n/a	n/a	surface water >10mm	running
31.3.20	mark n	fine	17	22.5 wq2	n/a		11	6.4 n/a	no	n/a	n/a	surface water >10mm	running
31.3.20	mark n	fine	17	22.5 pond e	no		22	8.03 n/a	no	no	yes		
8.4.20	mark n	fine	3	5 gw1	n/a	n/a		5.8	170 no	n/a	n/a	quarterly test	
8.4.20	mark n	fine	3	5 gw2	n/a	n/a		4.65	454 no	n/a	n/a	quarterly test	
8.4.20	mark n	fine	3	5 gw3	n/a	n/a		5.46	101 no	n/a	n/a	quarterly test	
9.4.20	mark n	rain	18	21 wq1	n/a		4	6.06 n/a	no	n/a	n/a	surface water >10mm	running
9.4.20	mark n	rain	18	21 wq2	n/a		4	6.22 n/a	no	n/a	n/a	surface water >10mm	running
10.4.20	mark n	fine	24	45 wq1	n/a		4	6.02 n/a	no	n/a	n/a	surface water >10mm	running
10.4.20	mark n	fine	24	45 wq2	n/a		3	6.22 n/a	no	n/a	n/a	surface water >10mm	running
11.6.20	mark n	fine	38	47 wq1	n/a		1	6.23 n/a	no	n/a	n/a	surface water >10mm	running
11.6.20	mark n	fine	38	47 wq2	n/a		10	6.19 n/a	no	n/a	n/a	surface water >10mm	running
19.6.20	mark n	fine	18	20 wq1	n/a		1	6.03 n/a	no	n/a	n/a	surface water >10mm	running
19.6.20	mark n	fine	18	20 wq2	n/a		5	6.27 n/a	no	n/a	n/a	surface water >10mm	running

24.6.20	mark n	fine	0	5 gw1	n/a	n/a	5.92	426 no	n/a	n/a	quarterly test
24.6.20	mark n	fine	0	5 gw2	n/a	n/a	4.51	366 no	n/a	n/a	quarterly test
24.6.20	mark n	fine	0	5 gw3	n/a	n/a	4.98	141 no	n/a	n/a	quarterly test

Appendix E - Nest Box Monitoring report

28th January 2020

Newmans Quarrying

PO Box 292

Yamba NSW 2464

Attention: Mark Newman**Re: Nest Box Monitoring – Episode 3 of Stage 1 - Lot 2 DP 1055044 Tullymorgan-Jackybulbin Road**

Introduction

The proposal to expand quarrying operations at Lot 2 DP 1055044 Tullymorgan-Jackybulbin Road was approved by the Minister for Planning on the 5th May 2016 (SSD 6624). The preparation of a Nest Box Management Plan was identified as an additional requirement from the EIS (GHD 2015) and Biodiversity and Rehabilitation Management Plan (GHD 2017). This Plan identified nest boxes be installed in a number of stages, the first stage specified that prior to the clearing of vegetation, 12 nest boxes would be installed to provide habitat for any displaced hollow dependant fauna. The specific requirements of these nest boxes was summarised as follows:

- Five small nest boxes with entrances smaller than 50 mm;
- Four medium nest boxes with entrances of 50-150 mm; and
- Two larger nest boxes with entrances exceeding 150 mm.

A fifth medium sized nest box was installed due to anomalies between the individual and total tallies in Table 4-2 of the Slys Quarry Nest Box Management Plan (GHD 2017).

In accordance with the Nest Box Plan of Management, monitoring must be undertaken twice per year for a period of five years.

Monitoring for episode one took place in October 2018 and found three of the 12 (25%) nest boxes showed signs of occupation. Two of the medium sized nest boxes (numbers 6 and 8) had glider leaf nests in them and were probably constructed by either Sugar Glider (*Petaurus breviceps*) or Squirrel Glider (*Pataurus norfolcensis*; Lewis 2018). The large nest box designed for small owls had been recently used by a possum, presumably a Common Brushtail Possum (*Trichosurus vulpecula*).

Monitoring for episode two took place in April 2019 and found six of the 12 (50%) nest boxes showed signs of occupation. This comprised an observation of Gould's Long-eared Bat (*Nyctophilus gouldi*) using Nest Box 1 (two chamber bat box) and active marsupial glider nests in Nest Box 4 (Parrot design), Nest Box 6 (parrot design) and Nest Box 8 (rear entry glider). Older signs of occupation were recorded in Nest Box 3 (small possum) with a disused glider nest and Nest Box 10 (small owl) with a possum nest.

At the end of Year 1, no feral species (i.e. European Honey Bee or Common Myna) were recorded using the nest boxes and only some minimal maintenance was required to remove ants using a medium sized parrot box (Nest Box 9) and some repositioning of Nest Box 11 so that it remained in a firm position in the recipient tree.

Episode Three Monitoring Details

Twelve (12) nest boxes were accessed on the 28th December 2019 for the purposes of inspecting for signs of occupancy and to perform any necessary maintenance works to ensure they remain functional in providing surrogate tree hollow resources. A ladder with a fall arrest (belay and harness) system was used to access each nest box so that species could be positively identified and that any maintenance activities could be performed at that time.

Monitoring Results

Eight of the 12 (67%) nest boxes were destroyed by a fire that burnt through this area on the 20th and 21st November 2019. Of the remaining four nest boxes, two were found to contain wildlife with two Sugar Gliders ((*Petaurus breviceps*) using Nest Box 4 and a Common Brushtail Possum (*Trichosurus vulpecula*) using Nest Box 11 (Table A1; Plate 1-1; Plate 1-2 & 1-3).

From a maintenance perspective, no feral species (i.e. European Honey Bee or Common Myna) were recorded using the four nest boxes that remain undamaged from the fire.



Plate 1-1. Sugar Glider from Nest Box 4



Plate 1-2. Nest Box 4 (left) and Nest Box 11 and 12 (right) that remain intact and functional.



Plate 1-3. Nest box tree post fire (left) and pre (right) fire where Nest Box 9 and 10 were destroyed.

Discussion and Conclusion

Most of the installed nest boxes were destroyed by the Myall Creek Road Bushfire which moved through the area on the 20th and 21st November 2019. With this, a number of larger hollow bearing trees were also lost in the fire leaving the area with far fewer tree hollows, and ultimately, a greater dependence on the remaining nest boxes. On this occasion, Sugar Glider and Common Brushtail Possum were recorded using the boxes, where as in the past there was more often an indirect sign of their use such as the leaf nests or fur left behind from past use. Currently, the remaining nest boxes are thought to provide important refuge habitat.

The key recommendation from this round of monitoring is for eight new nest boxes of the same type and dimension to be installed in the area, preferably on the same trees after taking into account a risk hazard on the tree itself following the fire.

Should you require any additional information please contact me at your convenience.

Kind Regards,



Ben Lewis
Director
Lewis Ecological Surveys

References

GHD (2015). *Environmental Impact Statement*. Prepared for Proposed Quarry Expansion at Lot 2 DP 1055044, Tullymorgan-Jackybulbin Road, Mororo

GHD (2017). Slys Quarry Nest Box Plan of Management. Report prepared for Newman Quarrying Pty Ltd.

GHD (2017a). *Biodiversity and Rehabilitation Management Plan*. Prepared for Quarry Expansion at Lot 2 DP 1055044, Tullymorgan-Jackybulbin Road, Mororo

Lewis, B. D (2018). Nest Box Installation – Stage 1 Slys Quarry Tullymorgan. Report prepared for Newman Quarrying by Lewis Ecological Surveys.

Lewis, B. D (2018). Nest Box Monitoring – Episode 1 (October 2018). Stage 1 Slys Quarry Tullymorgan. Report prepared for Newman Quarrying by Lewis Ecological Surveys.

Lewis, B. D (2018). Nest Box Monitoring – Episode 1 (October 2018). Stage 1 Slys Quarry Tullymorgan. Report prepared for Newman Quarrying by Lewis Ecological Surveys.

Appendix 1

Table A1. Nest box register at Year 2 encompassing monitoring episodes 1, 2 and 3.

Installation Date	Nest Box Number	Nest Box Size	Nest Box Type	Easting Northing	Tree Species	Monitoring Episode 1 (October 2018)				Monitoring Episode 2 (April 2019)				Monitoring Episode 3 (December 2019)			
						Fauna Use	Feral Animal Activity	Nest Box Condition	Maintenance Requirements	Fauna Use	Feral Animal Activity	Nest Box Condition	Maintenance Requirements	Fauna Use	Feral Animal Activity	Nest Box Condition	Maintenance Requirements
6/02/2018	1	Small	Microbat (2 chamber)	518703 6758648	Pink Bloodwood	Nil	Nil	Good	Nil	Gould's Long-eared Bat	Nil	Good	Nil	Nil	Nil	Functional	Survived Fire
6/02/2018	2	Medium	Rear Entry Glider	518703 6758648	Pink Bloodwood	Nil	Nil	Good	Nil	Ants	Nil	Good	Nil	na	na	Destroyed by fire	Replace with new box
6/02/2018	3	Medium	Possum (Small)	518659 6758655	Needlebark Stringybark	Nil	Nil	Good	Nil	Glider nest - old	Nil	Good	Nil	na	na	Destroyed by fire	Replace with new box
6/02/2018	4	Medium	Parrot	518659 6758655	Needlebark Stringybark	Nil	Nil	Good	Nil	Glider nest (active)	Nil	Good	Nil	Sugar Glider x 2	Nil	Functional	Survived Fire
6/02/2018	5	Small	Microbat (2 chamber)	518634 6758658	Needlebark Stringybark	Nil	Nil	Good	Nil	Nil	Nil	Good	Nil	na	na	Destroyed by fire	Replace with new box
6/02/2018	6	Medium	Parrot	518634 6758658	Needlebark Stringybark	Glider nest - Sugar or Squirrel Glider	Nil	Good	Nil	Glider nest (active) - Sugar or Squirrel Glider	Nil	Good	Nil	na	na	Destroyed by fire	Replace with new box
6/02/2018	7	Small	Microbat (2 chamber)	518565 6758642	Rough-barked Apple	Nil	Nil	Good	Nil	Nil	Nil	Good	Nil	na	na	Destroyed by fire	Replace with new box
6/02/2018	8	Medium	Rear Entry Glider	518565 6758642	Rough-barked Apple	Glider nest - Sugar or Squirrel Glider	Nil	Good	Nil	Glider nest (active) - Sugar or Squirrel Glider	Nil	Good	Nil	na	na	Destroyed by fire	Replace with new box
6/02/2018	9	Medium	Parrot (Australian Owllet Nightjar)	518559 6758630	Rough-barked Apple	Nil	Ants – native spp	Good	Clean entrance – completed on the day	Nil	Ants – native spp	Good	Clean entrance again – completed on the day	na	na	Destroyed by fire	Replace with new box
6/02/2018	10	Large	Small Owl	518559 6758630	Rough-barked Apple	Possum nest - Probably Common Brushtail Possum	Nil	Good	Nil	Possum nest (old) - Probably Common Brushtail Possum	Nil	Good	Nil	na	na	Destroyed by fire	Replace with new box
6/02/2018	11	Large	Possum (large)	518588 6758616	Pink Bloodwood	Nil	Nil	Good	Readjusted in tree to firmly position – completed on the day	Nil	Nil	Good	Readjusted in tree to firmly position – completed on the day	Nil	Nil	Functional	Survived Fire
6/02/2018	12	Medium	Possum (small)	518588 6758616	Pink Bloodwood	Nil	Nil	Good	Nil	Nil	Nil	Good	Nil	Common Brushtail Possum x 1	Nil	Functional	Survived Fire



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Rev	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	S Turbill	B Luffman		S Lawer		17/08/2020
1	B Luffman	S Lawer		S Lawer		24/12/2020

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