MULTIQUIP
QUARRIES

ABN: 44 101 930 714

ARDMORE PARK QUARRY

ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

FOR THE PERIOD

AUGUST 2016 – AUGUST 2017

Title Block

Table 1 – Annual Review Title Block

Name of operation	Ardmore Park Quarry
Name of operator	Multiquip Aggregates
Development consent/project approval	PA 07_0155
Name of holder of development consent/project approval	CEAL Limited
Mining lease	NA
Name of holder of mining lease	NA
Water license	10CA117207
Name of holder of water license	CEAL Limited
MOP/RMP start date	
MOP/RMP end date	
Annual review start date	22 August 2016
Annual review end date	21 August 2017

I, Michael Andrew Cox, certify that this audit report is a true and accurate record of the compliance status of Ardmore Park for the period 22 August 2016 to 21 August 2017 and that I am authorised to make this statement on behalf of Multiquip Aggregates Pty Ltd.

Note.

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.

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

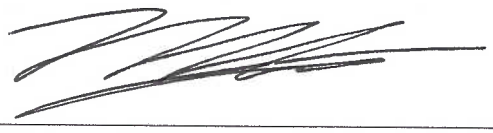
Name of authorised reporting officer	Michael Cox
Title of authorised reporting officer	Company Director
Signature of authorised reporting officer	
Date	20 October 2017

Table of Contents

1.0 Introduction

1.1 Project Overview

Ardmore Park Quarry is a sand and hard rock quarry located 4km south of the town of Bungonia. While still in the development phase, the quarry will supply the Sydney and regional markets with washed sand and basalt aggregate products. Ardmore Park is owned by CEAL Limited, operating as Multiquip Quarries. The project was granted consent in 2009 (PA 07_0155) to commence development and operations. The quarry is licensed to produce a total of 400,000T of material annually for a 30 year period.

The project is currently operated by Multiquip Aggregates, a wholly owned subsidiary of Multiquip Quarries and currently employs forty employees, divided between a civil construction crew working on the upgrade of the haulage route and quarry personnel.

This Annual Environmental Management Report details the environmental performance of the Ardmore Park Quarry for the period 22nd August 2016 to 21st August 2017.

Included in Appendix C is the environmental performance of the quarry during the period 22nd August to 1st January 2015. This information was omitted in the previous environmental management report.

1.2 Consents and Licences

The ongoing operating of Ardmore Park Quarry is governed by a series of approvals. These include:

- Project Approval PA 07_0155. (Amended in 2013).
- Environmental Protection License No. 13213.
- Water License 10CA117207

1.3 Environmental Management Plans

Ardmore Park Quarry has developed a comprehensive set of environmental management plans that describe the procedures used to meet the environmental and compliance aims of the development. This includes works which relate to the quarry's development but which occur outside the quarry premises, in particular the roadworks along Jerrara and Oallen Ford Roads. These management plans are reviewed periodically and updated when appropriate. The following plans are currently in use:

- Air Quality Management Plan.
- Water Management Plan.
- Sediment and Erosion Control Plan.
- Aboriginal Heritage Management Plan.
- Traffic Management Plan.
- Landscape Management Plan.
- Noise Management Plan.

1.4 Quarry Contacts

Table 1. Key Quarry Contacts.

Name	Role	Phone Number	Email
Stephen Wall	Quarry Manager	0418 255 535	Stephen.W@mqquarry.com.au
Alexander Cox	Environmental Officer	0450 751 618	Alexander.C@multiquip.com.au
Mick Rogers	Community Liaison	0472 875 666	Michael.R@Multiquip.com.au
24-Hour Multiquip Environmental Contact Line		0447 275 271	

2.0 Summary of Operations

2.1 Construction

A significant amount of construction works were completed during the reporting period. Key progress milestones include:

- The completion of the right hand side road widening along the entire length of Jerrara Road from the intersection with Mountain Ash Road to the Hume Highway.
- The completion of the left hand side road widening along Oallen Ford Road from the quarry entrance at 5152 Oallen Ford Road to the Bungonia bypass road at 5513 Oallen Ford Road.
- The completion of the Bungonia bypass road.
- Two major culvert extensions along Jerrara Road.
- The construction of a new haul road from the basalt extraction area in Ardmore Park to the hard rock processing pad.
- The construction of a new work area for mechanical staff.
- The construction of the sand processing pad.
- The completion of the main silt dam associated with the future sand washing area.
- The installation of a site office at Ardmore Park.

2.2. Basalt

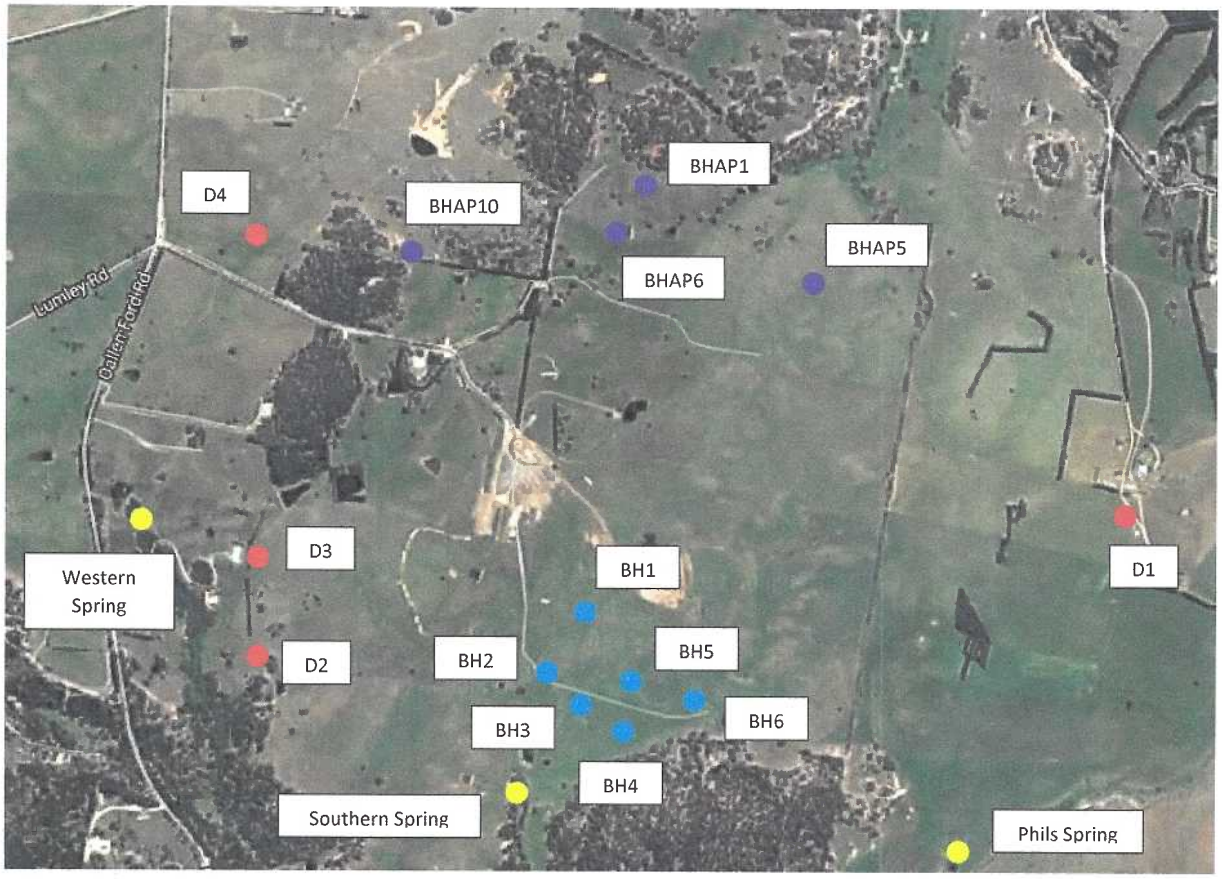
Approximately 40,000T of basalt construction products were produced during the reporting period. The majority of this product was not sold but used by Multiquip Aggregates for onsite construction activities and the upgrade of the haulage route.

2.3 Sand

Following the completion of the sand processing pad, approximately 8000T of sand was removed this year. Of this, 2000T was washed with a temporary wash plant and used to develop product benchmarks. No sand was sold during the period.

3.0 Environmental Monitoring and Performance

3.1 Map of Environmental Monitoring Points



Key

- Hard Rock Bore
- Sand Bore
- Spring
- Dust Monitor

3.2 Meteorological Monitoring

As per condition 10 of the project approval, a meteorological monitoring station was installed on the Ardmore Park premises in 2013.

There were no periods of downtime during the reporting period.

3.3 Air Quality

As outlined by the Air Quality Management Plan, a series of measures are used to control the dust emissions from quarry related activities. These include:

- The use of water trucks to regularly wet access roads when conditions are such that dust generation is likely to be a problem.
- Controlling traffic on site, including limiting vehicles to defined access routes and by enforcing speed limits.
- Minimising the total extent of exposed areas.
- Frequent assessment of prevailing meteorological conditions and limiting work in periods when dust generation is likely to be a problem.

Ardmore Park operates a series of four depositional dust gauges along the borders of the quarry and in adjacent properties. These monitors are replaced monthly and sent to an independent laboratory for analysis. Table 2 presents a summary of the highest and average recorded total solids for each monitor during this reporting period.

Table 2 Total solids (g/m2/month) 2016-2017 Reporting Period

	Monitor 1	Monitor 2	Monitor 3	Monitor 4
Location	Inverary Park	Southwestern Corner	Western Boundary	Front Entrance
Average	0.53	0.85	7.36	0.81
Highest	1.2	2.4	53	3.1
Criteria	4	4	4	4

Highlighted cells indicate an exceedance of the allowable limit of 4g/m2/month.

Three of the four dust monitors showed long term compliance with the compliance limit of 4g/m2/month. Monitor 3, located on the western boundary of the quarry adjacent to a neighbouring residence showed a significantly higher average dust deposition amount than the other monitors. This was the result of two outlying samples recorded in monitor 3 over the recording period of 8.5g/m2/month in January and 53g/m2/month. The size of these exceedances was sufficient to distort the average score of monitor 3 to beyond the threshold of compliance. Given these exceedances occurred in a period when neither crushing nor significant earthworks were taking place at the quarry, it is unlikely to be indicative of poor performance with respect to

the environmental compliance targets of the quarry. It should be noted that for the 2016 reporting period, these were the only two samples recorded which were beyond the target level.

The dust depositional results from the previous reporting period are included in table 3.

Table 3. Total solids (g/m2/month) 2016-2017 Reporting Period

	Monitor 1	Monitor 2	Monitor 3	Monitor 4
Location	Inverary Park	South Western Corner	Western Boundary	Front Entrance
Average	5.47	2.89	5.55	1
Highest	15	10	22	6.3
Criteria	4	4	4	4

Overall there are lower levels of dust recorded in all monitors over the current reporting period when compared to the 2015 period. Only monitor 3 has a higher average depositional score than in the previous year, all other monitors indicate generally reduced levels of dust. Of particular note is the decline in total exceedances, from twelve in 2015 to two in 2016. Multiquip expects this reduction is a combination of greater dust control measures used on site and reflects the relatively small amount of crushing activity that took place during this reporting year.

It should be noted that additional dust depositional data are presented in Appendix C, which covers the four month period absent from the 2015-2016 Annual Environmental Management Report. The data presented in table 3 include this period.

3.4 Erosion and Sediment Control

Erosion and sediment control measures have been installed in the quarry to minimise the potential for dirty water runoff negatively affecting the condition of downstream catchments. The potential erosion risk is assessed prior to works being undertaken within the quarry, the Bungonia bypass road and the Oallen Ford and Jerrara Road roadworks. Drainage structures are designed to meet the requirements outlined by Landom 2004, *Managing Urban Stormwater* (The Blue Book).

As part of the ongoing maintenance of the quarry, routine inspections of drainage structures and sediment dams are undertaken.

Multiquip is currently revising the Water Management Plan and The Sediment and Erosion Control Plan for the quarry and associated works. It is expected that these plans should be finalised next reporting period. The revised Sediment and Erosion Control Plan will be a stand-alone management plan as opposed to being included as part of the existing Water Management Plan. Emphasis has been made on updating the sediment and erosion control measures required for the waterway crossings along Jerrara Road.

3.5 Water Management

Multiquip reviews the condition of receiving waterways downstream from the quarry operations on a routine basis. The primary receiving water point is located on an adjacent property to the quarry, directly to the south-east of extractive operations. This first order stream feeds into Jacqua Creek 2km to the south and forms part of the uppermost catchment for the Shoalhaven River. There were no observed pollution issues or evidence of erosion during the reporting period.

Multiquip is currently revising its existing Water Management Plan.

3.5.1 Surface water discharge incident

On the 26th June 2017, Multiquip was advised by the EPA that a direct neighbour to the quarry had observed a significant amount of water accumulate in a dry farm dam. Given the lack of rainfall and topography of the land, it was assumed that the water constituted surface discharge from the quarry. In response, Multiquip launched an internal investigation to determine the likely cause. It was found that the production bore within the quarry was left operating over a weekend and was directing flow directly into a dam onto Ardmore Park which had overflowed and then travelled over land to the neighbouring property.

In response to this incident Multiquip took the following steps:

- Installed a timer on the bore pump which will deactivate the bore automatically if it is left running.
- Took samples of water from the dam on Ardmore Park, the neighbouring property and ponded water along the likely path of overland flow to determine if any contaminants were present.

The laboratory results indicated the water was free of any pollutants or substances of concern. Multiquip was advised in September that the EPA was satisfied that no environmental harm had occurred as a consequence of this incident.

3.6 Groundwater

There are ten groundwater bores throughout Ardmore Park which form the basis of the quarry's groundwater monitoring regime. Water samples are tested for a range of potential contaminants including trace elements, hydrocarbons and sediment content. Three rounds of sampling were undertaken over the reporting period. The results are summarised below in table 4 (hard rock monitoring bores), table 5 (sand monitoring bores) and table 6 (springs).

Table 4. Average Groundwater Monitoring Results for Hard Rock Bores.

		BHAP1	BHAP5	BHAP6	BHAP10
Calcium	mg/L	19.67	26	84.67	N.A.
Chloride	mg/L	166.6	44.67	137.33	N.A.
Electrical conductivity	deciSiemens per metre	0.63	0.92	1.047	N.A.
Iron	mg/L	0.1	4.09	5.55	N.A.
Magnesium	mg/L	12.33	68.3	37	N.A.
Manganese	mg/L	0.027	0.027	0.17	N.A.
pH	pH	6.6	7.73	7.33	N.A.
Potassium	mg/L	1.43	0.9	2.1	N.A.
Sodium	mg/L	102.33	17	101.67	N.A.
Standing water level	M (AHD)	7.59	20.54	60.79	27.91
Sulfate	mg/L	7	27	13	N.A.
Total dissolved solids	mg/L	433.33	446.67	563.33	N.A.

It should be noted that no sample form BHAP10 was collected and analysed during this reporting period. BHAP10 is an old domestic bore which was installed prior to the acquiring of Ardmore Park by CEAL Limited and the development of the quarry. Samples were previously collected from an old electronic pump, which was found inoperable during this reporting period on the occasions that samples were collected. Multiquip will acquire an alternative, manual sampling method and analysis of BHAP10 will be available in the following reporting period.

Table 5. Average Groundwater Monitoring Results for Sand Bores.

		BH1	BH2	BH3	BH4	BH5	BH6
Benzene	mg/L	<1	<1	<1	<1	<1	<1
Calcium	mg/L	51	8.27	45	38.33	50.67	53.67
Chloride	mg/L	383.33	61	71	41	46.67	82
Electrical conductivity	deciSiemens per metre	1.5	0.53	0.72	0.68	0.72	0.79
Ethyl benzene	mg/L	<1	<1	<1	<1	<1	<1
Iron	mg/L	8.14	4.57	0.27	0.54	0.13	9.63
Magnesium	mg/L	61.67	26.67	53.67	55.67	54	50.33
Manganese	mg/L	0.36	0.67	0.0085	0.026	<0.005	0.24
pH	pH	7.07	6.9	7.47	7.67	7.57	7.6
Potassium	mg/L	1.23	0.55	0.97	0.83	0.97	0.87
Sodium	mg/L	210	80.33	37	34.33	33	62.33
Standing water level	M (AHD)	11.36	7.1	5.04	4.34	6.86	10.83
Sulfate	mg/L	5	7	4.33	4.67	3.33	6.67
Toluene	mg/L	<1	<1	<1	<1	<1	<1
Total dissolved solids	mg/L	1003.33	353.33	433.33	390	460	496.67
Total petroleum hydrocarbons	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene	mg/L	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003

Table 6. Average Groundwater Monitoring Results for Springs.

		Phils Spring	Southern Spring	Western Spring
Benzene	mg/L	<1	<1	N.A.
Calcium	mg/L	50.33	22.33	N.A.
Chloride	mg/L	146.67	69.67	N.A.
Electrical conductivity	deciSiemens per metre	1.17	0.54	N.A.
Ethyl benzene	mg/L	<1	<1	N.A.
Iron	mg/L	1.54	26.22	N.A.
Magnesium	mg/L	82	28.33	N.A.
Manganese	mg/L	0.068	5.11	N.A.
pH	pH	7.4	7.37	N.A.
Potassium	mg/L	1.03	0.63	N.A.
Sodium	mg/L	92.67	56	N.A.
Standing water level	M (AHD)	N.A.	21600	N.A.
Sulfate	mg/L	20	1	N.A.
Toluene	mg/L	<1	<1	N.A.
Total dissolved solids	mg/L	690	306.67	N.A.
Total petroleum hydrocarbons	mg/L	<0.1	<0.1	N.A.
Xylene	mg/L	<0.003	<0.003	N.A.

It should be noted that no samples were analysed from the Western Spring during this reporting period. The Western Spring has been observed as dry on the occasion that samples were collected. Should the spring resume flow, samples will be included in the regular monitoring regime.

Please note that additional groundwater data are presented in Appendix C, which cover the four month period absent from the 2015-2016 Annual Environmental Management Report.

3.7 Cultural and Aboriginal Heritage

No work relating to cultural or Aboriginal heritage was undertaken this year.

No artefacts were unearthed either within the quarry or during the progress of roadworks.

3.8 Waste Management

A new EnviroCycle system has been installed on site.

Trade waste and other waste generated on site are deposited in an on site skip bin which is provided by a local waste management contractor.

3.9 Weed and Pest Management

An ongoing program of feral animal control is conducted at Ardmore Park. During this reporting period a total of twenty feral pigs, one feral goat and two foxes were culled. Deer were also observed on the private Bungonia bypass road although no management actions were considered necessary.

Weed control is an ongoing management priority both on the quarry premises and the Bungonia bypass road. During this year, a targeted program of spraying St Johns Wort and Blackberry was undertaken on the bypass road.

4.0 Community Relations

4.1 Community Complaints

Two formal complaints were received by Multiquip during the reporting period (table 7). The first related to an observed decline in the flow rate of a spring. In response, Multiquip commissioned an independent hydrologist to investigate the complaint. It was found that quarry related activity was unlikely to be associated with the observed decline in flow rate. A v-notch weir will be installed by Multiquip to continuously monitor the flow rate during the next reporting period.

The second complaint related to carried noise from mobile plant used on site. The quarry manager was notified soon after receiving the complaint and was able to direct staff on site to operate machinery on site in a manner at reduced noise level.

Multiquip continues to operate a 24-7 Environmental Contact/Complaints hotline. No complaints were received on this hotline during the reporting period.

Table 7. Complaints Received 2016-2016 Reporting Period and Response.

Date	Description	Response
28/12/2016	A neighbouring property observed a decline in flow rate in a spring which forms part of the quarry environmental monitoring program	An independent hydrologist was commissioned to investigate and report. The conclusion of the investigation was that the cause was unlikely to be related to the quarry. A V-notch weir with data logger with an automatic data logger will be installed in the next reporting period.
25/08/2017	A neighbouring property reported a noise disturbance.	Quarry manager was notified and was able to determine the cause. Plant operator was notified and instructed to cease operations which were the cause of the noise.

4.2 Community Consultative Committee

Multiquip hosted two CCC meetings during the reporting period. These were held in September 2016 and May 2017 on the quarry premises. The minutes to these meetings are publicly available on the company website (http://mqquarry.com.au/media/). The CCC is comprised of representatives from the local community, Goulburn Mulwaree Council and three representatives from Multiquip. Meetings are chaired by an independent, external consultant.

Multiquip has received requests to open future CCC meetings to the public. This will be trailed on the CCC meeting to be held on the 25th August 2017. An evaluation of this meeting format will reported on in the following reporting AEMR.

5.0 Rehabilitation Activities

Rehabilitation activates were limited during this reporting period given the quarry remains in the establishment phase of operation. Areas that were disturbed as part of the ongoing construction of the quarry were stabilised and promptly mulched and reseeded with perennial grasses. The low level of activity in the quarry has not generated any areas requiring rehabilitation.

6.0 Proposed Activities for the 2017 AEMR Reporting Period

Multiquip expects that the Ardmore Park Quarry will commence commercial operations by November 2017. A completed sand wash plan will be installed to the quarry in late October. Following the installation of the sand plant, a limited number of sales (ten laden loads per day) will take place until the completion of the roadworks.

Works on the Jerrara Road and Oallen Ford Road widening will continue. Multiquip expects the completion of the stage 3 roadworks, including bridge widenings to occur by March 2018. This will then facilitate full production of the quarry at forty-four laden loads per day. Production data will be reported on in the following AEMR.

Construction work within the quarry will continue throughout the remainder of 2017 and through 2018. A weighbridge will be installed as well as an additional site office. It is expected the production of sand will progress from nothing currently to the production of washed sand products to the currently approved maximum production limits of 400,000T per annum.

Environmental monitoring will continue throughout the following year. The results of meteorological, air quality and water monitoring will be published in the next AEMR, with the addition of detailed production data once quarrying commences.

7.0 References

Landcom (2004). Managing Urban Stormwater, Soils and Construction. Volume 1. Edition 4.

Appendix A – Statement of Compliance 2016-2017 Reporting Period

Table 2 – Statement of Compliance

Were all the conditions of the relevant approval(s) complied with?	
Project Approval PA 07_0155	NO

Table 3 – Non-Compliances

Approval	Condition	Description	Status	Comment	When Addressed in AEMR
PA 07_0155	Schedule 3, Condition 7	Deposited dust limits allowed exceeded.	Low	Only two exceedances recorded over the reporting year.	P8
PA 07_0155	Schedule 3, Condition 12	Surface water discharge onto adjoining property.	Low	Refers to a incident which occurred in June 2017.	P10
PA 07_0155	Schedule 3, Condition 15	Erosion and sediment control plan does not adequately address works across water crossings.	Administrative	During the reporting period no work was done on the major water course crossings along the haulage route so there was little risk of runoff into receiving waters.	P9
PA 07_0155	Schedule 3, Condition 25	Truck movements were exceeded for a four week period in August and September 2016.	Low	Multiquip was fined for exceeding limit of truck movements delivering road construction materials to a council work site opposite front gate.	Not referred to in AEMR.

Compliance Status Key for Table 3.

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: • 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: • 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).

Appendix B – Statement of Compliance 2015-2016 Reporting Period

Supplementary Information

Title Block

Table 1 – Annual Review Title Block

Name of operation	Ardmore Park Quarry
Name of operator	Multiquip Aggregates
Development consent/project approval	PA 07_0155
Name of holder of development consent/project approval	CEAL Limited
Mining lease	NA
Name of holder of mining lease	NA
Water license	10CA117207
Name of holder of water license	CEAL Limited
MOP/RMP start date	
MOP/RMP end date	
Annual review start date	22 August 2015
Annual review end date	21 August 2016
I, Michael Andrew Cox, certify that this audit report is a true and accurate record of the compliance status of Ardmore Park for the period 22 August 2015 to 21 August 2016 and that I am authorised to make this statement on behalf of Multiquip Aggregates Pty Ltd. *Note.* *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.* *b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or $22,000, or both).*	
Name of authorised reporting officer	Michael Cox
Title of authorised reporting officer	Company Director
Signature of authorised reporting officer	
Date	20 October 2017

Table 2 – Statement of Compliance

Were all the conditions of the relevant approval(s) complied with?	
Project Approval PA 07_0155	NO

Table 3 – Non-Compliances

Approval	Condition	Description	Status	Comment	When Addressed in AEMR
PA 07_0155	Schedule 3, Condition 7	Deposited dust limits allowed exceeded.	Low		Appendix 3 and AEMR 2015-2016.
PA 07_0155	Schedule 3, Condition 15	Erosion and sediment control plan does not adequately address works across water crossings.	Administrative	During the reporting period no work was done on the major water course crossings along the haulage route so there was little risk of runoff into receiving waters.	P9
PA 07_0155	Schedule 3, Condition 23	Payment of rehabilitation bond is overdue.	Administrative	It should be noted that at the time of this report that the rehabilitation bond has been paid.	

Compliance Status Key for Table 3.

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: • 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: • 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).

Appendix C – Environmental Performance Monitoring Data for the 2015-2016 Period

This appendix includes the environmental performance monitoring data absent from the 2015-2016 Environmental Management Report. The period identified by the Department of Planning covers the 22nd August 2015 to the 1st January 2016.

Air Quality

Table 8. Total solids (g/m2/month) 2015-2016 Reporting Period (Months August 2015-January 2016).

	Monitor 1	Monitor 2	Monitor 3	Monitor 4
Location	Inverary Park	South Western Corner	Western Boundary	Front Entrance
Average	8.8	3.17	2.18	1
Highest	15	6.4	5.2	6.3
Criteria	4	4	4	3.37

This period had a high number of samples that exceeded the monthly 4g/m2/month target for deposited dust. In particular, December was a period of high dust generation (3 out of the 4 monitors yielded samples in excess of the monthly target).

Groundwater

One round of groundwater sampling was undertaken during this period, in September 2015. Of the usual round of ten bores, only eight were sampled. Only Phils Spring was sampled as it was found that both the Southern Spring and Western Spring were not flowing on the occasion of sampling.

It should additionally be noted that when this sample was collected the Ardmore Park Quarry was operating under previous edition of EPL 13213. The previous version of the licence required fewer analyses than the updated EPL, hence the reduced quantity of test information compared to that of the current reporting period.

Table 9. Hard Rock Monitoring Bore Samples Collected September 2015.

		BHAP1	BHAP5	BHAP6	BHAP10
Calcium	mg/L	15	24	160	68
Chloride	mg/L	170	53	630	670
Electrical conductivity	microSiemens per centimetre	640	810	2600	2700
Iron	mg/L				
Magnesium	mg/L	9	75	78	94
Manganese	mg/L				
pH	pH	6.5	8.1	7.2	7
Potassium	mg/L	1.4	1	4.2	8.3
Sodium	mg/L	94	15	260	390
Standing water level	M (AHD)	7.53	20.69	57.95	28.05
Sulfate	mg/L	6	20	28	59
Total dissolved solids	mg/L				

Table 10. Sand Monitoring Bore Samples Collected September 2015.

		BH1	BH2	BH3	BH4	BH5	BH6
Benzene	mg/L						
Calcium	mg/L		9.3		39	48	38
Chloride	mg/L		80		48	51	81
Electrical conductivity	microSiemens per centimetre		630		740	760	760
Ethyl benzene	mg/L						
Iron	mg/L						
Magnesium	mg/L		30		55	54	40
Manganese	mg/L						
pH	pH		6.8		7.6	7.6	7.7
Potassium	mg/L		0.6		0.8	0.9	0.9
Sodium	mg/L		82		35	31	62
Standing water level	M (AHD)	11	6.25	4.04	4.23	6.35	10.48
Sulfate	mg/L		8		4	3	6
Toluene	mg/L						
Total dissolved solids	mg/L						
Total petroleum hydrocarbons	mg/L						
Xylene	mg/L						

Table 11. Springs Sample Collected September 2015.

		Phils Spring	Southern Spring	Western Spring
Benzene	mg/L		NA	NA
Calcium	mg/L	47	NA	NA
Chloride	mg/L	150	NA	NA
Electrical conductivity	microSiemens per centimetre	1200	NA	NA
Ethyl benzene	mg/L		NA	NA
Iron	mg/L		NA	NA
Magnesium	mg/L	81	NA	NA
Manganese	mg/L		NA	NA
pH	pH	7.5	NA	NA
Potassium	mg/L		NA	NA
Sodium	mg/L	88	NA	NA
Standing water level	M (AHD)		NA	NA
Sulfate	mg/L	15	NA	NA
Toluene	mg/L		NA	NA
Total dissolved solids	mg/L		NA	NA
Total petroleum hydrocarbons	mg/L		NA	NA
Xylene	mg/L		NA	NA