

ABN 87 099 732 297 Phone +61 2 9412 6600 Fax +61 2 9412 6601 www.holcim.com.au

# **Dunloe Quarterly Environmental Report**

Author:	NSW Planning & Environment Coordinator
	Holcim Planning & Environment Team
Title:	Quarter 3 Environmental Report (July- September).
Company:	Holcim Dunloe Sand Quarry

#### 1. Introduction

Dunloe Sand is located at Pottsville, within the Tweed Shire, NSW. The site produces a very high quality, fine concrete sand as well as a variety of other sand products including plasterer sand, bunker sand and fill sand.

To ensure compliance with the conditions of the Project Approval the site undertakes quarterly environmental reports and makes copies available on the Holcim Dunloe webpage (in accordance with the condition below).

11. During the project, the Proponent shall:

(a) make a summary of monitoring results required under this approval publicly available at the Proponent's regional office; and

(b) update these results regularly (at least every 3 months), to the satisfaction of the Director-General.

A summary of the results for Quarter 3 (July- September 2016) are detailed in the tables below:

#### 2. <u>Water Quality</u>

#### 2.1. Surface Water (In situ Pond)

Date	<u>рН</u>	<u>EC</u>	Dissolved 02	<u>Turbidity</u>	Oil & Grease
21/07/2016	4.5	546.4	9.3	1.2	NR
31/08/2016	4.0	618	9.1	2.0	<2
29/09/2016	4.1	651	8.7	2.6	<2



ABN 87 099 732 297 Phone +61 2 9412 6600 Fax +61 2 9412 6601 www.holcim.com.au

# 2.2. Surface Water (Quarterly Lake- Chemical Analysis)

Date	Test	<u>Result</u>
29/09/2016	Chlorophyll "a"	10
	Ammonia	<0.02
	Magnesium	7.9
	Sodium	27
	Potassium	6
	Sulfate	220
	Aluminium	2.83
	Arsenic	0.002
	Iron	0.41
	Manganese	0.393

## 2.3. Surface Water (Quaterly Lake Vertical Profile)

Date	<u>Test</u>	Lake 2m	Lake 3m	Lake 4m	Lake 5m	Lake 6m
29/09/2016	рН	4.1	4.1	4.0	4.0	4.5
	Conductivity	647	650	648	647	627
	Dissolved O2	8.8	8.8	8.8	8.8	8.4



ABN 87 099 732 297 Phone +61 2 9412 6600 Fax +61 2 9412 6601 www.holcim.com.au

# 2.4. Surface Water- Lake (Blue Green Algae)

<u>Test</u>	<u>Result- 31/08/2016</u>	<u>Result- 30/09/2016</u>
Cyanophyta (cells/mL)	840	NR Detected
Cyanophyta (biovolume)	0.01	NR Detected
Potentially Toxic Species	NR Detected	NR Detected
Potentially Toxic Biovol	NR Detected	NR Detected
Pseudanabaena (Cyan).	840	NR Detected
<i>Pseudanabaena</i> Biovolume.	0.01	NR Detected
Chlorophyta (cells/mL)	61, 500	920
Dinophyta (Dinoflagellates)	NR Detected	175

# 2.5. Groundwater (Monthly)

Sample Date	Sample Location	<u>рН</u>	<u>EC</u>	DO	<u>*Redox</u> Potential
21/07/2016	DLP 1	3.9	142.2	6.8	384
	DLP 3	6.5	6868.2	6.6	262
	DLP 5	4.4	321.5	5.2	297
	DLP 6	3.5	1731.9	1.3	338
	DLP 7	7.5	3159	6.5	-31
31/08/2016	DLP 1	4.0	140	6.5	321
	DLP 3	6.5	7281	5.8	170
	DLP 5	4.4	348	4.4	230
	DLP 6	3.7	1783	3.8	262



ABN 87 099 732 297 Phone +61 2 9412 6600 Fax +61 2 9412 6601 www.holcim.com.au

	DLP 7	7.3	3364	3.7	-22
29/09/2016	DLP 1	3.9	151	2.5	366
	DLP 3	6.1	7313	2.5	221
	DLP 5	4.4	399	2.5	285
	DLP 6	3.8	1738	1.9	189
	DLP 7	7.2	3558	2.4	44

## 2.6. Ground Water (Quarterly Chemical Analysis)

Sample Date	<u>Analysis</u>	DLP 3	DLP 5	DLP 6	<u>DLP 7</u>
31/08/2016	Alkalinity	121	<1	<1	369
	Bicarbonate	121	NP	NP	369
	Chloride	2650	89	790	760
	Calcium	78	2.2	24	16
	Magnesium	121	2.8	22	35
	Sodium	1350	57	14	604
	Potassium	46	<5	<5	24
	Sulfur (Sulfate)	170	28	1100	217
	Aluminium	4.11	0.52	73.2	0.40
	Arsenic	<0.001	0.001	<0.001	0.001
	Iron	3.33	11.2	241	2.07
	Manganese	0.705	0.016	2.32	0.023
	Ammonia	<0.02	0.24	1.15	0.04



ABN 87 099 732 297 Phone +61 2 9412 6600 Fax +61 2 9412 6601 www.holcim.com.au

Sample Date	<u>Analysis</u>	<u>SW3</u>	<u>SW4</u>	<u>SW9</u>	<u>SW10</u>
29/09/2016	рН	7.4	6.9	6.9	6.9
	EC	36, 425	17, 005	21, 421	7210
	DO	7.1	6.9	6.9	7.8
	Turbidity	4.3	15	8.4	19
	Susp Solids	6.2	8.5	6.4	10
	Phosphorous	0.02	0.02	<0.02	0.02
	Total- N	0.23	0.34	0.26	0.58

## 2.7. Surface Water Quarterly (Surrounding Environment)

## 3. <u>Air Quality</u>

Dust deposition monitoring was undertaken at Dunloe Quarry throughout Q3 of 2016. A copy of the results are listed in the table below:

Date	Sample Location	Result (mg/m2/month)	<u>Result (PASS/ FAIL)</u>
July	D1	0.13	PASS
	D2	0.52	PASS
	D3	0.41	PASS
	D4	0.39	PASS
August	D1	0.6	PASS
	D2	0.5	PASS
	D3	0.3	PASS
	D4	0.4	PASS
September	D1	0.8	PASS
	D2	0.5	PASS
	D3	0.4	PASS
	D4	0.3	PASS



ABN 87 099 732 297 Phone +61 2 9412 6600 Fax +61 2 9412 6601 www.holcim.com.au

4. Vegetation Monitoring



FORM A: ROUTINE QUARTERLY REHABILITATION MONITORING SHEET				
General Management	Weeds	Vegetation regeneration		
Has there been a fire within the last quarter? <u>NO</u> Do the bushfire trails or adjacent pasture areas require slashing or maintenance to reduce fire risk? <u>NO</u>	Have any areas of weeds re- established within the rehabilitation zones during the last quarter?	Natural regeneration is occurring in (record height range estimate): - Tree species <u>725 5-8</u> v- - Shrub species <u>725 1-3</u> m - ground covers <u>795</u>		
Is there evidence of rubbish dumping within the rehabilitation zones?N	What species? What management was undertaken to eradicate these	- Tree Melalnee Cersur		
Is there evidence of plant theft within the rehabilitation zone?Nの		ground covers		
Does it appear that the rehabilitation zone has been utilized for stockpiling, vehicle parking, building waste dumping, cattle grazing or person traffic?	If management was undertaken acknowledge that such was performed in accordance with the approved rehabilitation management plan.	Have you noticed any new native plant species since the last monthly inspection?		
If yes, acknowledge below what works were undertaken to rectify/restore and the date		Acknowledge that the required routine photographs have been taken within the rehabilitation zones		
Biodiversity Have you spotted native fauna within the rehabilitation zone during inspection? Yess If yes, what types? Koala Kangaroo/wallaby_Yess Possums/gliders Possums/gliders Small mammal (i.e. bandicoot, echidna) Reptiles (i.e.snakes/lizards) Birds of prey_Yess Large nectar feeding birds (i.e. lorikeets, parrots, cockatoos) Small tree and ground birds (i.e. finches, fairy wrens, treecreepers)_Yess Glossy Black Cockatoos Other	Modifications Have there been any structural additions (eg. new tracks, buildings) to the rehabilitation zones since the last visit? 	Are any of the following performance criteria exceeded (refer Section 4.5 below)? Declared Weeds? <u>No</u> Extent of other Weeds? <u>No</u> Survival Rate of Plants? <u>No</u> Condition of Plants? <u>No</u> Canopy Coverage? <u>No</u> Tree, Small Tree & Shrub Diversity? Groundcover Coverage? General Coverage/Success? If yes, what corrective action was performed (i.e. plant showed drought stress and so watering was undertaken, plant was dead so a replacement plant was pocket planted, canopy plant coverage was not achieved so relevant pioneer plants were pocket planted).		

January 2009

SEPTEMBER 2016 ZONE 1B



Rehabilitation & Revegetation Management Plan Dunloe Park Sand Quarry Ramtech Pty Ltd

ger:

an and

FORM A: ROUTINE QUARTERLY REHABILITATION MONITORING SHEET			
General Management	Weeds	Vegetation regeneration	
Has there been a fire within the last quarter? Do the bushfire trails or adjacent pasture areas require slashing or maintenance to reduce fire risk?	Have any areas of weeds re- established within the rehabilitation zones during the last quarter?	Natural regeneration is occurring in (record height range estimate): - Tree species <u>Metalence</u> (cars - Shrub species <u>-</u> - ground covers <u>Anstro</u> ny to	
Is there evidence of rubbish dumping within the rehabilitation zones?	What species? What management was undertaken to eradicate these weeds?	What are the dominant species within each layer? - Tree <u>Melaluch</u> - Shrub <u>Bendesie</u> - ground covers	
Does it appear that the rehabilitation zone has been utilized for stockpiling, vehicle parking, building waste dumping, cattle grazing or person traffic?	If management was undertaken acknowledge that such was performed in accordance with the approved rehabilitation management plan.	Have you noticed any new native plant species since the last monthly inspection?	
Biodiversity Have you spotted native fauna within the rehabilitation zone during inspection? If yes, what types? Koala	Modifications         Have there been any structural additions (eg. new tracks, buildings) to the rehabilitation zones since the last visit?	Are any of the following performance criteria exceeded (refer Section 4.5 below)? Declared Weeds? Extent of other Weeds? Survival Rate of Plants? Condition of Plants? Canopy Coverage? Tree, Small Tree & Shrub Diversity? Groundcover Coverage? General Coverage/Success? If yes, what corrective action was performed (i.e. plant showed drought stress and so watering was undertaken, plant was dead so a replacement plant was pocket planted, canopy plant coverage was not achieved so relevant pioneer plants were pocket planted).	

January 2009

SEPTEMBER 2016 20NE 10



FORM A: ROUTINE G	FORM A: ROUTINE QUARTERLY REHABILITATION MONITORING SHEET				
General Management	Weeds	Vegetation regeneration			
Has there been a fire within the last quarter?NO Do the bushfire trails or adjacent pasture areas require slashing or maintenance to reduce fire risk? NO	Have any areas of weeds re- established within the rehabilitation zones during the last quarter?	Natural regeneration is occurring in (record height range estimate): - Tree species <u>5-8</u> - Shrub species - ground covers <u>1</u> ~.			
Is there evidence of rubbish dumping within the rehabilitation zones?	What species?      What management was undertaken to eradicate these weeds?	What are the dominant species within each layer? - Tree			
Does it appear that the rehabilitation zone has been utilized for stockpiling, vehicle parking, building waste dumping, cattle grazing or person traffic?	If management was undertaken acknowledge that such was performed in accordance with the approved rehabilitation management plan.	Have you noticed any new native plant species since the last monthly inspection? <u>ATO</u> . If yes name the species or take a photograph Acknowledge that the required routine photographs have been taken within the rehabilitation zones			
Biodiversity	Modifications	Are any of the following performance			
Have you spotted native fauna within the rehabilitation zone during inspection? If yes, what types? Koala Kangaroo/wallaby Possums/gliders Small mammal (i.e. bandicoot, echidna) Reptiles (i.e.snakes/lizards)	Have there been any structural additions (eg. new tracks, buildings) to the rehabilitation zones since the last visit?	criteria exceeded (refer Section 4.5 below)? Declared Weeds? Extent of other Weeds? Survival Rate of Plants? Condition of Plants? Canopy Coverage? Tree, Small Tree & Shrub Diversity? Groundcover Coverage? General Coverage/Success?			
Birds of prey Large nectar feeding birds (i.e. lorikeets, parrots, cockatoos) Small tree and ground birds (i.e. finches, fairy wrens, treecreepers) Glossy Black Cockatoos Other	Condition of fences - Good - Need minor repair - Poor (need replacement)	If yes, what corrective action was performed (i.e. plant showed drought stress and so watering was undertaken, plant was dead so a replacement plant was pocket planted, canopy plant coverage was not achieved so relevant pioneer plants were pocket planted).			

January 2009

SEPTEMBER 2016 ZONE 20



FORM A: ROUTINE C	UARTERLY REHABILITATION M	ONITORING SHEET
General Management	Weeds	Vegetation regeneration
Has there been a fire within the last quarter?NO	Have any areas of weeds re- established within the rehabilitation zones during the last quarter?	Natural regeneration is occurring in (record height range estimate): - Tree species <u>4-5</u> - Shrub species <u>3</u> - ground covers <u>1</u>
Is there evidence of rubbish dumping within the rehabilitation	What species?	What are the dominant species within each layer? - Tree
Is there evidence of plant theft within the rehabilitation zone?	What management was undertaken to eradicate these weeds?	- Tree
Does it appear that the rehabilitation zone has been utilized for stockpiling, vehicle parking, building waste dumping, cattle grazing or person traffic?	If management was undertaken acknowledge that such was performed in accordance with the approved rehabilitation management plan.	Have you noticed any new native plant species since the last monthly inspection? If yes name the species or take a photograph
If yes, acknowledge below what works were undertaken to rectify/restore and the date		Acknowledge that the required routine photographs have been taken within the rehabilitation zones
Biodiversity Have you spotted native fauna within the rehabilitation zone during inspection? If yes, what types? Koala Kangaroo/wallaby Possums/gliders Small mammal (i.e. bandicoot, echidna)	Modifications         Have there been any structural additions (eg. new tracks, buildings) to the rehabilitation zones since the last visit?	Are any of the following performance criteria exceeded (refer Section 4.5 below)? Declared Weeds? Extent of other Weeds? Survival Rate of Plants? Condition of Plants? Canopy Coverage? Tree, Small Tree & Shrub Diversity? Groundcover Coverage? General Coverage/Success? N
Reptiles (i.e.snakes/lizards) Yes Birds of prey Large nectar feeding birds (i.e. lorikeets, parrots, cockatoos) Small tree and ground birds (i.e. finches, fairy wrens, treecreepers) Yes Glossy Black Cockatoos Other	Condition of fences - Good - Need minor repair - Poor (need replacement)	If yes, what corrective action was performed (i.e. plant showed drought stress and so watering was undertaken, plant was dead so a replacement plant was pocket planted, canopy plant coverage was not achieved so relevant pioneer plants were pocket planted).

January 2009

SEPTEMBER 2016 ZONE 3.

FORM A: ROUTINE O	FORM A: ROUTINE QUARTERLY REHABILITATION MONITORING SHEET			
General Management	Weeds	Vegetation regeneration		
Has there been a fire within the last quarter?	Have any areas of weeds re- established within the rehabilitation zones during the last quarter?	Natural regeneration is occurring in (record height range estimate): - Tree species <u>5 m</u> - Shrub species <u>2 m</u> - ground covers <u>1 m</u>		
Is there evidence of rubbish dumping within the rehabilitation zones?NO	What species? What management was undertaken to eradicate these	What are the dominant species within each layer? - Tree <u>Banksia</u> Medalwa		
Is there evidence of plant theft within the rehabilitation zone?O	weeds?	- ground covers		
Does it appear that the rehabilitation zone has been utilized for stockpiling, vehicle parking, building waste dumping, cattle grazing or person traffic?NO	If management was undertaken acknowledge that such was performed in accordance with the approved rehabilitation management plan.	Have you noticed any new native plant species since the last monthly inspection?		
If yes, acknowledge below what works were undertaken to rectify/restore and the date		routine photographs have been taken within the rehabilitation zones		
Biodiversity Have you spotted native fauna within the rehabilitation zone during inspection? If yes, what types? Koala Kangaroo/wallaby Possums/gliders Small mammal (i.e. bandicoot, echidna) Reptiles (i.e.snakes/lizards)	Modifications         Have there been any structural additions (eg. new tracks, buildings) to the rehabilitation zones since the last visit?	Are any of the following performance criteria exceeded (refer Section 4.5 below)? Declared Weeds? Extent of other Weeds? Survival Rate of Plants? Condition of Plants? Canopy Coverage? Tree, Small Tree & Shrub Diversity? Groundcover Coverage? General Coverage/Success?		
Birds of prey Large nectar feeding birds (i.e. lorikeets, parrots, cockatoos) Small tree and ground birds (i.e. finches, fairy wrens, treecreepers) Glossy Black Cockatoos Other	Condition of fences - Good - Need minor repair - Poor (need replacement)	If yes, what corrective action was performed (i.e. plant showed drought stress and so watering was undertaken, plant was dead so a replacement plant was pocket planted, canopy plant coverage was not achieved so relevant pioneer plants were pocket planted).		

January 2009

ZONE 2 A+B



FORM A: ROUTINE QUARTERLY REHABILITATION MONITORING SHEET				
General Management	Weeds	Vegetation regeneration		
Has there been a fire within the last quarter?NO Do the bushfire trails or adjacent pasture areas require slashing or maintenance to reduce fire risk?NO	established within the rehabilitation zones during the	Natural regeneration is occurring in (record height range estimate): - Tree species <u>5 ~</u> - Shrub species <u>3 ~</u> - ground covers <u>1</u> What are the dominant species within		
Is there evidence of rubbish dumping within the rehabilitation zones?O 	What management was undertaken to eradicate these weeds?	each layer? - Tree Bunlesin Melali - Shrub - ground covers		
Does it appear that the rehabilitation zone has been utilized for stockpiling, vehicle parking, building waste dumping, cattle grazing or person traffic?	If management was undertaken acknowledge that such was performed in accordance with the approved rehabilitation management plan.	Have you noticed any new native plant species since the last monthly inspection?		
Biodiversity Have you spotted native fauna within the rehabilitation zone during inspection? If yes, what types? Koala	buildings) to the rehabilitation zones since the last visit?	Are any of the following performance criteria exceeded (refer Section 4.5 below)? Declared Weeds? Extent of other Weeds? Survival Rate of Plants? Condition of Plants? Condition of Plants? Canopy Coverage? Canopy Coverage? Tree, Small Tree & Shrub Diversity? Groundcover Coverage? General Coverage/Success? If yes, what corrective action was performed (i.e. plant showed drought stress and so watering was undertaken, plant was dead so a replacement plant was pocket planted, canopy plant coverage was not achieved so relevant pioneer plants were pocket planted).		

January 2009