

Hanson Construction Materials Pty Ltd

# Groundwater Management Plan: Bass Point Quarry Expansion



ENVIRONMENTAL



WATER



WASTEWATER



GEOTECHNICAL



CIVIL



PROJECT  
MANAGEMENT



P1404183JR04V03  
December 2014

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**All enquiries regarding this project are to be directed to the Project Manager.**

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# 1 Introduction

## 1.1 Overview

This groundwater management plan (GMP) has been prepared as a requirement of the Project Approval (PA) issued by the NSW Department of Planning and Environment (DoPE) on January 28, 2014 for the approved expansion of Bass Point Quarry, Haul Road, Shell Cove, NSW (MP08\_0143).

Detailed assessment and investigation of the site found that the site's latite rock is massive and has negligible primary hydraulic conductivity, with the bulk of the rock having low hydraulic conductivity as assessed by packer testing. Water bearing structures comprise areas of irregularly fractured rock. Site investigations indicate that a regional water bearing zone shall be encountered by the quarrying operation once it passes 0 mAHD. Prior to that depth, some seepage into pits may be observed, however this is not considered groundwater in the context of this plan.

## 1.2 Scope

This assessment has been completed in order to satisfy Item 24 (c) of Schedule 3 relating to preparation of a groundwater management plan (GWMP). It shall:

- Identify the site's surrounding sensitive receivers to groundwater.
- Prepare a baseline monitoring plan to establish ambient groundwater conditions at sensitive receivers.
- Determine trigger values and groundwater assessment criteria for monitoring potential impacts during expansion works.
- Outline a groundwater monitoring program.
- Outline long term groundwater management, auditing and reporting requirements.

## 1.3 Approved Development

The approved expansion works include:

1. Replacement of the existing processing plant with a new processing plant.

2. Relocation of the existing concrete plant, office, workshop and amenities.
3. Quarrying in the western pit to -40 mAHD.
4. Quarrying in the eastern pit to -40 mAHD.
5. Reconfiguration of a bund (previously approved by Shellharbour City Council) to follow the northern site boundary between Killalea Lagoon and the ocean.

A site plan is provided in Attachment A.

#### **1.4 Subject Site**

The site is located on Haul Road, Shell Cove, NSW (formally Lot 22 DP 1010797) within the Shellharbour Local Government Area (LGA). It has been used for extractive industry since 1880.

Further details regarding site and surrounding conditions are provided in the project Environmental Assessment (Insite Planning Services, 2011).

#### **1.5 Extraction Phasing**

Approved site extraction operations below 0 mAHD are proposed to be completed in two phases:

- Phase 1:
  - Extraction from the western pit to a level of -40 mAHD. Water (surface and groundwater) collected within the pit shall be detained and treated in a 27.0 ML basin.
  - Eastern pit surface water shall be collected in the existing pit shall be detained and treated by a 29.0 ML basin.
- Phase 2:
  - The western pit will be filled by inflowing with groundwater and surface water to a level of approximately 0 mAHD.
  - The eastern pit basin shall be enlarged to 33.6 ML to provide treatment of inflowing groundwater and surface water runoff. Excess water will be pumped into the western pit as required.

## 1.6 Agency Consultation

Consultation with the following agencies was undertaken in preparation of this document:

- Shellharbour City Council.
- NSW Office of Water (NOW).
- Environmental Protection Authority (EPA).

Details of correspondence are provided in Attachment D.

## **2 Groundwater Monitoring Plan**

### **2.1 Overview**

The site groundwater management plan has been developed to assess:

1. Sensitive receivers.
2. Site groundwater conditions.
3. Groundwater flows.

### **2.2 Sensitive Receivers**

The following sensitive receivers have been identified within the PA as being in close proximity to the site with potential to experience indirect or direct impacts resulting from site operations:

1. Killalea Lagoon.
2. Surrounding privately owned groundwater bores.

Figure 1 and Figure 2 (Attachment B) locates each of these receivers in relation to the site.

#### **2.2.1 Killalea Lagoon Monitoring and Management Plan**

Given the ecological significance of Killalea Lagoon and specific requirements in the Project Approval to monitoring the lagoon for impacts arising from stormwater and groundwater, a specific Killalea Lagoon Monitoring and Management Plan has been prepared and documented separately (see Martens and Associates, 2014b, P1404183JR03V01). That plan considers both surface and groundwater conditions of Killalea in an integrated plan.

#### **2.2.2 Privately Owned Groundwater Bores**

The PA has indicated that groundwater impacts at privately owned bores are to be monitored and managed as part of the proposed development. The nearest licensed bore (GW060313) was identified on the NRAtlas website administered by NSW Government (Figure 2, Attachment B). Consultation with NOW licensing as part of preparation of the Environmental Assessment (EA) confirmed that the bore license for that location (10BL131194) was granted in 1984 and lapsed in 1987.

As such consideration of possible influence at that location is unnecessary.

Groundwater modelling completed as part of the EA (Martens and Associates, 2013) found that influence on other local bores are less than the Aquifer Interference Policies threshold for mitigation.

It is concluded that monitoring of groundwater at local bores is unnecessary as there are no registered bores that are licensed for use where potential groundwater influence exceeds the threshold for mitigation under the Aquifer Interference Policy.

## **2.3 Site Groundwater Conditions**

### 2.3.1 Overview

EA modelling determined that approximately 43% of the total pit groundwater inflow will be from the ocean. Monitoring of groundwater levels and quality between the pit and the ocean is proposed to inform site operation and regulation of changes to groundwater conditions.

Monitoring of impacts on local groundwater to the west of the site (i.e. towards Killalea Lagoon) is covered by the Killalea Lagoon Management Plan (Martens and Associates, 2014b, P1404183JR03V01).

### 2.3.2 Baseline Monitoring Regime

A number of groundwater wells were installed between the eastern pit and the ocean during investigations as part of the EA preparation. A 12 month baseline monitoring regime is recommended from wells BT 0703, BH1 and BT 0702 (Attachment B, Figure 3) to determine ambient groundwater quality and quantity conditions. The following parameters shall be monitored monthly:

- Water level
- Electrical conductivity
- Temperature

Monitoring results are to be collected and downloaded quarterly. Additionally, quarterly water sampling from each well is to be undertaken to more fully characterise the groundwater quality. Parameters to be tested for each well are:

- pH
- EC
- TDS
- TP (dissolved and recoverable).
- TKN
- NO<sub>x</sub>
- Major Anions (Cl, SO<sub>4</sub>, alkalinity)
- Major Cations (Na, K, Ca, Mg)

### 2.3.3 Sampling Register

Sampling events, quarterly climatic conditions (rainfall and evaporation) and any additional observations are to be recorded in a site register (Attachment C) with laboratory results appended.

### 2.3.4 Baseline Monitoring Report

A report is to be prepared at the conclusion of baseline monitoring and be provided to NSW Department of Planning and Environment (DoPE) and Council. It shall:

- Document baseline monitoring completed including sampling date, time, sampling undertaken and any observations.
- Summarise monitoring results.
- Establish any data trends and relationships with climatic conditions.
- Outline trigger values for operational monitoring (Section 3.2).

Once baseline reporting has been provided to and accepted by relevant agencies, this GMP is to be reviewed and amended where required to ensure proposed monitoring regime is suitable in light of ambient conditions. Section 3.4 and 3.5 provides additional detail on management plan auditing.

### 2.3.5 Groundwater Performance Criteria and Trigger Values

Baseline monitoring will allow ambient groundwater water conditions and typical seasonal variation to be determined. Baseline conditions are to form the trigger values for monitoring to be completed during operational and expansion works. This will allow comparison of ongoing monitoring against the expected ranges and conditions for a specific time of the year and against typical data ranges. Changes in water quality at GWMW1 and GWMW2 are anticipated as the pit deepens. As water flow from the ocean to the pit occurs, the salinity in the groundwater system is likely to increase. This change in condition has no significant impact and as such requires no trigger value. Should variation in water quality in GWMW3 vary from the baseline dataset by 10% or more, further investigation of the change and assessment of potential for impacts on the Bass Point Reserve should be completed.

## 2.4 Operational Monitoring Plan

Monitoring of groundwater is to be undertaken during the life of the development to ensure environmental impacts are identified and can be managed, assessed and, where required, mitigated. Monitoring is to include:

1. Groundwater quantity monitoring as for the baseline monitoring regime.
2. Groundwater quality monitoring as for the baseline monitoring regime until one of the following occurs:
  - a. An impact is detected.
  - b. Quarrying extends below 0 mAHD.

At this point the frequency of monitoring of temperature, EC and water level shall increase from monthly to daily.

3. Any recommendations/requirements from baseline monitoring reporting.
4. Preparation of an annual report detailing monitoring results and providing a comparison with ambient conditions.

A record of operational monitoring is to be kept in the site register (Attachment C) along with any laboratory results. Long term management and reporting of results are discussed further in Section 3.

## 2.5 Contingency and Response Plan

In the event that monitoring indicates that groundwater conditions in GWMW3 vary from baseline conditions (i.e. trigger criteria) by  $\pm 10\%$  or more the following actions should be taken:

1. An assessment of the significance and likely causes of the impacts shall be undertaken and documented in consultation with NOW and NSW EPA.
2. Additional groundwater sampling and laboratory testing (where required) shall be undertaken.
3. If the impacts are concluded to be significant after consultation, and laboratory testing results confirms trigger values are exceeded:
  - a. Further investigation by appropriately qualified environmental engineer/scientist is to be undertaken. The cause of the non-compliance is to be determined, where possible.
  - b. If site works are determined to be the cause of non-compliance this is to be rectified by the site operator under the supervision and recommendations of the environmental engineer/scientist.
  - c. If necessary, site works are to cease until rectified.
  - d. Sampling is to be repeated to ensure the desired conditions have been achieved.

Continued or repeated non-compliance with trigger criteria may indicate a redesign of the quarrying operation and proposal to ensure an acceptable site groundwater outcome. This is discussed further in Section 3.

## **3 Long Term Groundwater Management**

### **3.1 Objectives**

The objective of the long term groundwater management regime at the site is to ensure that operations do not have adverse impacts on the health of sensitive receivers for the life of the project.

### **3.2 Long Term Management Plan**

#### **3.2.1 Phase 1 Operations**

During Phase 1 groundwater intercepted within the western pit (when excavations exceed 0 mAHD) will be reused to satisfy dust suppression demands. Water (surface and groundwater) will be detained within a sedimentation basin in the pit to provide suitable treatment prior to reuse or, where required, discharge in accordance with the surface water management plan and EPL.

#### **3.2.2 Phase 2 Operations**

During Phase 2 water level within the western pit shall be left to recover to 0 mAHD. Surplus water from the eastern pit shall be transferred to the western pit to reduce the period for this equilibration to be achieved. No water will therefore be discharged from the site during Phase 2 of operations.

Groundwater shall enter the eastern pit once excavations exceed 0 mAHD. Water will be detained and treated prior to reuse or, where required, discharge to the western pit.

#### **3.2.3 Monitoring**

The monitoring plan as outlined in Section 2 shall continue as part of the site's long term operation. Further detail is provided in Section 4.3.

### **3.3 Long Term Monitoring Plan**

All monitoring outlined in Section 2 should be undertaken throughout the life of the development.

Sampling events and results are to be recorded in the site register. Results shall form part of annual reporting and system auditing (Section 3.4).

### **3.4 Reporting and Auditing**

Annual groundwater management reporting is to be completed, in accordance with Condition 4, Schedule 5 of the PA, as part of the site's long term management. Reporting is to include:

- Rainfall and evaporation conditions for the calendar year.
- Progress of quarrying operations (i.e. approximate extraction level and extraction pit).
- Summary of annual monitoring results including:
  - Visual inspections.
  - Groundwater level, electrical conductivity and temperature from monitoring bores.
- Comparison of results with baseline data set and trigger values.
- Comparison of records with the previous year and any long term observations/trends.
- Identification of any exceedances and discussion on significance of these.
- An audit of the groundwater management and monitoring system in light of comparison with baseline and previous monitoring records.
- Any recommendations for modification of the monitoring regime as required.

### **3.5 Adaptive Management**

This GMP is considered a 'living' document that should be reviewed and updated:

1. At completion of baseline monitoring.
2. Annually during operation and expansion works.

Given site groundwater conditions will change as quarrying footprint and depth progresses, the management plan needs to be adaptive to remain relevant and effective.

## 4 References

Insite Planning Services (2011) *Environmental Assessment: Bass Point Quarry Extension; Lot 22 DP 1010797*

Landcom (2004) *Managing Urban Stormwater: Soils and Construction Handbook*

Landcom (2008) *Managing Urban Stormwater: Soils and Construction Volume 2e: Mines and Quarries*

Martens and Associates (2010) *Surface Water Assessment and Stormwater Management Scheme: Hanson's Bass Point Quarry Project*

Martens and Associates (2013) *Hydrogeological Assessment: Hanson's Bass Point Quarry Project*

Martens and Associates (2014a) *Water Balance Assessment: Bass Point Quarry Expansion*

Martens and Associates (2014b) *Killalea Lagoon Management Plan: Bass Point Quarry Expansion.*

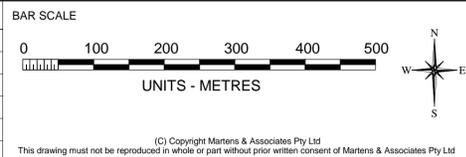
Project Approval (08\_0143) issued by NSW DoPE on January 28, 2014

## 5 Attachment A – Site Plan



NOTES:  
 1. PROPOSED DEVELOPMENT IS SHOWN OVERLAYING SITE SURVEY.  
 2. EASTERN AND WESTERN PITS ARE PROPOSED TO BE EXCAVATED TO A LEVEL NO DEEPER THAN -40 mAHD.

REV.	DESCRIPTION	DATE	ISSUED
A	SURFACE WATER MANAGEMENT	24.11.2014	ASN
B	SURFACE WATER MANAGEMENT	08.12.2014	ASN



DESIGNED: MK	DATUM: mAHD	CLIENT / PROJECT HANSON COSTRUCTION MATERIALS PTY LTD
REVIEWED: ASN	HORIZONTAL RATIO: 1:5000	THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY All measurements in mm unless otherwise specified
PAPER SIZE: A1	VERTICAL RATIO: 1:5000	

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TITLE:			DRAWING ID:
BASS POINT QUARRY - SITE PLAN			SK005
PROJECT MANAGER: ASN	PROJECT NO.: P1404183	FILE: JD04V02	REVISION: B

## 6 Attachment B - Figures



Bushrangers Bay

DP2

Quarry site

Killalea Lagoon

DP1



**Martens & Associates Pty Ltd** ABN 85 070 240 890

**Environment | Water | Wastewater | Geotechnical | Civil | Management**

Drawn:	MLK
Approved:	AN
Date:	25.09.2014
Scale:	NA

**Site Location and Sensitive Receivers**  
Source: SixViewer

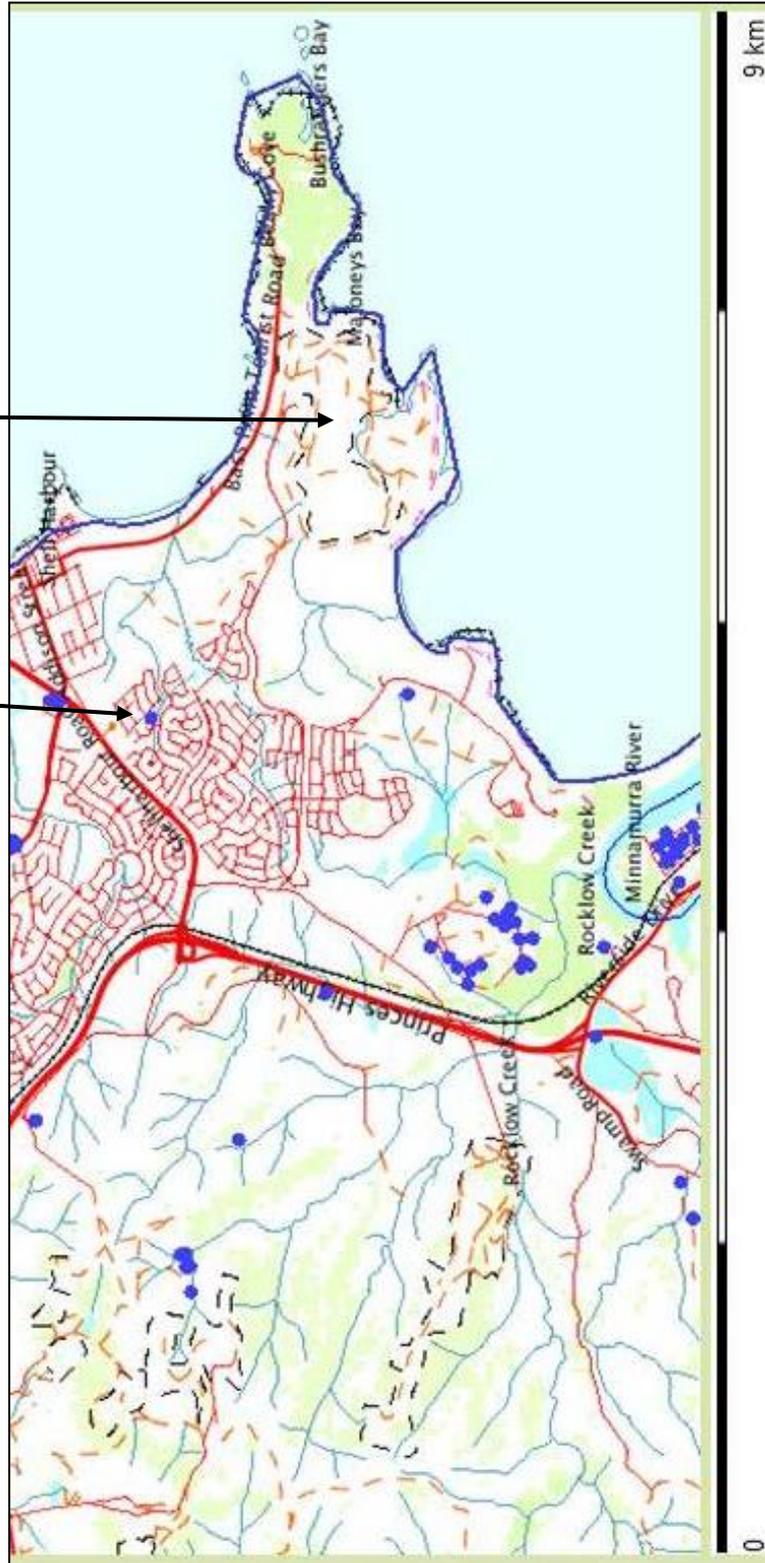
**FIGURE 1**

Job No: P1404183



Quarry site

GW060313



Martens & Associates Pty Ltd ABN 85 070 240 890

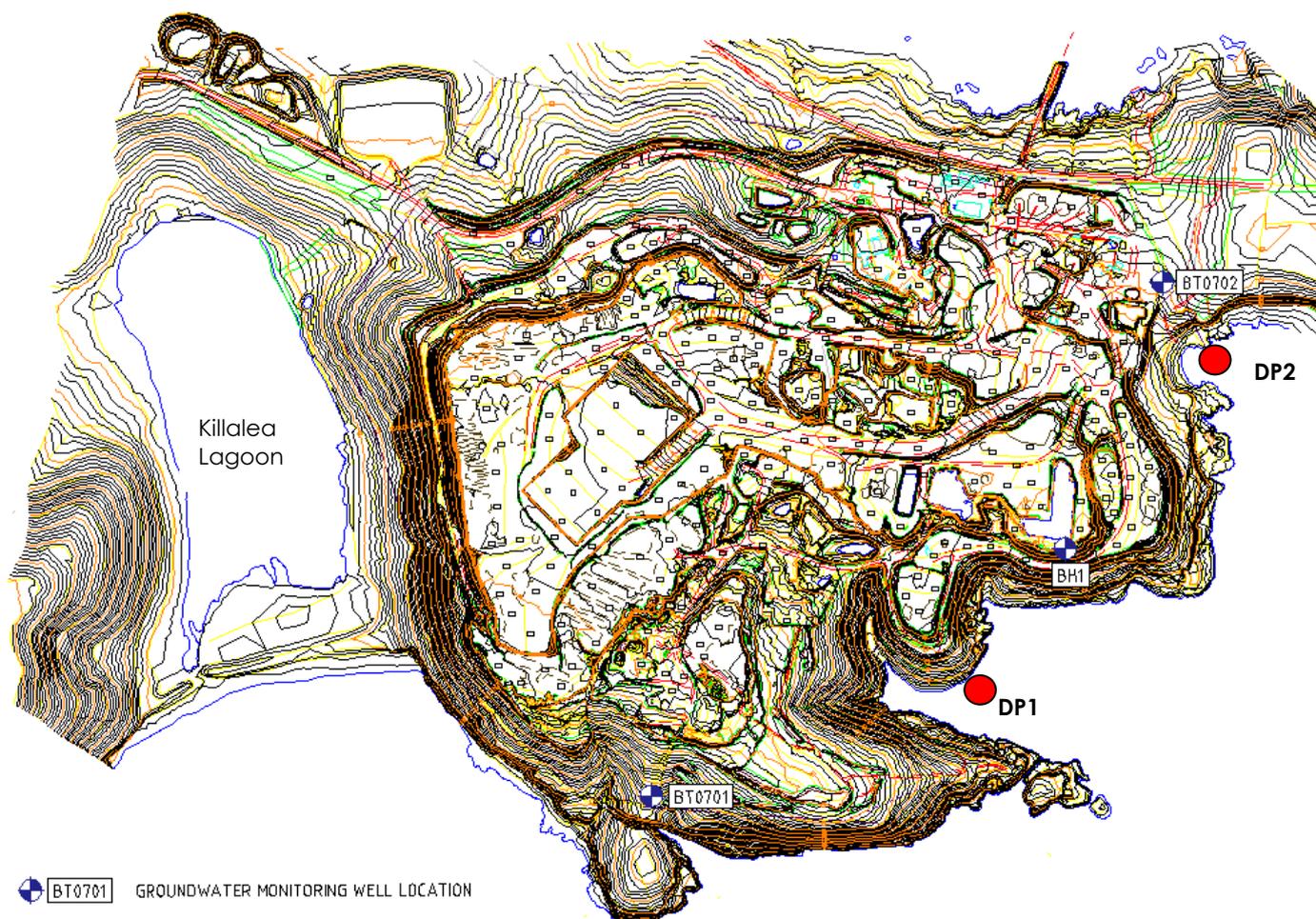
Environment | Water | Wastewater | Geotechnical | Civil | Management

Drawn:	MLK
Approved:	AN
Date:	25.09.2014
Scale:	NA

Site Location and Sensitive Receivers  
Source: NRAAtlas (DNR, 2013)

FIGURE 2

Job No: P1404183



<b>Martens &amp; Associates Pty Ltd</b> ABN 85 070 240 890		<b>Environment   Water   Wastewater   Geotechnical   Civil   Management</b>	
Drawn:	MLK	<b>Proposed Groundwater Monitoring Bores</b>	<b>FIGURE 3</b>
Approved:	AN		
Date:	11.11.2014		
Scale:	NA		Job No: P1404183

## 7 Attachment C – Groundwater Monitoring Register



**8 Attachment D – Agency Consultation**

## Megan Kovelis

---

**From:** Wayne Ryan <Wayne.Ryan@water.nsw.gov.au>  
**Sent:** Tuesday, 14 October 2014 1:34 PM  
**To:** Megan Kovelis  
**Subject:** RE: 4183; Bass Point Quarry Expansion (MP 08\_0143)

Megan,

Following discussions with my team leader, the following advice is offered in relation to the dot points of your email dated 03/10/14.

- In relation to bores, it is noted that there are no licensed bores located within the site's area of influence. If monitoring bores are required to be installed, they are exempt from licensing if the project is deemed a Major Project and the bores are to be left open for no longer than 28 days. If the bores are to be left open for longer than 28 days and are approved through Major Projects, they will still be required to be licensed.
- In relation to Killalea Lagoon, the Licensing Section has no comments to make.
- In relation to the Ocean matter, Licensing Section has no comments to make.
- **Wayne Ryan** | Water Regulation Officer - South Coast (Nowra).  
NSW Department of Primary Industries | NSW Office of Water  
Ground Level | 5 O'Keefe Avenue | Nowra NSW 2541  
PO Box 309 | Nowra NSW 2541  
T: 02 4429 4442 | F: 02 4429 4458 E: [Wayne.Ryan@water.nsw.gov.au](mailto:Wayne.Ryan@water.nsw.gov.au) W: [www.water.nsw.gov.au](http://www.water.nsw.gov.au)

>>> Megan Kovelis <mkovelis@martens.com.au> 10/13/2014 10:44 am >>>  
Good Morning Wayne,

Just wondering if you have had a chance to review the information below on groundwater monitoring and are able to provide some feedback?

Kind Regards,

### **Martens & Associates Pty Ltd**

Megan Kovelis  
Environmental Scientist  
BEnvSc (Hons1)



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---

**From:** Megan Kovelis  
**Sent:** Thursday, 9 October 2014 9:07 AM  
**To:** Wayne Ryan  
**Subject:** RE: 4183; Bass Point Quarry Expansion (MP 08\_0143)

Hi Wayne,

Thank you for letting me know – I will hear from you hopefully tomorrow.

**Martens & Associates Pty Ltd**

Megan Kovelis  
Environmental Scientist  
BEnvSc (Hons1)



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---

**From:** Wayne Ryan [<mailto:Wayne.Ryan@water.nsw.gov.au>]  
**Sent:** Thursday, 9 October 2014 9:04 AM  
**To:** Megan Kovelis  
**Subject:** RE: 4183; Bass Point Quarry Expansion (MP 08\_0143)

Thanks Megan,

My response to this may have to wait until tomorrow. I have people coming into the office today which means I won't be able to get to it today.

Wayne Ryan | Water Regulation Officer - South Coast (Nowra).  
NSW Department of Primary Industries | NSW Office of Water  
Ground Level | 5 O'Keefe Avenue | Nowra NSW 2541  
PO Box 309 | Nowra NSW 2541  
T: 02 4429 4442 | F: 02 4429 4458 E: [Wayne.Ryan@water.nsw.gov.au](mailto:Wayne.Ryan@water.nsw.gov.au) W: [www.water.nsw.gov.au](http://www.water.nsw.gov.au)

>>> Megan Kovelis <[mkovelis@martens.com.au](mailto:mkovelis@martens.com.au)> 10/8/2014 3:56 pm >>>  
Wayne,

Following on from my email last week – I've just realised there was no attachments! My apologies,

**Martens & Associates Pty Ltd**

Megan Kovelis  
Environmental Scientist  
BEnvSc (Hons1)

---

**From:** Megan Kovelis  
**Sent:** Friday, 3 October 2014 3:53 PM  
**To:** [wayne.ryan@water.nsw.gov.au](mailto:wayne.ryan@water.nsw.gov.au)  
**Cc:** Andrew Norris  
**Subject:** RE: 4183; Bass Point Quarry Expansion (MP 08\_0143)

Wayne,

From our last conversation I thought it may be helpful to you to provide an outline of the groundwater monitoring plan we are proposing for Bass Point Quarry. As discussed, the project approval has asked us to consider Killalea Lagoon, privately owned bores and ocean discharge points.

#### Privately Owned Bores:

- Our previous research has indicated that there are no privately owned bores within the site's zone of influence. A bore noted in previous documents as being located in the zone of influence was subsequently found to have allowed its license to lapse and is therefore no longer considered. No monitoring is therefore proposed.

#### Killalea Lagoon

- Some baseline data already exists.
- Further baseline data would be obtained from existing bores between the site and Killalea lagoon (see attached BT 1201 and 1202) and from within the lagoon.
- Data loggers would be installed in each bore and daily measures of water level, conductivity and temperature taken.
- Baseline to continue for a period of 12 months and a report generated at completion detailing ambient lagoon conditions. Report to be provided to Council/DoPE. This should be completed prior to quarrying lowering floor below 0mAHD.
- Project 'trigger values' to be developed based on the range of observations within the baseline data set.
- During operation a monitoring program shall continue as above with an annual report generated that compares data to baseline data and former years' monitoring. Reporting to include an audit of the monitoring regime and recommendations as required. Report to be provided to Council/DoPE.
- Monitoring results during operation that fall outside the baseline conditions by  $\pm 10\%$  are to be further investigated

#### Ocean

- Baseline and operation monitoring regime as above.
- Existing monitoring bores BT0701, BT 0702 and BT 0703 (attached) are to be utilised.

Your feedback on the above would be much appreciated so we can develop the final plans in detail.

Kind Regards,

**Martens & Associates Pty Ltd**

Megan Kovelis  
Environmental Scientist  
BEnvSc (Hons1)



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---

**From:** Megan Kovelis  
**Sent:** Friday, 3 October 2014 11:15 AM  
**To:** [wayne.ryan@water.nsw.gov.au](mailto:wayne.ryan@water.nsw.gov.au)  
**Cc:** Andrew Norris  
**Subject:** FW: 4183; Bass Point Quarry Expansion (MP 08\_0143)

Wayne,

Nice to speak with you. As discussed, please see emails below with our queries regarding site surface and groundwater management (the bottom email) and responses from NOW to date. If you can contribute in any way it would be much appreciated.

If you have any queries, please feel free to contact me.

Kind Regards,

**Martens & Associates Pty Ltd**

Megan Kovelis  
Environmental Scientist  
BEnvSc (Hons1)



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**From:** Mitchell Isaacs [<mailto:mitchell.isaacs@dpi.nsw.gov.au>]  
**Sent:** Friday, 26 September 2014 9:58 PM  
**To:** Megan Kovelis

Cc: [vanessa.hornsby@dpi.nsw.gov.au](mailto:vanessa.hornsby@dpi.nsw.gov.au)

Subject: Re: ATT: MITCHELL ISAACS - 4183; Bass Point Quarry Expansion (MP 08\_0143)

Hi Megan

- The NSW Office of Water does not have any criteria or role in relation to ocean discharge.
- I will ask one of our more knowledgeable local officers to call you to discuss the bores, and other considerations relating to the lagoon.
- A standalone plan for the lagoon is probably appropriate, providing that it is not inconsistent with any other management plans for the project.
- We are unlikely to have any specific trigger levels for the lagoon, but would expect to see justification provided for any trigger levels selected, such as with reference to ecological values of the lagoon, or variation from background / baseline levels.

Regards  
Mitchell

>>> Megan Kovelis <[mkovelis@martens.com.au](mailto:mkovelis@martens.com.au)> 9/26/2014 10:40 am >>>

Mitchell,

I understand that you may be familiar with the above Major Project that has been approved and a Project Approval issued on January 28, 2014. We have been engaged by Hanson to prepare Surface and Groundwater Management Plans under Clause 24, Schedule 3 of the Approval. This Clause requires us to consult with agencies on aspects of site water management.

Specifically we would like to have NOWs feedback on:

- o Clause 24(c) requires monitoring of privately owned groundwater bores potentially affected by the proposed expansion. Our investigations have found that according to NR Atlas, the nearest bore to the site is GW060313. Previous discussions with NOW confirmed this bore is no longer licensed for use. Can you please provide clarification on any other bores that need to be considered that we are not aware of.
- o Any specific surface water criteria or trigger values for ocean discharge. I note that the site has an EPL to discharge into the ocean from 2 locations.
- o Similarly, are there any surface water trigger criteria for Killalea Lagoon? I note that the proposal does not involve any site discharge into the lagoon.
- o Does NOW have any performance criteria for proposed site sedimentation basins that provide treatment prior to site reuse or ocean discharge? Note these have been designed in accordance with Landcom (2004) Blue Book.
- o Does NOW have any criteria or trigger values for groundwater monitoring in Killalea Lagoon or surrounding private bores (if required by Point 1)?

- o Finally, given the specific requirements of the Approval, we propose to prepare a stand-alone management plan for Killalea Lagoon (as well as a site surface water management plan and a groundwater management plan). Does NOW support this?

If you wish to discuss any of the above please feel free to contact me.

Kind Regards,

**Martens & Associates Pty Ltd**

**Megan Kovelis**

**Environmental Scientist**

BEnvSc (Hons1)



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## Megan Kovelis

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**From:** Megan Kovelis  
**Sent:** Monday, 13 October 2014 10:46 AM  
**To:** 'paul.wearne@epa.nsw.gov.au'  
**Subject:** RE: 4183; Bass Point Quarry Expansion (MP 08\_0143)

Good Morning Paul,

Just wondering if you have had a chance to review the information below and have any comments for us?

Kind Regards,

### **Martens & Associates Pty Ltd**

Megan Kovelis  
Environmental Scientist  
BEnvSc (Hons1)



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**From:** Megan Kovelis  
**Sent:** Monday, 29 September 2014 11:40 AM  
**To:** [paul.wearne@epa.nsw.gov.au](mailto:paul.wearne@epa.nsw.gov.au)  
**Subject:** 4183; Bass Point Quarry Expansion (MP 08\_0143)

Paul,

Thank you for your time this morning.

As mentioned we have been engaged by Hanson to prepare Surface and Groundwater Management Plans under Clause 24, Schedule 3 of the Approval. This Clause requires us to consult with agencies on aspects of site water management.

Specifically we would like to have EPAs feedback on:

- Any specific surface water criteria or trigger values for ocean discharge. I note that the site has an EPL to discharge into the ocean from 3 locations, 2 of which are used and will continue to be used.
- Similarly, are there any surface water trigger criteria for Killalea Lagoon? I note that the proposal no longer involves any site discharge into the lagoon.
- Does EPA have any performance criteria for proposed site sedimentation basins that provide treatment prior to site reuse or ocean discharge? Note these have been designed in accordance with Landcom (2004) Blue Book and so are designed to achieve TSS < 50 ppm.

- Does EPA have any criteria or trigger values for groundwater monitoring in Killalea Lagoon or surrounding private bores (we are currently in the process of confirming with NOW if there are any actively used bores surrounding the site)?
- Finally, given the specific requirements of the Approval, we propose to prepare a stand-alone management plan for Killalea Lagoon (as well as a site surface water management plan and a groundwater management plan). Does EPA support this?

If you wish to discuss any of the above please feel free to contact me.

Kind Regards,

**Martens & Associates Pty Ltd**

Megan Kovelis  
Environmental Scientist  
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## Megan Kovelis

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**From:** Megan Kovelis  
**Sent:** Thursday, 25 September 2014 2:28 PM  
**To:** mick.fields@shellharbour.nsw.gov.au  
**Subject:** 4183; Bass Point Quarry Expansion (MP 08\_0143)

Mick,

I understand that you may be familiar with the above Major Project that has been approved and a Project Approval issued on January 28, 2014. We have been engaged by Hanson to prepare Surface and Groundwater Management Plans under Clause 24, Schedule 3 of the Approval. This Clause requires us to consult with agencies, including Council, on aspects of site water management.

Specifically we would like to have Council feedback on:

- Any specific surface water criteria or trigger values for ocean discharge. I note that the site has an EPL to discharge into the ocean from 2 locations.
- Similarly, are there any surface water trigger criteria for Killalea Lagoon? I note that the proposal does not involve any site discharge into the lagoon.
- Does Council have any performance criteria for proposed site sedimentation basins that provide treatment prior to site reuse or ocean discharge? Note these have been designed in accordance with Landcom (2004) Blue Book.
- Does Council have any criteria or trigger values for groundwater monitoring in Killalea Lagoon or surrounding private bores (occurrence and location yet to be confirmed with NSW Office of Water)?
- Finally, given the specific requirements of the Approval, we propose to prepare a stand-alone management plan for Killalea Lagoon (as well as a site surface water management plan and a groundwater management plan). Does Council support this?

If you wish to discuss any of the above please feel free to contact me.

Kind Regards,

### **Martens & Associates Pty Ltd**

Megan Kovelis  
Environmental Scientist  
BEnvSc (Hons1)



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