6 November 2019

Attn: Lauren Evans
Team Leader – Energy and Resource Assessments
NSW Department of Planning, Industry and Environment

Via email

PO Box 1563
Warriewood
NSW 2012

ABN 45 162 835 083

Dear Lauren

Marulan South Limestone Mine State significant development application – request for additional information

Boral Cement Limited (Boral) received a letter from Matthew Sprott on 26 September 2019 requesting additional information on the Marulan South Limestone Mine Environmental Impact Statement (EIS). The information requests are produced in bold and responses provided below the request in this letter.

LANDOWNER'S CONSENT

1. **Landowner's consent has not yet been provided for the lodgement of the application. The Department understands that Boral is currently making arrangements to obtain landowner's consent in respect of freehold land within the Project Area.**

   The Department requests that you provide an overview (preferably in table format) of all affected land parcels, their respective tenure arrangements and ownership (eg freehold or Crown land) and explain how and when the requirements of clause 49 of the Environmental Planning and Assessment Regulation 2000 will be met in respect of that land.

Boral acknowledges that landowner consent documents are yet to be provided. A table setting out the details of all relevant titles, ownership, form of consent and timing is provided at Attachment 1**.** Copies of relevant documentation will be forwarded under separate cover.

Discussions with two private landowner groups are ongoing and the appropriate documentation will be provided in due course and as soon as feasibly practical.

IMACTS ON INFRASTRUCTURE

2. **Section 19.3.5 of the EIS indicates that blasting impacts would not exceed the structural damage criterion "at all non-mine-owned infrastructure, including the Jemena gas pipeline that supplies the mine with gas." This pipeline does not appear to be identified in the supporting figures within the EIS. The Department requests that the location of this pipeline is made clear and seeks confirmation regarding the status of Boral's consultation with Jemena.**

Refer to Figure 1 for the gas pipeline location. The pipeline is aligned north-south through land associated with Peppertree Quarry, then west-east along Marulan South Road and north-east/south-west along Hume Street into the kiln.

Boral's communication with Jemena is provided in Attachment 1. An email dated 15 August 2019 states that vibrations are not to exceed peak particle velocity of 20 mm/second at the nearest surface of a gas main to vibration generating activities, and that there is to be no subsidence near the main.

Section 19.3.5 of the EIS states vibration generated by blasting would not exceed structural criterion at the gas pipeline. This was summarised from Section 14.5 of Wilkinson Murray (2019) *Marulan South*

Limestone Mine Continued Operations – Noise and Blasting Assessment, which the report author has confirmed was based on a predicted peak particle velocity of 4 mm/second at the pipeline, which will be approximately 900 m from the nearest proposed blasting area. This is substantially below Jemena's standard of 20 mm/second.

The proposed 30-year mine plan will not result in subsidence of natural ground near the gas pipeline.

GREEN HOUSE GAS EMISSIONS

Edge Environment Pty Ltd, which assessed greenhouse gas (GHG) emissions for the EIS, responded to the GHG queries as follows.

3. **The Greenhouse Gas Assessment provides detailed analysis of emissions generated during the construction phase of the Project. However, relatively few details have been provided in respect of the operational phase. The Department requests further explanation regarding the various 'Operation Sources' identified in Table 5. For example, Table 5 indicates that lime production would be the most significant generator of Scope 1 emissions. Please provide a brief explanation as to the nature and source of these emissions. Similarly, where particular 'Operation Sources' generate multiple emission types (eg Scope 2 and 3), please explain how these categories have been distinguished.**

The main operational activities that contribute to the consumption of electricity, natural gas, sub-bituminous coal or diesel and are therefore a source of emissions are provided in Table 1.

Lime production is the most significant generator of scope 1 emissions due to the main activity of the mine being the production of limestone products. Emissions are calculated based on the tonnes of lime produced and the emissions factors provided in section 4.3 Lime Production, Chapter 4 Industrial processes, in the National Greenhouse Account Factors 2017.

The part of the operation that uses sub-bituminous coal is the lime kiln where quicklime is produced by burning limestone in the rotary kiln. The fuel for the kiln is both gas and coal, gas being the major source providing some 78% and coal about 22%.

Where sources generate multiple emission types (eg scope 2 and 3) this is based on emission factors from the National Greenhouse Account Factors 2017 that allow the calculation of indirect emissions attributable to the extraction, production and transport of those fuels including electricity lost in delivery. For example, the scope 2 emission factors for electricity and the scope 3 emission factors for natural gas are state-based emission factors calculated from the physical characteristics of the distribution of that energy.

Table 1 GHG emission sources

Activity	Electricity	Natural gas (GJ)	Sub-bituminous coal; combustion of solid fuels	Diesel – automotive (L)
Limestone mining - using drilling and blasting methods				X
Clay shale mining by excavator				X
Transport of limestone and clay shale				X
Limestone processing including lime kiln	X	X	X	X

4. **Operational greenhouse gas emissions have been calculated on an annual basis. Please provide a summary table which calculates total emissions over the life of the Project.**

The total emissions for the life of the project are 4,042,971 tonnes of CO2e (see Attachment 2). This includes estimated operational emissions for the total life of the project including two months of

emissions calculated for the initial construction.

The emissions in the Financial Year 17 National Greenhouse and Energy Reporting Scheme Report will be appropriate for the 30 year project application period. The production quantities and equipment used have been modelled on current equipment inventory and operating practices and these are envisaged to continue. All production modelling and simulations for the environmental impact statement have been carried out utilising the same equipment and practices currently used by Boral.

ABORIGINAL HERITAGE

5. Section 6.4.4 of the Aboriginal Cultural Heritage Assessment (ACHA) states that "a scar tree specialist (to be confirmed) was engaged to determine the status of one tree identified during the survey (MSL 037)." The Department seeks clarification as to whether a specialist was engaged.

This text was erroneously left from a previous document version and should have been removed in the final version. Clarification of this matter can be found in Section 6.6.1 of the ACHA, which states the following (the section includes photos):

> MSL 037 was originally recorded during the survey at the request of an Aboriginal site officer, but was noted to be possibly caused by natural damage. During revision of this ACHA, EMM Senior Archaeologists Ryan Desic and EMM Archaeologist Pamela Chauvel conducted a site visit on 20 June 2018 to determine if the scar on MSL 037 was of Aboriginal origin. Closer inspection of the scar strongly suggests that it was caused naturally either by a lightning strike or generalised trauma damage, consistent with the characteristics described in Aboriginal scarred trees in New South Wales: a field manual (DEC 2005). The tree has a series of elongated and irregularly shaped scars curving around the trunk of the tree (Plate 16.5 and 16.6). There is no evidence of axe marks, appropriate margin shape (eg no rounded or square margins) or appropriate scar shape that would suggest the scar is of Aboriginal origin. Accordingly, the tree MSL 037 is hereafter referred to as 'not a scar tree'. EMM acknowledge that this site was incorrectly recorded on AHIMS (site ID #52-4-0551) and should be deregistered (refer section 11.2.9).

Ryan Desic is suitably experienced as an archaeologist in identifying and recording Aboriginal scar trees to determine that it is very unlikely that the scar is of Aboriginal origin. The ACHA also contains photos of the scar which OEH reviewed and did not object to the assessment.

RAPs were provided with this statement and the recommendation in Section 11.2.9 of the ACHA that states *OEH will be contacted to deregister the tree with natural scars that was incorrectly recorded on AHIMS as MSL 037*. RAPs had the 28-day period to review this information and did not object to the assessment findings or determination of the scar tree.

6. Sections 11.2.6 and 11.3 of the ACHA appear to provide inconsistent numbers regarding the total surface artefacts to be collected (ie 32 or 35). The Department requests clarification regarding this matter.

Thirty-five sites will be collected. This total includes the three sites within the Peppertree MOD 5 boundary. The 32 was an unintentional typographical error.

ADDITIONAL FIGURES

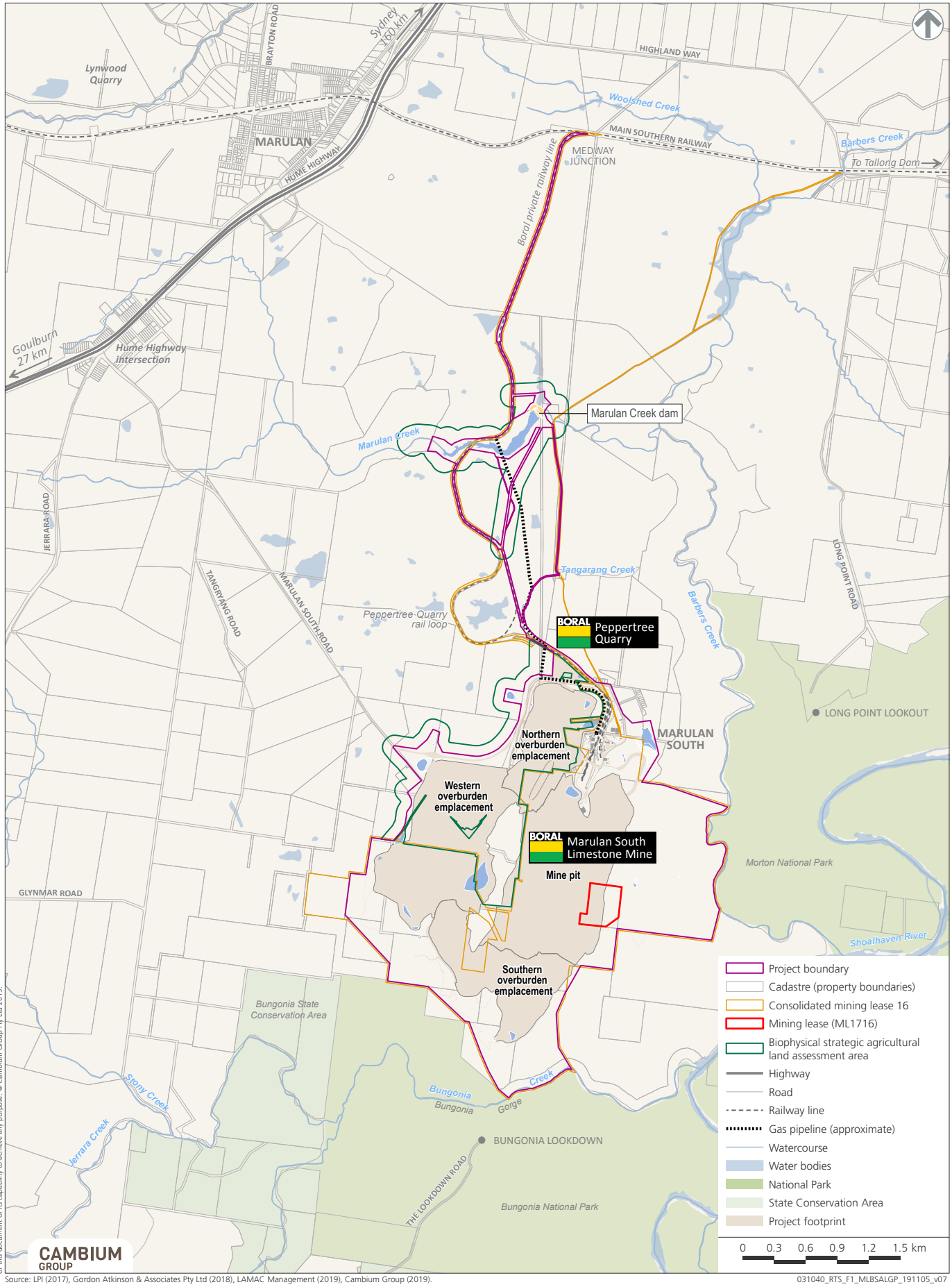
7. Please provide a high-resolution figure which overlays the:

- **project layout;**
- **current mining lease boundaries; and**
- **the Biophysical Strategic Agricultural Land assessment areas associated with the 2015 Site Verification Certificate.**

The requested information is provided on Figure 1.

Figure 1
Mining leases, BSAL and gas pipeline

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION
RESPONSE TO SUBMISSIONS



Source: LPI (2017), Gordon Atkinson & Associates Pty Ltd (2018), LAMAC Management (2019), Cambium Group (2019).

031040_RTS_F1_MLBSALGP_191105_v07

We trust this letter provides the additional information you seek. Please do not hesitate to contact us if you have any further queries.

Kind regards,

Neville Hattingh
Director
0404 252 265
neville@elementenvironment.com.au

ATTACHMENT 1 – TITLES, OWNERSHIP, FORM OF CONSENT AND TIMING

Legal Reference	Owner	Form of Consent/Notice	Anticipated timing
Boral Limited			
Lot 114 DP830458	Boral Limited	Company authority	Obtained April 2019
Boral Cement Limited			
Lot 1 DP 1124189	Boral Cement Limited	Company authority	Obtained April 2019
Lot 2 DP 1124189	Boral Cement Limited		
Lot 22 DP 867667	Boral Cement Limited		
Lot 1 DP 261615	Boral Cement Limited		
Lot 1 DP 860561	Boral Cement Limited		
Lot 2 DP 860561	Boral Cement Limited		
Lot 1 DP106569	Boral Cement Limited		
Lot 2 DP 527500	Boral Cement Limited		
Lot 1 DP 527500	Boral Cement Limited		
Lot 2 DP106569	Boral Cement Limited		
Lot 100 DP1064794	Boral Cement Limited		
Lot 16 DP111641	Boral Cement Limited		
Lot 14 DP 111641	Boral Cement Limited		
Lot 15 DP 111641	Boral Cement Limited		
Lot 7 DP 111641	Boral Cement Limited		
Lot 6 DP 111641	Boral Cement Limited		
Lot 113 DP830458	Boral Cement Limited		
Lot 2 DP 1186554	Boral Cement Limited		
Lot 1 DP617992	Boral Cement Limited		
Lot 9 DP 111645	Boral Cement Limited		
Lot 1 DP132244	Boral Cement Limited		
Lot 2 DP132244	Boral Cement Limited		
Lot 3 DP 106569	Boral Cement Limited		
Lot 3 DP 527501	Boral Cement Limited		
Lot 4 DP106569	Boral Cement Limited		
Lot 3 DP 617992	Boral Cement Limited		
Lot 114 DP 750029	Boral Cement Limited		
Lot 82 DP 750029	Boral Cement Limited		
Lot 132 DP 750029	Boral Cement Limited		
Lot 165 DP 750029	Boral Cement Limited		
Lot 193 DP 750029	Boral Cement Limited		
Lot 115 DP 750029	Boral Cement Limited		
Lot 131 DP 750029	Boral Cement Limited		
Lot 154 DP 750029	Boral Cement Limited		
Lot 186 DP 750029	Boral Cement Limited		
Lot 156 DP 750029	Boral Cement Limited		
Lot 197 DP 750029	Boral Cement Limited		
Lot 83 DP 750029	Boral Cement Limited		
Lot 87 DP 750029	Boral Cement Limited		
Lot 1701 DP 610507	Boral Cement Limited		
Lot 1702 DP 610507	Boral Cement Limited		
Boral Resources (NSW) Pty Ltd			
Lot 12 DP 881240	Boral Resources (NSW) Pty Ltd		

Legal Reference	Owner	Form of Consent/Notice	Anticipated timing
Lot 23 DP 867667	Boral Resources (NSW) Pty Ltd	Company authority	Obtained April 2019
Lot 3 DP203290	Boral Resources (NSW) Pty Ltd		
Lot 4 DP203290	Boral Resources (NSW) Pty Ltd		
Lot 24 DP867667	Boral Resources (NSW) Pty Ltd		
Lot 12 DP 570616	Boral Resources (NSW) Pty Ltd		
Lot 111 DP830458	Boral Resources (NSW) Pty Ltd		
Lot 112 DP830458	Boral Resources (NSW) Pty Ltd		
Lot 21 DP657523	Boral Resources (NSW) Pty Ltd		
Crown Lands			
Lot 282 DP750029	Crown Lands	Direct notice under clause 49 (2) (a) on 19 March 2019	Not applicable. Notice in accordance with the Regulations overrides the need for consent.
Lot 7300 DP 1149129	Crown Lands		
Lot 98 DP 750029	Crown Land		
Lot 7302 DP 1149129	Crown Land		
Lot 7301 DP 1149129	Crown Land		
Lot 7303 DP 1149129	Crown Land		
Feltham Estate			
Lot 179 DP 750029	Feltham Estate	Trust authority (being negotiated)	Under negotiation
Lot 155 DP 750029	Feltham Estate		
Lot 187 DP 750029	Feltham Estate		
Lot 191 DP 750029	Feltham Estate		

ATTACHMENT 2 – COMMUNICATION WITH JEMENA

---------- Forwarded message ---------
From: **gas networks engineer** <gas.networks.engineer@jemena.com.au>
Date: Thu, 15 Aug 2019 at 15:28
Subject: RE: SSD7009 - Marulan South Limestone _ Jemena gas pipeline
To: Snape, Rachael <rachael.snape@boral.com.au>
Cc: Brad Gee <Brad.Gee@jemena.com.au>, Danny Guerrera <Danny.Guerrera@jemena.com.au>, Les Longhurst <les.longhurst@boral.com.au>

Dear Rachael,

Please note the following

- our vibrations are not to exceed peak particle velocity readings of 20mm/second at the nearest surface of our main.
- No mine subsidence will occur near our main

With Kind Regards,

Darryl Tolentino

Engineer – Gas Distribution

Jemena

Level 14, 99 Walker Street, North Sydney, NSW 2060
+61 2 9867 7237

darryl.tolentino@jemena.com.au | www.jemena.com.au

www.gonaturalgas.com.au

From: Brad Gee <Brad.Gee@jemena.com.au>
Sent: Tuesday, 13 August 2019 11:29 AM
To: Land Services <LandServicesgroup@jemena.com.au>; Luke Duncan <luke.duncan@jemena.com.au>; Veronica Wieckowski <Veronica.Wieckowski@jemena.com.au>
Subject: FW: SSD7009 - Marulan South Limestone _ Jemena gas pipeline

Hi Guys

Can you please review the below, according to the below the proposed works that would not directly impact our asset.

However the potential for impacts are associated with vibration from blasting and has been considered in the assessment of the development (refer to section 19.6.5, p. 363). Boral's assessment concluded that blasting would occur below the structural damage criteria at all non-mine owned infrastructure, including the pipeline.

Brad Gee

Commercial Manager – Key Accounts

Jemena

Level 14, 99 Walker Street, North Sydney, NSW 2060
02 9867 7134 | 0429 363 835

brad.gee@jemena.com.au | www.jemena.com.au

From: Snape, Rachael <rachael.snape@boral.com.au>
Sent: Wednesday, 7 August 2019 12:55 PM
To: Brad Gee <Brad.Gee@jemena.com.au>
Cc: Les Longhurst <les.longhurst@boral.com.au>
Subject: SSD7009 - Marulan South Limestone _ Jemena gas pipeline

Hi Brad,

Again, thank you for taking the time to call back yesterday, I appreciate it. As discussed, Boral Cement Limited is in the process of seeking consent for the expansion of the Marulan South Limestone Mine (located on Marulan South Road, Marulan).

The proposal seeks to continue and expand the limestone operations by increasing the extraction from 3.38 million tonnes per annum (tpa) to 4 million tpa. The primary expansion of the limestone pit is to the west and south. However, there is a minor northern increase in the extent of the pit that can be seen in the proposed stage 1 figure, refer to Figure 4.12 p. 112 in section 4.5.2 of the EIS document. Alternatively, for ease of reference, I have attached the relevant figures showing Stage 0 - 4 of the proposal.

The general location of the Jemena gas pipeline is shown in the attached. The pipeline into the mine site appears to follow the alignment of the local road network to the existing kiln, which is identified in figure 3.3 extracted from the EIS (and now attached) with the reference number of "2". In general, while there are works in proximity, there are no proposed works that would directly impact on the asset. Moreover, there is no proposed increase in the operation of the kiln proposed that would increase demand for gas supply to the site.

The potential for impacts associated with vibration from blasting was considered in the assessment of the development (refer to section 19.6.5, p. 363). The assessment concluded that blasting would occur below the structural damage criteria at all non-mine owned infrastructure, including the pipeline. A full copy of the EIS, supporting documentation and comments can be viewed online here: https://www.planningportal.nsw.gov.au/major-projects/project/9691

Boral's consultant team is in the process of preparing a response to submissions (RtS) report to the Department of Planning, Industry, and Environment (DPIE). On review of the proposal and assessment materials should Jemena have any concerns or comments in relation to the proposed development, please forward the same by email and Boral will seek to respond to these through the formal RtS process and if necessary contact Jemena to find a suitable resolution (if and where required). In the event that Jemena has no concerns regarding the proposed development, we ask that the same be put in writing so that we may confirm the same with DPIE.

If you have any questions in relation to the proposal please do not hesitate to contact me on the numbers below or by return email.

Kind regards

--

RACHAEL SNAPE

Planning and Development Manager NSW/ACT

Telephone: (02) 9033 4401

Mobile: + 61 401 894 110

Fax: (02) 9033 5305
Email: Rachael.Snape@boral.com.au

Boral Land & Property Group

Triniti T2 Level 5

39 Delhi Road, North Ryde NSW 2113

www.boral.com.au

--
RACHAEL SNAPE
Planning and Development Manager NSW/ACT

Telephone: (02) 9033 4401
Mobile: + 61 401 894 110
Fax: (02) 9033 5305
Email: Rachael.Snape@boral.com.au

Boral Land & Property Group
Triniti T2 Level 5
39 Delhi Road, North Ryde NSW 2113
www.boral.com.au

ATTACHMENT 3 – TOTAL EMISSIONS (tCO_{2e}) OVER LIFE OF PROJECT

Stage		Cum	STAGE	PRE SSD			STAGE 1					STAGE 2								STAGE 3						STAGE 4									
			SSD YR				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	tCO2e	tCO2e	FY	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38	FY39	FY40	FY41	FY42	FY43	FY44	FY45	FY46	FY47	FY48	FY49
PRE SSD				122,704	122,704	122,704	116,444	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704	122,704
	368,112	**368,112**																																		
STAGE 1																																				
	607,260	**975,372**																																		
STAGE 2																																				
	981,632	**1,957,004**																																		
STAGE 3																																				
	736,224	**2,693,228**																																		
STAGE 4																																				
	1,349,744	**4,042,972**																																		
Total emissions over life of the project		**4042971**																																		