Development Assessment Panel

Business Paper

date of meeting: Wednesday 23 November 2016

location: Function Room
Port Macquarie-Hastings Council
17 Burrawan Street
Port Macquarie

time: 2.00pm

***Note**: Council is distributing this agenda on the strict understanding that the publication and/or announcement of any material from the Paper before the meeting not be such as to presume the outcome of consideration of the matters thereon.*

PORT MACQUARIE HASTINGS

Development Assessment Panel

CHARTER

COMPOSITION:

Independent Chair (alternate, Director Development & Environment)
Manager Development Assessment (alternate, Director Development & Environment or Development Assessment Planner)
Development Engineering Coordinator (alternate, Development Engineer)

MISSION:

To assist in managing Council's development assessment function by providing independent and expert assessment of development applications

The Development Assessment Panel will make determinations on the basis of established criteria and practice and will not be influenced by "lobbying" and "weight of numbers" in its assessment process.

FUNCTIONS:

1. To review development application reports and conditions
2. To determine development applications outside of staff delegations
3. To refer development applications to Council for determination where necessary
4. To provide a forum for objectors and applicants to make submissions on applications before DAP.
5. To maintain transparency for the determination of development applications.

DELEGATED AUTHORITY:

1. Pursuant to Section 377 of the Local Government Act, 1993 delegation to:
2. Determine development applications under Part 4 of the Environmental Planning and Assessment Act 1979 having regard to the relevant environmental planning instruments, development control plans and Council policies.
3. Vary Modify or release restrictions as to use and/or covenants created by Section 88B instruments under the Conveyancing Act 1919 in relation to development applications for subdivisions being considered by the panel.
4. Determine Koala Plans of Management under State Environmental Planning Policy 44 - Koala Habitat Protection associated with development applications being considered by the Panel.

TIMETABLE:

The Development Assessment Panel shall generally meet on the 1st and 3rd Wednesday each month at 2.00pm.

VENUE:

PORT MACQUARIE HASTINGS

The venue will be determined according to the likely number of participants.

BUSINESS PAPER AND MINUTES:

1. The Business Paper for the meeting shall be published and distributed on the Friday prior to the meeting.
2. Special Meetings of the Panel may be convened by the Director Development & Environment Services with three (3) days notice.
3. The format of the preparation and publishing of the Business Paper and Minutes of the Development Assessment Panel meetings shall be similar to the format for Ordinary Council Meetings, except that the movers and seconders shall not be recorded and only the actual decisions are shown. Minutes shall also record how each member votes for each item before the Panel.

FORMAT OF THE MEETING:

1. Panel meetings shall be carried out in accordance with Council's Code of Meeting Practice for Council Sub-Committees, except where varied by this Charter.
2. Meetings shall be "Open" to the public.
3. The Panel will hear from applicants and objectors or their representatives. Where considered necessary, the Panel will conduct site inspections which will be open to the public.

INDEPENDENT CHAIR:

The Chair of the Development Assessment Panel shall be an independent person appointed by the General Manager. The Independent Chair shall have experience and qualifications relevant to planning. The term of the Independent Chair shall be four (4) years.

QUORUM:

All members must be present at the Meeting to form a Quorum.

DECISION MAKING:

Decisions are to be made by the Development Assessment Panel by "consensus". Where "consensus" is not possible, the matter is to be referred to Council.

All development applications involving a variation to a development standard greater than 10% under Clause 4.6 of the Port Macquarie-Hastings Local Environmental Plan 2011 will be considered by the Panel and recommendation made to the Council for determination.

Staff Members shall not vote on matters before the Panel if they have been the principle author of the development assessment report.

LOBBYING:

Outside of scheduled Development Assessment Panel meetings, applicants, their representatives, Councillors, Council staff and the general public are not to lobby Panel members via meetings, telephone conversations, correspondence and the like. Adequate opportunity will be provided at Panel inspections or meetings for applicants, their representatives and the general public to make verbal submissions in relation to Business Paper items.

OBLIGATIONS OF PANEL MEMBERS:

All DAP members are required to comply with the following:

1. Members must perform their Development Assessment Panel obligations faithfully and diligently and in accordance with the DAP Code.
2. DAP members must comply with Council's Code of Conduct.
3. Except as required to properly perform their duties, DAP members must not disclose any confidential information (as advised by Council) obtained in connection with the DAP functions.
4. DAP members will have read and be familiar with the documents and information provided by Council prior to attending a DAP meeting.
5. DAP members must act in accordance with Council's Occupational Health and Safety Policies and Procedures
6. DAP members shall not speak to the media on any matter before the Panel otherwise than with the express approval of the Director Development & Environment Services.

Development Assessment Panel

ATTENDANCE REGISTER

Member	27/0716	24/08/16	14/09/16	28/09/16/16	12/10/16
Paul Drake Matt Rogers (alternate)	✓	✓ ✓ (Item 8)	**A** ✓	✓	✓
Dan Croft Patrick Galbraith-Robertson Warren Wisemantel (alternates)	✓ ✓	✓ ✓	✓	✓	✓
David Troemel Caroline Horan (alternate) Bevan Crofts (alternate)	✓	✓	✓	✓	✓

Member	26/10/16	09/11/16			
Paul Drake Matt Rogers (alternate)	✓	✓			
Dan Croft Patrick Galbraith-Robertson Warren Wisemantel (alternates)	✓	✓ ✓			
David Troemel Caroline Horan (alternate) Bevan Crofts (alternate)	✓	✓			

Key: ✓ = Present
A = Absent With Apology
X = Absent Without Apology

PORT MACQUARIE HASTINGS

Development Assessment Panel Meeting

Wednesday 23 November 2016

Items of Business

PORT MACQUARIE HASTINGS

Item: **01**

Subject: **ACKNOWLEDGEMENT OF COUNTRY**

"I acknowledge that we are gathered on Birpai Land. I pay respect to the Birpai Elders both past and present. I also extend that respect to all other Aboriginal and Torres Strait Islander people present."

Item: **02**

Subject: **APOLOGIES**

RECOMMENDATION

That the apologies received be accepted.

Item: **03**

Subject: **CONFIRMATION OF PREVIOUS MINUTES**

RECOMMENDATION

That the Minutes of the Development Assessment Panel Meeting held on 9 November 2016 be confirmed.

PRESENT

Members:

Paul Drake
Dan Croft
David Troemel

Other Attendees:
Patrick Galbraith-Robinson
Clinton Tink
Keith Smith
Ben Roberts

The meeting opened at 2.00pm.

01 ACKNOWLEDGEMENT OF COUNTRY

The Acknowledgement of Country was delivered.

02 APOLOGIES

Nil.

03 CONFIRMATION OF MINUTES

CONSENSUS:

That the Minutes of the Development Assessment Panel Meeting held on 26 October 2016 be confirmed.

04 DISCLOSURES OF INTEREST

There were no disclosures of interest presented.

05 DA2016 - 383 - ALTERATIONS AND ADDITIONS TO DWELLING - LOT 17 DP 31187, NO 25 BOURNE STREET, PORT MACQUARIE

Speakers:

Jeff Davis (opposing)

Bill Rourke (opposing)

Andrew Rock (applicant)

Phil Sheppard (supporting)

CONSENSUS:

That DA 2016 - 383 for alterations and additions to dwelling at Lot 17, DP 31187, No. 25 Bourne Street, Port Macquarie, be determined by granting consent subject to the recommended conditions.

06 DA2016 - 625.1 - ADDITIONAL DWELLING TO CREATE DUAL OCCUPANCY AND TORRENS TITLE SUBDIVISION - LOT 21 DP 243007, 42 BELLANGRY ROAD, PORT MACQUARIE

Speakers:

Wayne Marsden (opposing)

Gary Hughes (applicant)

CONSENSUS:

That DA 2016 - 625 for an additional dwelling to create dual occupancy and Torrens title subdivision at Lot 21, DP 243007, No. 42 Bellangry Road, Port Macquarie, be determined by granting consent subject to the recommended conditions and as amended below:

- Additional condition in Section B of the consent to read:

  "Council records indicate that the development site is connected to sewer via junction to the existing sewer line that runs along the northern property boundary. Existing sewer junction must be extended at no cost to Council to provide each proposed lot with an individual sewer junction. Details are to be shown on the engineering plans".

- Additional condition in Section B of the consent to read:

  " A stormwater drainage design is to be submitted and approved by Council prior to the issue of a Construction Certificate. The design must be prepared in accordance with Council's AUSPEC Specifications and the requirements of Relevant Australian Standards and make provision for the following:

  1. The legal point of discharge for the proposed development is defined as Council's piped drainage system.
  2. All allotments must be provided with a direct point of connection to the public piped drainage system. Kerb outlets are not permitted.
  3. The design requires the provision of interallotment drainage in accordance with AUSPEC D5"

- Additional condition in Section E of the consent to read:

  "Creation of drainage easement between lots (ie. interallotment)

  Where stormwater pipelines traverse lots other than those which they benefit appropriate drainage easements shall be created and registered on the title of the relevant lot(s) with the Lands and Property Information NSW.

  a. For pipes less than 500mm diameter, the easement width must be a minimum of 1500mm. Easements for larger diameter pipes must be the pipeline diameter plus 1200mm wide, with a minimum width of 2400mm.

  b. Where easements are associated with a subdivision, the easement shall be established with the plan of subdivision and Section 88B instrument. Details to be submitted to Council prior to issue of Subdivision Certificate.

  Where easements are not associated with a subdivision, the easement shall be approved by Council prior to lodgement at Lands and Property Information (LPI) NSW and evidence of registration shall be submitted to the Principal Certifying Authority prior to any Occupation Certificate."

07 DA2016 - 713.1 - ADDITIONS TO DWELLING - LOT 3 DP 855993, NO 24 BEECHTREE CIRCUIT, PORT MACQUARIE

Speakers:

Peter Boyne (opposing)

Susan Dempster (applicant)

CONSENSUS:

That DA 2016 - 713.1 for additions to dwelling at Lot 3, DP 855993, No. 24 Beechtree Circuit, Port Macquarie, be determined by granting consent subject to the recommended conditions.

08 DA2016 - 0372.1 - RESIDENTIAL FLAT BUILDING INCLUDING A CLAUSE 4.6 VARIATION TO CLAUSE 4.3 (HEIGHT OF BUILDING) OF THE PORT MACQUARIE HASTINGS LOCAL ENVIRONMENTAL PLAN 2011 AT LOT 3 DP 345930, 3 GORE STREET, PORT MACQUARIE

Speakers:

Gary Allen (applicant)

Michelle Chapman (applicant)

Geoff Ferris (applicant)

CONSENSUS:

That DA 2016 - 0372.1 for a residential flat building including a Clause 4.6 variation to Clause 4.3 (Height of Building) at Lot 3, DP 345930, No. 3 Gore Street, Port Macquarie, be determined by granting consent subject to the recommended conditions and as amended below:

- Additional condition in Section A of the consent to read:

  (A195) Alva Lane shall be upgraded full width, including kerb & gutter along the frontage of the development, so that the pavement thickness meets Council's AUS-SPEC 'Collector Road' standard (i.e. one million ESAs, 1x106). This shall require a full rebuild of the pavement unless geotechnical results are deemed by Council to demonstrate another solution is acceptable. Prior to issue of a Construction Certificate, a pavement design report shall be prepared by a suitably qualified geotechnical or civil engineer and submitted to Council with the Roads Act (s138) application, including soil test results and in-situ CBR values (NATA certified). Council's minimum pavement compaction testing criteria are as follows:

  a. 98% (modified) base layers - Maximum Modified Dry Density test in accordance with AS1289.5.2.1.

  b. 95% (modified) sub-base layers - Maximum Modified Dry Density test in accordance with AS1289.5.2.1.

  c. 100% (standard) subgrade/select layers - Maximum Standard Dry Density test in accordance with AS1289.5.1.1 (or for in-situ subgrade soils only, wet density testing may be used).

The meeting closed at 3.00pm.

Item: 04

Subject: DISCLOSURES OF INTEREST

RECOMMENDATION

That Disclosures of Interest be presented

DISCLOSURE OF INTEREST DECLARATION

Name of Meeting: ……..

Meeting Date: ……..

Item Number: ……..

Subject: ……..
……..…..

I, ... declare the following interest:

☐ **Pecuniary:**
Take no part in the consideration and voting and be out of sight of the meeting.

☐ **Non-Pecuniary - Significant Interest:**
Take no part in the consideration and voting and be out of sight of the meeting.

☐ **Non-Pecuniary - Less than Significant Interest:**
May participate in consideration and voting.

For the reason that: .....

.....

Name: ……

Signed: ..... Date: .....

(Further explanation is provided on the next page)

Further Explanation

(Local Government Act and Code of Conduct)

A conflict of interest exists where a reasonable and informed person would perceive that a Council official could be influenced by a private interest when carrying out their public duty. Interests can be of two types: pecuniary or non-pecuniary.

All interests, whether pecuniary or non-pecuniary are required to be fully disclosed and in writing.

Pecuniary Interest

A pecuniary interest is an interest that a Council official has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the Council official. (section 442)

A Council official will also be taken to have a pecuniary interest in a matter if that Council official's spouse or de facto partner or a relative of the Council official or a partner or employer of the Council official, or a company or other body of which the Council official, or a nominee, partner or employer of the Council official is a member, has a pecuniary interest in the matter. (section 443)

The Council official must not take part in the consideration or voting on the matter and leave and be out of sight of the meeting. The Council official must not be present at, or in sight of, the meeting of the Council at any time during which the matter is being considered or discussed, or at any time during which the council is voting on any question in relation to the matter. (section 451)

Non-Pecuniary

A non-pecuniary interest is an interest that is private or personal that the Council official has that does not amount to a pecuniary interest as defined in the Act.

Non-pecuniary interests commonly arise out of family, or personal relationships, or involvement in sporting, social or other cultural groups and associations and may include an interest of a financial nature.

The political views of a Councillor do not constitute a private interest.

The management of a non-pecuniary interest will depend on whether or not it is significant.

Non Pecuniary – Significant Interest
As a general rule, a non-pecuniary conflict of interest will be significant where a matter does not raise a pecuniary interest, but it involves:

(a) A relationship between a Council official and another person that is particularly close, for example, parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descendant or adopted child of the Council official or of the Council official's spouse, current or former spouse or partner, de facto or other person living in the same household.
(b) Other relationships that are particularly close, such as friendships and business relationships. Closeness is defined by the nature of the friendship or business relationship, the frequency of contact and the duration of the friendship or relationship.
(c) An affiliation between a Council official an organisation, sporting body, club, corporation or association that is particularly strong.

If a Council official declares a non-pecuniary significant interest it must be managed in one of two ways:

1. Remove the source of the conflict, by relinquishing or divesting the interest that creates the conflict, or reallocating the conflicting duties to another Council official.
2. Have no involvement in the matter, by taking no part in the consideration or voting on the matter and leave and be out of sight of the meeting, as if the provisions in section 451(2) apply.

Non Pecuniary – Less than Significant Interest
If a Council official has declared a non-pecuniary less than significant interest and it does not require further action, they must provide an explanation of why they consider that the conflict does not require further action in the circumstances.

SPECIAL DISCLOSURE OF PECUNIARY INTEREST DECLARATION

By *[insert full name of councillor]*	
In the matter of *[insert name of environmental planning instrument]*	
Which is to be considered at a meeting of the *[insert name of meeting]*	
Held on *[insert date of meeting]*	

PECUNIARY INTEREST	
Address of land in which councillor or an associated person, company or body has a proprietary interest (*the **identified land)***[i]	
Relationship of identified land to councillor [*Tick or cross one box*.]	□ Councillor has interest in the land (e.g. is owner or has other interest arising out of a mortgage, lease trust, option or contract, or otherwise). □ Associated person of councillor has interest in the land. □ Associated company or body of councillor has interest in the land.
MATTER GIVING RISE TO PECUNIARY INTEREST	
Nature of land that is subject to a change in zone/planning control by proposed LEP *(the **subject land***[iii] [*Tick or cross one box*]	□ The identified land. □ Land that adjoins or is adjacent to or is in proximity to the identified land.
Current zone/planning control [*Insert name of current planning instrument and identify relevant zone/planning control applying to the subject land*]	
Proposed change of zone/planning control [*Insert name of proposed LEP and identify proposed change of zone/planning control applying to the subject land*]	
Effect of proposed change of zone/planning control on councillor [*Tick or cross one box*]	□ Appreciable financial gain. □ Appreciable financial loss.

Councillor's Name: ……

Councillor's Signature: …… Date: ……..

Important Information

This information is being collected for the purpose of making a special disclosure of pecuniary interests under sections 451 (4) and (5) of the *Local Government Act 1993.* You must not make a special disclosure that you know or ought reasonably to know is false or misleading in a material particular. Complaints made about contraventions of these requirements may be referred by the Director-General to the Local Government Pecuniary Interest and Disciplinary Tribunal.

This form must be completed by you before the commencement of the council or council committee meeting in respect of which the special disclosure is being made. The completed form must be tabled at the meeting. Everyone is entitled to inspect it. The special disclosure must be recorded in the minutes of the meeting.

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i. Section **443** (1) of the *Local Government Act 1993* provides that you may have a pecuniary interest in a matter because of the pecuniary interest of your spouse or your de facto partner or your relative[iv] or because your business partner or employer has a pecuniary interest. You may also have a pecuniary interest in a matter because you, your nominee, your business partner or your employer is a member of a company or other body that has a pecuniary interest in the matter.

ii. Section **442** of the *Local Government Act 1993* provides that a ***pecuniary interest*** is an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person. A person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to the matter or if the interest is of a kind specified in section **448** of that Act (for example, an interest as an elector or as a ratepayer or person liable to pay a charge).

iii. A pecuniary interest may arise by way of a change of permissible use of land adjoining, adjacent to or in proximity to land in which a councillor or a person, company or body referred to in section **443** (1) (b) or (c) of the *Local Government Act 1993* has a proprietary interest..

iv. ***Relative*** is defined by the *Local Government Act 1993* as meaning your, your spouse's or your de facto partner's parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descendant or adopted child and the spouse or de facto partner of any of those persons.

Item: 05

Subject: DA2016 - 698 - ALTERATIONS AND ADDITIONS TO DWELLING AND SWIMMING POOL - LOT 6 DP 242597, NO 14 HONEYSUCKLE ROAD, BONNY HILLS

Report Author: Patrick Galbraith-Robertson

Applicant:	**D Wall CARE Robert Smallwood Building Plans**
Owner:	**D Wall**
Estimated Cost:	**$299K**
Parcel no:	**9715**

Alignment with Delivery Program

4.9.2 Undertake transparent and efficient development assessment in accordance with relevant legislation.

RECOMMENDATION

That DA2016 - 298 for alterations and additions to dwelling and swimming pool at Lot 6, DP 242597, No. 14 Honeysuckle Road, Bonny Hills, be determined by granting consent subject to the recommended conditions.

Executive Summary

This report considers a development application for alterations and additions to an existing dwelling and new swimming pool at the subject site and provides an assessment of the application in accordance with the Environmental Planning and Assessment Act 1979.

Following neighbour consultation of the application, two(2) submissions have been received.

1. BACKGROUND

Existing sites features and Surrounding development

The site has an area of 632.3m2.

The site is zoned R1 general residential in accordance with the Port Macquarie-Hastings Local Environmental Plan 2011, as shown in the following zoning plan:

The existing subdivision pattern and location of existing development within the locality is shown in the following aerial photograph (2012):

2. DESCRIPTION OF DEVELOPMENT

Key aspects of the proposal include the following:

- Alterations and additions to existing dwelling-house
- Construction of new swimming pool in rear yard
- Retaining walls
- Replacement/widened driveway

Refer to attachments at the end of this report.

Application Chronology

- 6 September 2016 - DA lodged.
- 15 to 28 September 2016 - Neighbour notification of proposal
- 28 September 2016 - change of Council assessing officer
- 12 October 2016 - Site visit by assessing officer and meeting with western neighbour

3. STATUTORY ASSESSMENT

Section 79C(1) Matters for Consideration

In determining the application, Council is required to take into consideration the following matters as are relevant to the development that apply to the land to which the development application relates:

(a) The provisions (where applicable) of:

(i) Any environmental planning instrument

State Environmental Planning Policy No. 44 - Koala Habitat Protection

There is no Koala Plan of Management on the site. Additionally, the site is less than 1ha in area therefore no further investigations are required.

State Environmental Planning Policy No.55 – Remediation of Land

Following an inspection of the site and a search of Council records, the subject land is not identified as being potentially contaminated and is suitable for the intended use.

State Environmental Planning Policy No. 71 – Coastal Protection and Clause 5.5 of Port Macquarie-Hastings Local Environmental Plan 2011

The site is located within a coastal zone as defined in accordance with clause 4 of SEPP 71.

In accordance with clause 5, this SEPP prevails over the Port Macquarie-Hastings LEP 2011 in the event of any inconsistency.

Having regard to clauses 8 and 12 to 16 of SEPP 71 and clause 5.5 of Hastings LEP 2011 inclusive the proposed development will not result in any of the following:

a) any restricted access (or opportunities for access) to the coastal foreshore;

b) any identifiable adverse amenity impacts along the coastal foreshore and on the scenic qualities of the coast;

c) any identifiable adverse impacts on any known flora and fauna (or their natural environment);

d) subject to any identifiable adverse coastal processes or hazards;

e) any identifiable conflict between water and land based users of the area;

f) any identifiable adverse impacts on any items of archaeological/heritage;

g) reduce the quality of the natural water bodies in the locality.

The site is located within an area zoned for residential purposes.

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

A BASIX certificate has been submitted demonstrating that the proposal will comply with the requirements of the SEPP. A standard condition is recommended to ensure compliance of works with the BASIX certificate.

Port Macquarie-Hastings Local Environmental Plan 2011

The proposal is consistent with the LEP having regard to the following:

- Clause 2.2, the subject site is zoned R1 General Residential. In accordance with clause 2.3(1) and the R1 zone landuse table, the dwelling (or ancillary structure to a dwelling) is a permissible landuse with consent.

The objectives of the R1 zone are as follows:

- *To provide for the housing needs of the community.*
- *To provide for a variety of housing types and densities.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*

In accordance with Clause 2.3(2), the proposal is consistent with the zone objectives as it is a permissible landuse and consistent with the established residential locality,

- Clause 4.3, the maximum overall height of the building above ground level is 8.5m which complies with the maximum 8.5m standard.
- Clause 4.4, the floor space ratio (FSR) of the proposal is 0.41:1.0 FSR which complies with the maximum 0.65:1 floor space ratio applying to the site.
- Clause 5.9 - two(2) listed trees in Development Control Plan 2013 are proposed to be removed.
- Clause 5.10 – Heritage. The site does not contain or adjoin any known heritage items or sites of significance.
- Clause 7.13, satisfactory arrangements are in place for provision of essential services.

(a)(ii) Any proposed instrument that is or has been placed on exhibition

No draft instruments apply to the site.

(a)(iii) Any DCP in force

The following table provides an assessment of the proposal against the applicable development controls.

Port Macquarie-Hastings Development Control Plan 2013:

DCP 2013: Dwellings, Dual occupancies, Dwelling houses, Multi dwelling houses & Ancillary development			
	Requirements	**Proposed**	**Complies**
3.2.2.1	Ancillary development: • 4.8m max. height • Single storey • 60m2 max. area • 100m2 for lots >900m2 • 24 degree max. roof pitch • Not located in front setback	Water tank appropriately located Swimming pool appropriately located	Yes
3.2.2.2	Articulation zone: • Min. 3m front setback • An entry feature or portico • A balcony, deck, patio, pergola, terrace or verandah • A window box treatment • A bay window or similar feature • An awning or other feature over a window • A sun shading feature	n/a	
	Front setback (Residential not R5 zone): • Min. 6.0m classified road • Min. 4.5m local road or within 20% of adjoining dwelling if on corner lot • Min. 3.0m secondary road • Min. 2.0m Laneway	Min. 4.5m	Yes
3.2.2.3	Garage 5.5m min. and 1m behind front façade. Garage door recessed behind building line or eaves/overhangs provided	Garage doors >5.5m and >1m behind main facade	Yes
	6m max. width of garage door/s and 50% max. width of building	2.5m and 2.7m wide garage doors and <50% proportion width	Yes
	Driveway crossover 1/3 max. of site frontage and max. 5.0m width	4.53m wide driveway and <1/3 proportion	Yes
3.2.2.4	4m min. rear setback. Variation subject to site analysis and provision of private open space	Min. 8.3m to altered building Swimming pool is min. 1.5m rear setback and private open space is compliant	Yes

DCP 2013: Dwellings, Dual occupancies, Dwelling houses, Multi dwelling houses & Ancillary development			
	Requirements	**Proposed**	**Complies**
3.2.2.5	Side setbacks: • Ground floor = min. 0.9m • First floors & above = min. 3m setback or where it can be demonstrated that overshadowing not adverse = 0.9m min. • Building wall set in and out every 12m by 0.5m	Min. 1.0m north side setback Min. 1.5m south side setback No adverse overshadowing impacts to southern neighbour in particular as a vacant property (no dwelling existing)	Yes
3.2.2.6	35m2 min. private open space area including a useable 4x4m min. area which has 5% max. grade	>35m2 private open space and useable 4x4m	yes
3.2.2.7	Front fences: • If solid 1.2m max height and front setback 1.0m with landscaping • 3x3m min. splay for corner sites • Fences >1.2m to be 1.8m max. height for 50% or 6.0m max. length of street frontage with 25% openings • 0.9x0.9m splays adjoining driveway entrances • Front fences and walls to have complimentary materials to context	No front fences	n/a
3.2.2.10	Privacy: • Direct views between living areas of adjacent dwellings screened when within 9m radius of any part of window of adjacent dwelling and within 12m of private open space areas of adjacent dwellings. ie. 1.8m fence or privacy screening which has 25% max. openings and is permanently fixed • Privacy screen required if floor level > 1m height, window side/rear setback (other than bedroom) is less than 3m and sill height less than 1.5m • Privacy screens provided to	No identifiable direct views between living areas of adjacent dwellings when within 9m radius of any part of window of adjacent dwelling and within 12m of private open space areas of adjacent dwellings. The angle of view back from the proposed main deck to the northern neighbour appears to be very acute. An overlay has been prepared to show the angle of view - refer attached. Most dwellings where there are Ocean Views and no direct views into the principal private open space areas also do not generally propose/require privacy	Yes/No* Variation recommended to be supported for the reasons stated beside.

DCP 2013: Dwellings, Dual occupancies, Dwelling houses, Multi dwelling houses & Ancillary development			
	Requirements	**Proposed**	**Complies**
	balconies/verandahs etc which have <3m side/rear setback and floor level height >1m	screens. There are no significant main living room windows apparent in the southern elevation of the neighbouring property in question. It is also noted that there are existing windows on the northern elevation. No privacy screens or changes to window sill heights recommended.	

DCP 2013: General Provisions			
	Requirements	**Proposed**	**Complies**
2.7.2.2	Design addresses generic principles of Crime Prevention Through Environmental Design guideline	Adequate casual surveillance available	Yes
2.3.3.1	Cut and fill 1.0m max. 1m outside the perimeter of the external building walls	Maximum 0.8m height retaining wall associated with cutting into the rear of the site. Given the proposed swimming pool it is recommended that engineering certification be provided by a suitably qualified and experienced engineer - condition recommended.	Yes
2.6.3.1	Tree removal (3m or higher with 100m diameter trunk at 1m above ground level and 3m from external wall of existing dwelling)	Two existing trees to be removed within the backyard to enable construction of the pool and retaining walls.	Yes - can be considered for removal
2.4.3	Bushfire risk, Acid sulphate soils, Flooding, Contamination, Airspace protection, Noise and Stormwater	Refer to main body of report.	
2.5.3.2	New accesses not permitted from arterial or distributor roads	No change to existing single driveway point	Yes
	Driveway crossing/s minimal in number and width including maximising street parking		
2.5.3.3	Parking in accordance with Table 2.5.1. 1 space per single dwelling	2 parking spaces	Yes

DCP 2013: General Provisions			
	Requirements	**Proposed**	**Complies**
	(behind building line)		
2.5.3.14	Sealed driveway surfaces unless justified	Driveway to be sealed and upgraded - condition recommended for section 138 approval if works are proposed within the road reserve.	
2.5.3.15 and 2.5.3.16	Driveway grades first 6m or 'parking area' shall be 5% grade with transitions of 2m length	Existing driveway grades can't be changed.	No - existing with garage floor levels set
2.5.3.17	Parking areas to be designed to avoid concentrations of water runoff on the surface.	Existing driveway	n/a

Based on the above assessment, the variation proposed to the standard privacy provisions of the DCP is considered acceptable and the relevant objectives have been satisfied.

Cumulatively, the variations do not amount to an adverse impact or a significance that would justify refusal of the application.

(a)(iii)(a) Any planning agreement or draft planning agreement

No planning agreement has been offered or entered into relating to the site.

(a)(iv) Any matters prescribed by the regulations

NSW Coastal Policy 1997

The proposed development is consistent with the objectives and strategic actions of this policy.

(a)(v) Any Coastal Zone Management Plan

None applicable.

(b) The likely impacts of that development, including environmental impacts on both the natural and built environments and the social and economic impacts in the locality

Context and setting

- The proposal will be unlikely to have any adverse impacts to existing adjoining properties or the public domain.
- The proposal is considered to be sufficiently compatible with other residential development in the locality and adequately addresses planning controls for the area.

- There are no adverse impacts on existing view sharing.
- There are no adverse privacy impacts, as justified earlier in this report.
- There are no adverse overshadowing impacts.

Water, Sewer and Stormwater
Service available – details required with S.68 application. The proposal is for alterations and additions to an existing serviced dwelling.

Other Utilities
Telecommunication and electricity services are available to the site.

Heritage
This site does not contain or adjoin any known heritage item or site of significance.

Other land resources
No adverse impacts anticipated. The site is within an established urban context and will not sterilise any significant mineral or agricultural resource.

Water cycle
The proposed development will be unlikely to have any adverse impacts on water resources and the water cycle.

Soils
The proposed development will be unlikely to have any adverse impacts on soils in terms of quality, erosion, stability and/or productivity subject to a standard condition requiring erosion and sediment controls to be in place prior to and during construction.

Air and microclimate
The construction and/or operations of the proposed development will be unlikely to result in any adverse impacts on the existing air quality or result in any pollution.

Flora and fauna
Construction of the proposed development will require removal/clearing of two existing trees however these trees are considered to not be of any significance to warrant retention. The existing tree in the south-western corner is also noted to be in poor health. The proposal therefore will be unlikely to have any significant adverse impacts on biodiversity or threatened species of flora and fauna. Section 5A of the Act is considered to be satisfied.

Waste
Satisfactory arrangements are in place for proposed storage and collection of waste and recyclables. No adverse impacts anticipated.

Energy
No adverse impacts anticipated.

Noise and vibration
No adverse impacts anticipated. Condition recommended to restrict construction to standard construction hours.

Bushfire
The site is identified as being bushfire prone.
The applicant has submitted a bushfire report prepared by the Building Designer.

The following comments are provided having regard to Report and Section 4.3.5 of Planning for Bushfire Protection 2006:

Asset Protection Zones	APZ to be determined in accordance with AS3959	Existing dwelling with entire property to be managed as an APZ
Siting and building design	Siting and design principles considered section 4.3.5	The proposal is for alterations and additions to an existing dwelling which is sited across the road from an existing hazard.
Construction standards	Construction in accordance with AS3959.	FDI rating 80 Vegetation = Scrub Effective slope = downslope >5 degrees to 10 degrees = 24.5m = BAL 19
Access requirements	4.1.3 public road access 4.2.7 for internal road access	Constructed public road frontage Existing internal driveway
Water and utility services	4.1.3 services - water and electricity.	Water supply services available. Existing electrical transmission lines above ground.
Landscaping	Appendix 5 landscaping	Existing limited landscaping

The above assessment concludes that the bushfire risk is acceptable subject to BAL 19 construction levels being implemented.

Safety, security and crime prevention
The proposed development will be unlikely to create any concealment/entrapment areas or crime spots that would result in any identifiable loss of safety or reduction of security in the immediate area.

Social impacts in the locality
Given the nature of the proposed development and its' location the proposal is unlikely to result in any adverse social impacts.

Economic impact in the locality
No adverse impacts. Likely positive impacts can be attributed to the construction of the development and associated flow on effects (ie increased expenditure in the area).

Site design and internal design
The proposed development design is satisfactorily responds to the site attributes and will fit into the locality. No adverse impacts likely.

Construction

No potential adverse impacts identified to neighbouring properties with the construction of the proposal.

Cumulative impacts

The proposed development is not expected to have any adverse cumulative impacts on the natural or built environment or the social and economic attributes of the locality.

(c) The suitability of the site for the development

The proposal will fit into the locality and the site attributes are conducive to the proposed development.

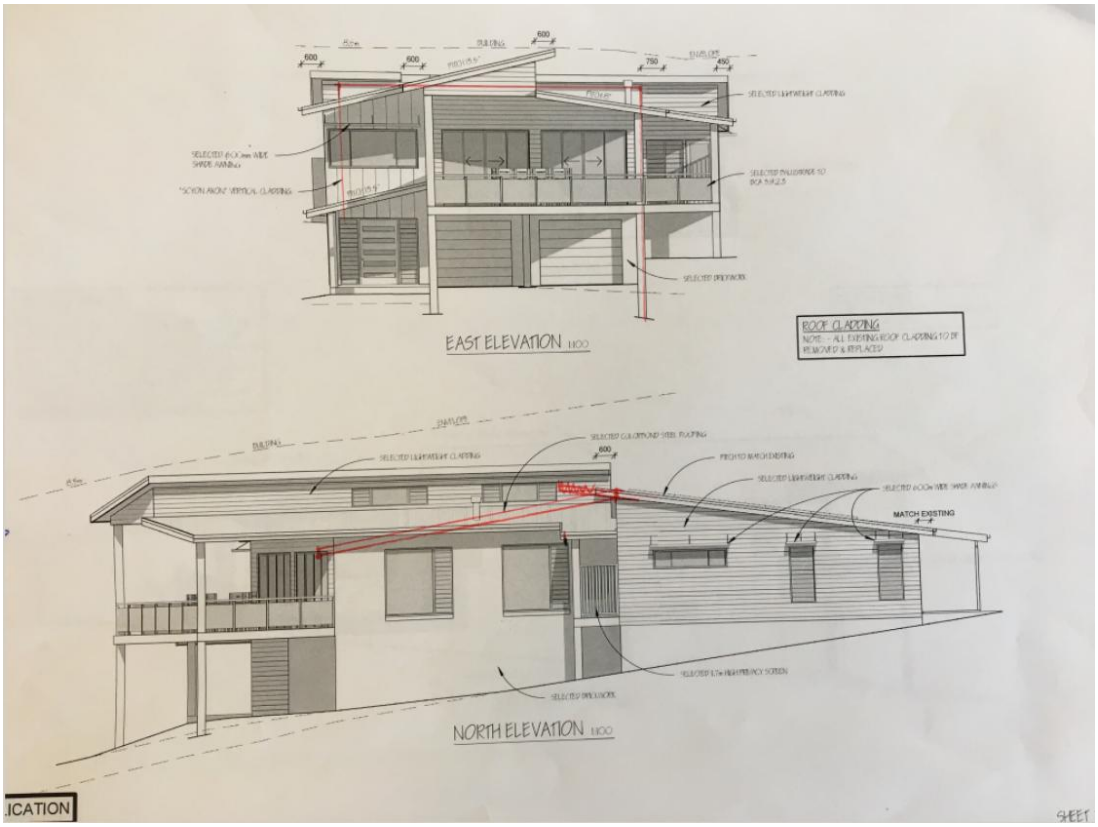
Site constraints of bushfire risk have been adequately addressed and appropriate conditions of consent recommended.

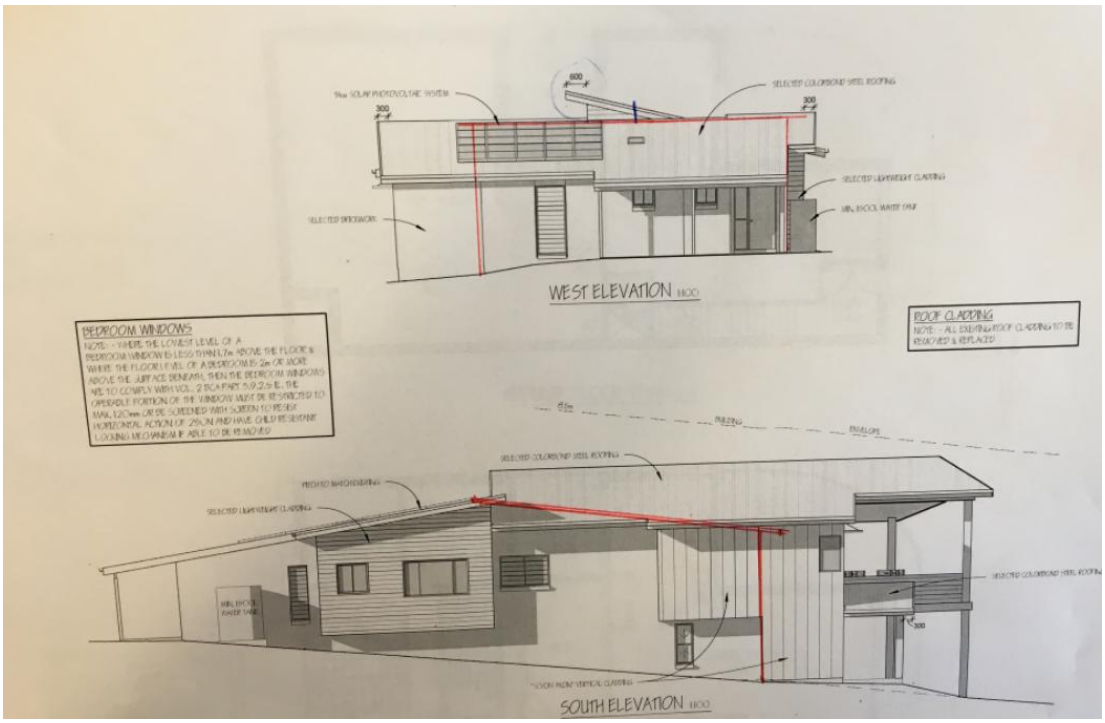
(d) Any submissions made in accordance with this Act or the Regulations:

Two(2) written submissions have been received following neighbour consultation of the application.

Key issues raised in the submissions received and comments in response to these issues are provided as follows:

Submission Issue/Summary	Planning Comment/Response
12 Banksia Avenue, Bonny Hills	
Height and impacts on views and access to winter sunlight.	There is only a minor increase in additional height proposed at the western rear of the proposed altered dwelling - refer to attached mark up plan images below this table. The proposal complies with the maximum 8.5m height limit at the eastern-most end and is well below the height at the west end. A visual inspection from this neighbouring property identified no significant view sharing impacts which require more in depth assessment. It is noted that with the proposed tree removal the broad ocean views will likely improve for this neighbour.
Swimming pool and retaining walls impacting on drainage.	There are no identifiable impacts on drainage to this upstream property. There are no pre-existing interallotment drainage arrangements for this neighbouring property. The retaining wall and swimming pool are set in from the boundaries and will be required to be certified by a suitably experienced and qualified engineer.
Impacts of excavation for swimming pool and retaining walls on stability of decline.	


EAST ELEVATION 1:100
ROOF CLADDING
NOTE: - ALL EXISTING ROOF CLADDING TO BE REMOVED & REPLACED
NORTH ELEVATION 1:100
MATCH EXISTING
ICATION
SHEET


WEST ELEVATION 1:100
BEDROOM WINDOWS
ROOF CLADDING
NOTE: - ALL EXISTING ROOF CLADDING TO BE REMOVED & REPLACED
SOUTH ELEVATION 1:100

Submission Issue/Summary	Planning Comment/Response
16 Honeysuckle Road, Bonny Hills	
Incorrect information in Statement of Environmental Effects	Agree that the Statement is incorrect/incomplete. An inspection of the trees has however identified that the trees nominated are not significant enough to warrant retention. The eucalypt tree in the south-west corner in particular is in poor health and would be unreasonable to require retention. No ecological test is considered required to be undertaken for the removal of these trees. If the development is approved, the trees will be required to be felled within the property only. Appropriate insurance would be required by the proponent for these works.
Variation request report, overshadowing, privacy and view impacts	Please refer to aerial overlay of plan. No issues of concern are foreshadowed with supporting the variations proposed. The property with concern is located to the direct north of the subject proposal and will not be affected by overshadowing. With regard to privacy impacts, the angle of view back from the proposed deck appears to be very acute. An overlay has been prepared to show the angle of view - refer attached. Most dwellings where there are ocean views areas do not generally propose/ require privacy screens. With regard to the ocean views to the south-east from this neighbouring property, the front setback is compliant with Council policy and difficult to require the building to be setback to retain any claimed views across the proponent's property. The front main deck is also open and no adverse impacts can be identified especially when views across side boundaries are more difficult to retain. View sharing is considered to be maintained unless proven otherwise.
Emission of noise with swimming pool	The swimming pool is proposed to be associated with a typical residential use and not intended to be used for commercial purposes. With regard to the potential noise from the pool pump the following condition of approval will be imposed if the development is approved: *(F027) The swimming pool filtration motor shall be operated between the following hours only:* *Monday to Friday (other than a public holiday) 7.00 am – 8.00 pm* *Saturday to Sunday and Public Holidays 8.00 am – 8.00 pm* *Should noise levels exceed 5dBA above the ambient noise level measured at the boundary, the pool filtration motor shall be enclosed with an*

	effective soundproof unit.
Social and economic impacts	It is assumed that the Applicant has ticked the box in the Statement of Environmental Effects template as they feel that the proposal will generally result in more positive social impacts and employment will result from the construction of the development. Council has no specific policy for a Social Impact Assessment to be carried out for proposed works relating to single dwelling-houses. The proposal has been required to be neighbour notified however in accordance with Council notification policy. Council has no control over any pre-discussion of proposals with neighbours.

(e) The Public Interest:

The proposed development satisfies relevant planning controls, including variations as justified, and is unlikely to impact on the wider public interest.

4. DEVELOPMENT CONTRIBUTIONS APPLICABLE

- N/A

5. CONCLUSION

The application has been assessed in accordance with Section 79C of the Environmental Planning and Assessment Act 1979.

Issues raised during assessment and neighbour consultation of the application have been considered in the assessment of the application. Where relevant, conditions have been recommended to manage the impacts attributed to these issues.

The site is suitable for the proposed development, is not contrary to the public's interest and will not have a significant adverse social, environmental or economic impact. It is recommended that the application be approved, subject to the recommended conditions of consent provided in the attachment section of this report.

Attachments

1View. DA2016 - 698.1 Plans
2View. DA2016 - 698.1 Recommended Conditions
3View. DA2016 - 698.1 Submission - Bartlett
4View. DA2016 - 698.1 Submission - Crimmings

PROPOSED ALTERATIONS & ADDITIONS

AT: NO. 14 HONEYSUCKLE ROAD, BONNY HILLS

FOR: D. WALL

REF: 16-1245

DATE: SEPTEMBER 2016

ROBERT SMALLWOOD
BUILDING PLANS
'BETTER BY DESIGN'
MEMBER OF BUILDING DESIGNERS AUSTRALIA - NSW
EMAIL: design@robertsmallwood.com.au
PH: (02) 6559 5222 FAX: (02) 6559 6438
453 OCEAN DRIVE, LAURIETON NSW 2443
www.robertsmallwood.com.au

NORTHEAST PERSPECTIVE
(SUN @ 12pm WINTER SOLSTICE)

SOUTHEAST PERSPECTIVE
(SUN @ 7am WINTER SOLSTICE)

DA ONLY APPLICATION

16-1245
SHEET 1 OF 9

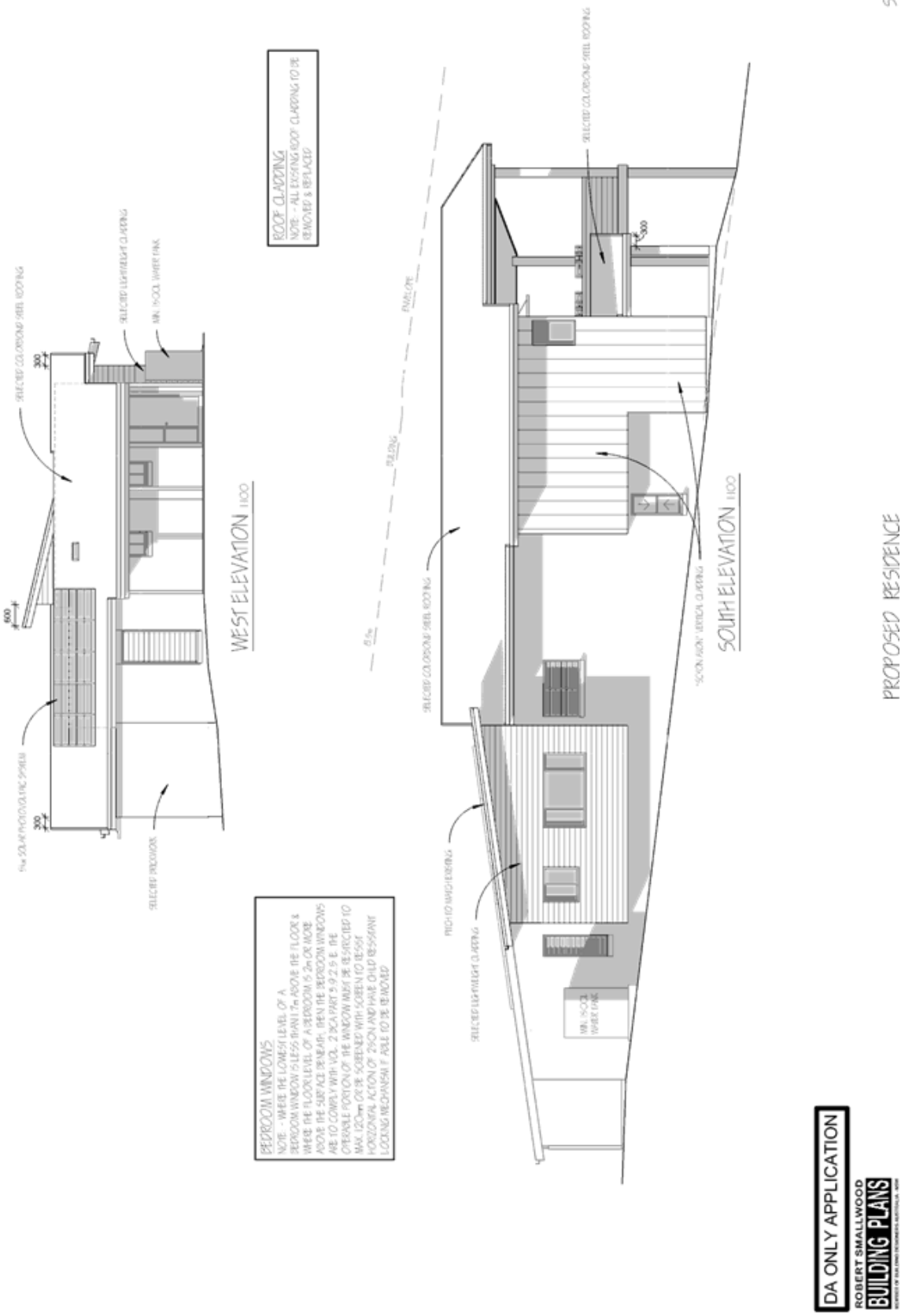
DA ONLY APPLICATION
ROBERT SMALLWOOD
BUILDING PLANS

16-1245
SHEET 2 OF 9

DA ONLY APPLICATION
ROBERT SMALLWOOD
BUILDING PLANS

16-1245
SHEET 3 OF 9

PROPOSED RESIDENCE


16-1245
SHEET 4 OF 9
PROPOSED RESIDENCE
SOUTH ELEVATION 1:100
WEST ELEVATION 1:100
ROOF CLADDING
NOTE - ALL EXISTING ROOF CLADDING TO BE REMOVED & REPLACED
BEDROOM WINDOWS
NOTE - WHERE THE LOWEST LEVEL OF A BEDROOM WINDOW IS LESS THAN 1.7m ABOVE THE FLOOR & WHERE THE FLOOR LEVEL OF A BEDROOM IS 2m OR MORE ABOVE THE SURFACE BENEATH, THEN THE BEDROOM WINDOWS ARE TO COMPLY WITH VOL. 2 BCA PART 3.9.2.5 E. THE OPENABLE PORTION OF THE WINDOW MUST BE RESTRICTED TO MAX. 125mm OR BE SCREENED WITH SCREEN TO RESIST HORIZONTAL ACTION OF 250N AND HAVE CHILD RESISTANT LOCKING MECHANISM IF ABLE TO BE REMOVED
DA ONLY APPLICATION
ROBERT SMALLWOOD
BUILDING PLANS

FOR USE BY PLANNERS/SURVEYORS TO PREPARE LIST OF PROPOSED CONDITIONS - 2011

NOTE: THESE ARE DRAFT ONLY

DA NO: 2016/698 **DATE: 15/11/2016**

PRESCRIBED CONDITIONS

The development is to be undertaken in accordance with the prescribed conditions of Part 6 - Division 8A of the *Environmental Planning & Assessment Regulations* 2000.

A – GENERAL MATTERS

(1) (A001) The development is to be carried out in accordance with the plans and supporting documents set out in the following table, as stamped and returned with this consent, except where modified by any conditions of this consent.

Plan / Supporting Document	Reference	Prepared by	Date
Development plans	Sheets 1 to 9	Robert Smallwood Building Plans	September 2016
BASIX certificate	A259473	Robert Smallwood Building Plans	5 September 2016

In the event of any inconsistency between conditions of this development consent and the plans/supporting documents referred to above, the conditions of this development consent prevail.

(2) (A002) No work shall commence until a Construction Certificate has been issued and the applicant has notified Council of:

a) the appointment of a Principal Certifying Authority and

b) the date on which work will commence.

Such notice shall include details of the Principal Certifying Authority and must be submitted to Council at least two (2) days before work commences.

(3) (A009) The development site is to be managed for the entirety of work in the following manner:

1. Erosion and sediment controls are to be implemented to prevent sediment from leaving the site. The controls are to be maintained until the development is complete and the site stabilised with permanent vegetation;
2. Appropriate dust control measures;
3. Building equipment and materials shall be contained wholly within the site unless approval to use the road reserve has been obtained. Where work adjoins the public domain, fencing is to be in place so as to prevent public access to the site;
4. Toilet facilities are to be provided on the work site at the rate of one toilet for every 20 persons or part of 20 persons employed at the site.
5. Building work being limited to the following hours, unless otherwise permitted by Council;

- Monday to Saturday from 7.00am to 6.00pm
- No work to be carried out on Sunday or public holidays

The builder to be responsible to instruct and control his sub-contractors regarding the hours of work.

B - PRIOR TO ISSUE OF CONSTRUCTION CERTIFICATE

(1) (B001) Prior to release of the Construction Certificate, approval pursuant to Section 68 of the Local Government Act, 1993 to carry out water supply, stormwater and sewerage works is to be obtained from Port Macquarie-Hastings Council. The following is to be clearly illustrated on the site plan to accompany the application for Section 68 approval:

- Position and depth of the sewer (including junction)
- Stormwater drainage termination point
- Easements
- Water main
- Proposed water meter location

(2) (B006) An application pursuant to Section 138 of the Roads Act, 1993 to carry out works required by the Development Consent on or within public road is to be submitted to and obtained from Port Macquarie-Hastings Council prior to release of the Construction Certificate.

Such works include, but not be limited to:

i. Footway and gutter crossing

ii. Functional vehicular access

(3) (B046) The building shall be designed and constructed so as to comply with the Bush Fire Attack (BAL) 19 requirements of Australian Standard 3959 and the specifications and requirements of Planning for Bush Fire Protection. Details shall be submitted to the Principal Certifying Authority with the application for Construction Certificate demonstrating compliance with this requirement.

Please note: Compliance with the requirements of Planning for Bush Fire Protection 2006 to prevail in the extent of any inconsistency with the Building Code of Australia.

(4) (B039) Detailed drawings and specifications prepared by a professional engineer for all retaining walls and the swimming pool are to be submitted to the Principal Certifying Authority with the application for Construction Certificate.

C – PRIOR TO ANY WORK COMMENCING ON SITE

Nil

D – DURING CONSTRUCTION

(1) (D015) The swimming pool shall not to be filled with water until a safety fence/barrier complying with the current Swimming Pools Act and Regulations has been installed and an inspection has been carried out and approval given by the Principal Certifying Authority.

(2) (D016) Where depth of water in the pool exceeds 300mm during construction a temporary barrier or fence in accordance with the current Swimming Pools Act and Regulations is to be erected or other precaution taken so as to prevent entry of children into the pool.

(3) (D000) Any excess fill is to be disposed of at an approved location or taken to an approved waste management facility.

E – PRIOR TO OCCUPATION OR THE ISSUE OF OCCUPATION CERTIFICATE

(1) (E001) The premises shall not be occupied or used in whole or in part until an Occupation Certificate has been issued by the Principal Certifying Authority.

(2) (E058) Written confirmation being provided to the Principal Certifying Authority (PCA) from any person responsible for the building works on the site, stating that all commitments made as part of the BASIX Certificate have been completed in accordance with the certificate.

(3) (E034) Prior to occupation or the issuing of the Occupation Certificate provision to the Principal Certifying Authority of documentation from Port Macquarie-Hastings Council being the local roads authority certifying that all matters required by the approval issued pursuant to Section 138 of the Roads Act have been satisfactorily completed.

(4) (E051) Prior to occupation or the issuing of any Occupation Certificate a section 68 Certificate of Completion shall be obtained from Port Macquarie-Hastings Council.

(5) (E020) The provision of a suitable sign containing the details required by the current Swimming Pools Act and Regulations.

(6) (E021) Pool(s) to be fenced in accordance with the Swimming Pools Act, 1992.

F – OCCUPATION OF THE SITE

(1) (F004) The dwelling is approved for permanent residential use and not for short term tourist and visitor accommodation.

(2) (F027) The swimming pool filtration motor shall be operated between the following hours only:

Monday to Friday (other than a public holiday)
7.00 am – 8.00 pm

Saturday to Sunday and Public Holidays
8.00 am – 8.00 pm

Should noise levels exceed 5dBA above the ambient noise level measured at the boundary, the pool filtration motor shall be enclosed with an effective soundproof unit.

From: [redacted]
Sent: Wednesday, 28 September 2016 2:45 PM
To: Council
Subject: Development Proposal 2016/698

Hello,

We received a letter on Monday 26th September in relation to this matter and I have been unsuccessful in contacting Bob Slater to discuss it.

I have concerns about :

1) The height of the proposed extensions and the effect this will have on both our view and the amount of sunlight in my back yard, especially in winter.

2) Adequate drainage in times of heavy rainfall so it doesn't back up into my property

3) The effect of the excavation for a swimming pool and any retaining walls on the stability of the incline, especially during heavy rain.

Please feel free to contact me on [redacted] or at 12 Banksia Ave Bonny Hills,

Your Sincerely,

Amanda Bartlett

FAX TRANSMISSION COVER SHEET

DATE: 9/10/16

TO: PMHC FROM: T & J. Crimmings

FAX NO: [redacted] FAX NO: [redacted]

PH. NO: [redacted] PH. NO: [redacted]

Number of pages including this page: 4

COVER NOTES

ATTENTION :- Pat Galbraith- Robertson
Development Assessment Planner

RE :- Notification of Development Proposal
Application NO 2016/698
14 Honeysuckle Road
Bonny Hills NSW 2445

Hi Pat,
As mentioned in an email dated 9/10/16 to yourself, please find copy of attachment to previous email sent to R. Slater dated 26 September 2016.

Regards,

T & J Crimmings

[redacted]

16 Honeysuckle Road
Bonny Hills NSW 2445
26 September 2016

The Development and Environment Officer
Robert Slater
Port Macquarie Hastings Council.

Re: **Notification of Development Proposal**
Application No. 2016/698
Property - 14 Honeysuckle Road
Bonny Hills

Dear Mr Slater,

We apologise for the mobile phone issues we had whilst talking to you on the afternoon of Monday 26 September in reference to the above proposed development. Unfortunately, mobile reception is a major issue in the Bonny Hills area.

Issues have arisen due to the incorrect information submitted to Council in the STATEMENT OF ENVIRONMENT EFFECTS for the above Development Proposal.

1. As was mentioned to you, and had been brought to the notice of Tony (at the Laurieton Council office on the 15th September) and to you again today regarding the contradictions in the **Statement of Environmental Effects Part 5, 'involve the removal of any trees'**. This was marked **'No'**, but on the Development Application Plan there are two trees marked for removal, one on the SW corner and the other near the NE boundary of the plan.

The environmental impact (part 5) must be completed by the applicant stating the **type and number of trees** in the comment section provided for each location. Would you please forward to us a copy of the

[redacted]

'completed' and **corrected Statement of Environmental Effects** in relation to this issue before any removal is commenced.

It is assumed that any trees that are felled do not fall on any neighbour's property and that any damage that might occur to those properties be corrected at the applicant's expense.

2. With reference to part 4, 'Site Suitability'.

- **Reference is made to Variation request report.** - No report has been presented. Could we have a copy of this report.

- This development will impact on our property by overshadowing and loss of privacy as stated.

We note that a privacy screen is proposed for the middle of the north elevation development but no screen has been suggested for the most north easterly extensions at the front of the applicant's house. This is a privacy issue for the full front of our house. Further 'privacy screens' need to installed.

- There is loss or reduction of views' to the SE from all of the front of our house, **(the form states 'No').**

3. In further reference to point 5, 'Environmental Impacts'.

- **Where 'emit noise levels that could affect neighbouring properties' has been marked 'No'.** This is incorrect due to the proximity of our existing bedrooms to the proposed pool installation with users and recycling pump noises which will impact on our quality of life and sleeping patterns.

Could it be assumed that any pump complex will be placed on the Southern side of the property where there is a vacant block.

4. With regards to point 7 'Social and Economic Impacts'.

- **Reference to where it has been marked 'Yes' for social and economic impacts in the area.** As yet the developer has not consulted with us as the neighbour who will be affected most with the proposed development nor has he attempted to complete all sections relevant to the 'Councils Impact Assessment Policy'.

[redacted]

We wish to ask why not?

We look forward to a copy of the correct completion of the STATEMENT OF ENVIRONMENTAL EFFECTS to Council by the Applicant of the Development Proposal and answers and copies of the above issues raised.

Yours sincerely,

L & E Crimmings

[redacted]

Item: **06**

Subject: **DA2016 - 404.1 MODIFICATION TO INDUSTRY (CEMENT DEPOT) - INCREASE IN THROUGHPUT - LOT 21 DP1205839, NO 39 RANDALL STREET, WAUCHOPE**

Report Author: Benjamin Roberts

Applicant:	**Boral Cement**
Owner:	**NSW Trains**
Estimated Cost:	**$0**
Parcel no:	**64253**

Alignment with Delivery Program

4.9.2 Undertake transparent and efficient development assessment in accordance with relevant legislation.

RECOMMENDATION

That DA2016 - 404.1 for modification to Industry (Cement Depot) to allow an increase in throughput at Lot 21, DP 1205839, No. 39 Randall Street, Wauchope, be determined by granting consent subject to the recommended conditions.

Executive Summary

This report considers a development application for a modification to Industry (Cement Depot) to allow an increase in throughput at the subject site.

The proposal is Integrated Development.

This report provides an assessment of the application in accordance with the Environmental Planning and Assessment Act 1979.

Following exhibition of the application, one (1) submission has been received.

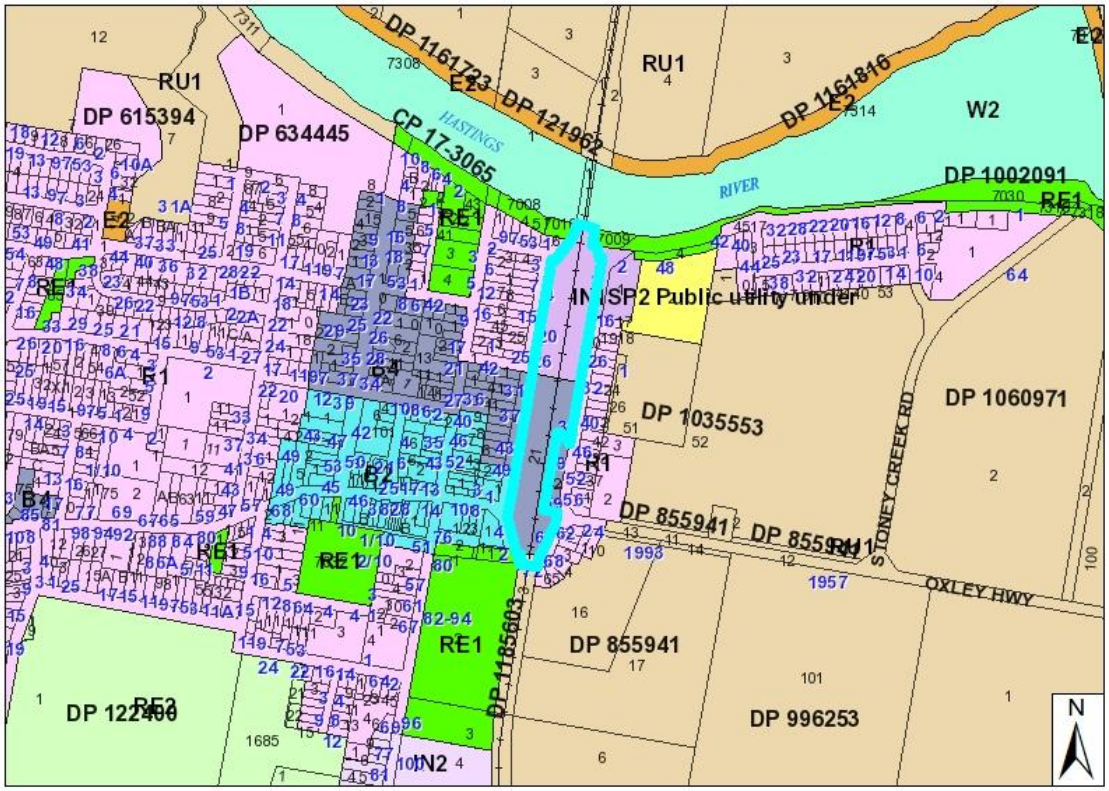
1. BACKGROUND

Existing sites features and Surrounding development

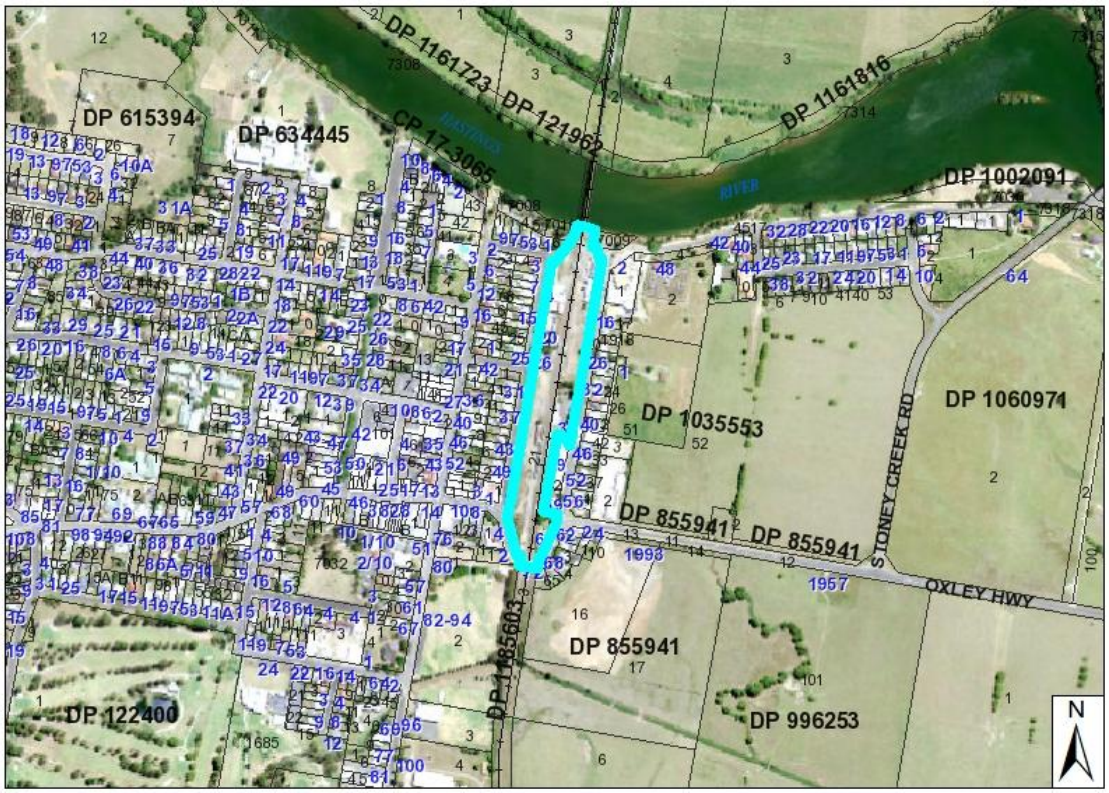
The site is located at 4 Wallace Street, Wauchope. The site is approximately 1000m^2 in area and forms part of the larger land holding known as Lot 21 DP1205839. The land holding is traversed by the north coast railway line and contains the railway station buildings.

The land holding is zoned IN1 General Industrial and B4 Mixed Use, and the site of the development is zoned IN1 General Industrial in accordance with the Port

Macquarie-Hastings Local Environmental Plan 2011, as shown in the following zoning plan:



The existing subdivision pattern and location of existing development within the locality is shown in the following aerial photograph:



2. DESCRIPTION OF DEVELOPMENT

Key aspects of the proposal include the following:

- Increase in cement throughput at the depot from its current maximum rate of 15,000 tonnes per annum to 60,000 tonnes per annum.

Designated Development
Schedule 3 of the Environmental Planning and Assessment Regulation, 2000 specifies what development is designated development. The following provisions are of relevance and comments provided below:

> *Railway freight terminals (including any associated spur lines, freight handling facilities, truck or container loading or unloading facilities, container storage, packaging or repackaging facilities):*
>
> *(a) that involve more than 250 truck movements per day, or*
> *(b) that involve the clearing of more than 20 hectares of native vegetation, or*
> *(c) that are located:*
> *(i) within 40 metres of a natural water body, wetland or environmentally sensitive area, or*
> *(ii) within 500 metres of a residential zone or dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, odour, dust, lights, traffic or waste.*

Comments: The proposal to increase throughput will not involve more than 250 truck movements per day, not involve any clearing of land, and not be located within 40m of a natural water body, wetland or environmentally sensitive area. However the cement depot is located within 500 metres of a residential zone and dwellings which exist opposite Randall Street. A review of the findings and conclusions of the specialist traffic, acoustic and air quality assessments determine the proposal is unlikely to significantly affect the amenity of the neighbourhood.

Part 2 of Schedule 3 of the EP&A Regulation relates to whether alterations or additions are deemed to be designated development. Clause 35 of the EP&A Regulation provides that development involving alterations or additions to development (whether existing or approved) is not designated development if, in the opinion of the consent authority, the alterations or additions do not significantly increase the environmental impacts of the total development (that is the development together with the additions or alterations) compared with the existing or approved development.

Clause 36 sets out the factors to be taken into consideration. These are as follows:

> In forming its opinion as to whether or not development is designated development, a consent authority is to consider:
>
> (a) the impact of the existing development having regard to factors including:
>
> (i) previous environmental management performance, including compliance with the conditions of any consents, licences, leases or authorisations by a public authority and compliance with any relevant codes of practice, and

Comments: Council has no records of any non-compliance with previous development consent or conditions recorded.

(ii) rehabilitation or restoration of any disturbed land, and

Comments: No know issues of any unapproved land disturbance or rehabilitation.

(iii) the number and nature of all past changes and their cumulative effects, and

Comments: Council has no record of any previous development approvals for changes to operations.

(b) the likely impact of the proposed alterations or additions having regard to factors including:
(b)
(i) the scale, character or nature of the proposal in relation to the development, and

Comments: The scale of the proposal is increasing significantly from 15,000 tonnes per annum to 60,000 tonnes per annum. The nature of the operation remains unchanged. While the scale of processing is increasing significantly it has been demonstrated that the increase will not result in any significant adverse impacts.

(ii) the existing vegetation, air, noise and water quality, scenic character and special features of the land on which the development is or is to be carried out and the surrounding locality, and

Comments: Refer to specific comments under noise and air quality headings within report. The proposed increased throughput is not likely to result in any adverse impact to the existing scenic character or air, noise and water quality within the site or surrounding locality.

(iii) the degree to which the potential environmental impacts can be predicted with adequate certainty, and

Comments: The increased throughput and potential impacts in terms of air quality, traffic generation and noise have been subject to detailed assessment and modelling as per current best practice standards.

(iv) the capacity of the receiving environment to accommodate changes in environmental impacts, and

Comments: The capacity of the receiving environment to accommodate changes in environmental impacts will remain unchanged as a result of the proposed increased throughput.

(c) any proposals:
(c)
(i) to mitigate the environmental impacts and manage any residual risk, and

Comments: The proposed increased throughput will not result in any unmanageable increase in environmental risk. Environmental management will be conducted in accordance with current practices and conditions of the Environmental Protection Licence.

(ii) to facilitate compliance with relevant standards, codes of practice or guidelines published by the Department or other public authorities.

Comments: The proposed increase throughput will be subject to conditions of development consent that incorporate relevant standards, codes or best practice and guidelines and GTAs from Environment Protection Authority.

In summary a review of the findings and conclusions of the specialist traffic, acoustic and air quality assessments determine the proposal is unlikely to significantly increase the environmental impacts of the total development (that is the development together with the additions or alterations) compared with the existing or approved development.

Integrated Development

The development is also an 'Integrated Development' as it requires amendment to the Environment Protection Licence (EPL) under Section 48 of the Protection of the Environment Operations Act 1997 (POEO Act).

The site currently operates under EPL No. 1503 for the category Cement and Lime Handling between 0 to 30,000 tonnes per annum. The EPL will need to be amended to allow for cement and lime handling up to 60,000 tonnes per annum.

The application was referred to NSW Environment Protection Authority whom have provided recommended General Terms of Approval which are to form part of any consent conditions.

Refer to attachments at the end of this report.

Application Chronology

- 26 May 2016 - Application lodged.
- 8 June - 7 July 2016 - Public exhibition via neighbour notification and advertising.
- 31 May 2016 - Referral to NSW Environmental Protection Agency (EPA).
- 24 June 2016 - Additional information request re truck movements and routes.
- 24 June 2016 - Additional information request from EPA.
- 19 September 2016 - Applicant response received to EPA request.
- 17 October 2016 - EPA response provided with General Terms of Approval.

3. STATUTORY ASSESSMENT

Section 79C(1) Matters for Consideration

In determining the application, Council is required to take into consideration the following matters as are relevant to the development that apply to the land to which the development application relates:

(a) The provisions (where applicable) of:
(i) any Environmental Planning Instrument:

State Environmental Planning Policy No. 33 - Hazardous and Offensive Development

The primary aims of this SEPP relate to:

- the provision of standard definitions of offensive and hazardous industries for inclusion in environmental planning instruments;
- ensuring that in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimize any adverse impacts;
- and ensuring that in deciding whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account.

A proposal is not considered to be an 'offensive industry' unless it is first identified as a 'potentially offensive industry'. The NSW Department of Planning's Hazardous and Offensive Development Application Guidelines - Applying SEPP 33 provides that:

> *"For developments identified as 'potentially offensive industry', the minimum test for such developments is meeting the requirements for licensing by the DECCW or other relevant authority. If a development cannot obtain the necessary pollution control licences or other permits, then it may be classified as 'offensive industry', and may not be permissible in most zonings."*

The Applicant has provided sufficient details to demonstrate that reasonable and practical mitigation measures can be employed on site and general terms of approval for an Environment Protection Licence have been issued by the NSW EPA. The development is therefore not considered to be an offensive industry.

State Environmental Planning Policy No. 44 - Koala Habitat Protection

With reference to clauses 6 and 7, the subject land is greater than 1 hectare (including any adjoining land under same ownership) and therefore the provisions of the SEPP must be considered.

The proposal does not include any tree removal and no further consideration of this policy is necessary.

State Environmental Planning Policy No. 55 – Remediation of Land

The subject land is identified as being potentially contaminated based on the current and historic uses undertaken. Under clause 7(1) of this policy, prior to granting consent to the carrying out of any development on land, a consent authority is required to give consideration as to whether land is contaminated and, if the land is contaminated, whether the land is suitable for the purpose of the development or whether remediation is required. The proposal is for a change in throughput only to the existing cement depot use and remains suitable for such a use.

State Environmental Planning Policy (State and Regional Development) 2011

The proposal is not regional development identified in Schedule 4A of the Environmental Planning and Assessment Act 1979.

Port Macquarie-Hastings Local Environmental Plan 2011

The proposal is consistent with the LEP having regard to the following:

- Clause 2.2, the subject site is zoned IN1 General Industrial. In accordance with clause 2.3(1) and the IN1 zone landuse table, the proposed development for an increase in throughout to the existing general industry operation is a permissible landuse with consent.

  The objectives of the IN1 zone are as follows:
  - To provide a wide range of industrial and warehouse land uses.
  - To encourage employment opportunities.
  - To minimise any adverse effect of industry on other land uses.
  - To support and protect industrial land for industrial uses.
  - To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.

  In accordance with Clause 2.3(2), the proposal is consistent with the zone objectives having regard to the following:

  - The proposal is a permissible landuse;
  - The development is for an existing purpose that has demonstrated minimal adverse effect on other land uses within the surrounding environment.

  (d)
  - Clause 5.10 – Heritage. The larger land holding does contain state listed heritage items. The items are the old Wauchope railway station and associated buildings. The proposal will not impact on any of these items.

  (e)
  - Clause 7.3 - Flooding. In accordance with clause 7.3, the site is land within a mapped "flood planning area". In this regard the following comments are provided which incorporate consideration of Council's Interim Flood Policy:

    (f) • The proposal is compatible with the flood hazard of the land

    (g) • The proposal will not result in a significant adverse affect on flood behaviour that would result in detrimental increases in the potential flood affectation of other development or properties

    (h) • The proposal is not likely to significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses

    (i) • The proposal is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding

- Clause 7.13, satisfactory arrangements are in place for provision of essential services including electricity supply, sewerage services, stormwater drainage and suitable road access to service the development.

(ii) Any draft instruments that apply to the site or are on exhibition:

No draft instruments apply.

(iii) any Development Control Plan in force:

Port Macquarie-Hastings Development Control Plan 2013

The proposal is for the increase in cement throughput through the existing facility only. There is no building development proposed and therefore no specific provisions of this plan apply.

The relevant general provisions of this plan are addressed as follows:

DCP 2013: General Provisions			
DCP Objective	**Development Provisions**	**Proposed**	**Complies**
2.7.2.2	Design addresses generic principles of Crime Prevention Through Environmental Design guideline: • Casual surveillance and sightlines • Land use mix and activity generators • Definition of use and ownership • Lighting • Way finding • Predictable routes and entrapment locations	No change to existing security measures.	Yes
2.4.3	Bushfire risk, Acid sulphate soils, Flooding, Contamination, Airspace protection, Noise and Stormwater	Refer to main body of report.	Yes
2.5.3.3	Off-street parking in accordance with Table 2.5.1.	The increase in product throughput will not increase staff numbers or parking demand beyond existing.	Yes
2.5.3.11	Section 94 contributions	Refer to main body of report.	N/A

(iiia) any planning agreement that has been entered into under Section 93f or any draft planning agreement that a developer has offered to enter into under Section 93f:

No planning agreement has been offered or entered into.

iv) any matters prescribed by the Regulations:

No matters prescribed by the regulations apply.

v) any coastal zone management plan (within the meaning of the Coastal Protection Act 1979), that apply to the land to which the development application relates:

No Coastal Zone Management Plan applies to the subject site.

(b) The likely impacts of that development, including environmental impacts on both the natural and built environments, social and economic impacts in the locality:

Context and setting
The site is developed with a single storey office building and ancillary buildings. Three cement/fly ash storage silos are located in the centre of the site. Site access and egress is provided via a crossover in the centre of the front boundary.

Roads
The site has road frontage to Wallace Street. Wallace Street is a bitumen sealed public road under the care and control of Council. It is designated in Council's system as a local collector road but with an AUS-SPEC classification of Commercial in recognition of the existing and future likely heavy truck traffic centring around use of the railway. The road formation is approximately 12m wide within a 20m wide road reserve. The road has upright (SA) type kerb and gutter, and no concrete footpath.

Traffic and Transport
300m to the south, Wallace Street joins the Oxley Highway (High St) at a tee-intersection. Oxley Highway is an RMS classified 'State Road' which already caters for significant heavy truck movements. The proposal was not referred to the Roads and Maritime Services as the proposed increase did not trigger statutory requirements.

The applicant's Traffic Impact Assessment highlighted a maximum truck load of 27 tonnes, and maximum 27 trucks per day during peak periods, with 8 trucks per day on average. Council has used these numbers to perform a sensitivity analysis of the impact on traffic performance in Wallace Street and the intersection with Oxley Highway. While the applicant's report is considered by Council staff to potentially underestimate the truck counts and/or loads under some circumstances, no specific concerns are raised. The Oxley Highway intersection has an existing channelised right turn bay into Wallace Street, reducing the risk that a truck might attempt an unsafe turn.

Bago Road is considered to be a likely distribution route to the south. The likely impact of loaded cement bulk carriers on Bago Road has been assessed by Council to be minor in terms of overall traffic counts, but still significant due to the high cost of maintaining Bago Road and its overall length. As such, a condition has been recommended requiring trucks not to use Bago Road (alternative route via Oxley Highway to the Pacific Highway) except in limited circumstances. Provided this condition is observed by the operator, the addition in traffic associated with the development is unlikely to have adverse impacts on the existing road network.

Access and Manoeuvring
Existing vehicle access to the site for bulk carrier trucks is achieved by reversing into the loading hopper from Wallace Street (i.e. reversing within the public road). This scenario is generally not favoured due to efficiency and safety concerns around public traffic. However, significant onsite works and land acquisition would be needed to provide an onsite turning area. Additionally, the proposed increase of 45,000 tonnes per annum (or an average of 4-8 trucks per day) is in this instance considered to be not significant in terms of turning counts. Sight lines are good, and existing traffic counts in Wallace Street show an expected 500 trips per day, or an average gap during the peak hour of almost one minute between each car. This allows adequate time for safe reversing manoeuvres.

Council staff will monitor the site access arrangements and reserves the right to require the operator to use traffic controllers or other controls, if the increase in traffic has adverse impacts at the entrance to the site.

Other utilities
Telecommunication services are available to the site.

Stormwater
No works are proposed which would change the existing stormwater drainage scheme or create additional impervious area. No stormwater conditions are proposed.

Air & microclimate
An air quality impact assessment was submitted as part of the application. The assessment was prepared by Ramboll Environ and dated 25 February 2016. An assessment of existing and proposed increased throughput operations at the cement depot in terms of particulate matter emissions through modelling was undertaken. The assessment has been carried out in accordance with the EPA Approved Methods for Modelling using CALPUFF software. The assessment concluded that the potential impacts generated by the proposed increased operations at the depot would be low and unlikely to result in exceedance to applicable air quality impact assessment criteria.

Flora and Fauna
No vegetation removal is proposed. No adverse impacts.

Waste
No change to current waste management practices. No adverse impacts.

Energy
No adverse impacts.

Noise
A noise impact assessment was submitted as part of the application. The assessment reviewed both operational and road traffic noise. The assessment was undertaken by EMM consulting and dated 24 February 2016 and review by Council's Environmental Health Officer.

<u>Operational Noise</u>
In relation to operational noise, project specific noise levels (noise criteria) were established based on the results of ambient noise monitoring and methodology provided in the Industrial Noise Policy (INP). The relevant INP noise criteria for the Depot was calculated to be LAeq,15-min 47 dB.

Results of the operator-attended noise survey undertaken at the nearest residential location to the Depot indicate that operational noise levels from site can be up to 64 dB. This is above the relevant project specific noise level derived in accordance with the INP.

The INP provides that if project specific noise levels (PSNLs) are not achieved from existing operations, a preliminary review of feasible and reasonable mitigation measures should be undertaken to identify potential opportunities to reduce existing operational noise levels.

The applicant stated that the implementation of additional mitigation for the Depot would not be considered feasible or reasonable, given the following:

- the nature of the activity and the way trucks are required to access the Depot;
- the limited operating hours (day only); and
- the relative proximity of the nearest residences.

The INP provides that if the existing premises cannot achieve PSNLs after the feasible and reasonable noise mitigation review, the proposed modification should not significantly increase the existing noise emissions.

In summary, the proposed increase in throughput will not change existing hours of operation or require any modifications or additions to existing site infrastructure at the Depot. Hence, there will be no change to the level of operational noise emissions from the site above the measured worst case at the site. The proposed modification is therefore in keeping with the INP Application Notes in that "the proposed modification should not significantly increase the existing noise emissions" after application of feasible and reasonable noise mitigation.

The General Terms of Approval issued by the NSW EPA provide specific noise level emission conditions that will need to be adhered to.

Road Traffic Noise

The additional generated daily traffic movements would all be via Wallace Street to the south. The applicant has stated that Wallace Street is estimated to carry approximately 1,200 daily vehicle movements and the proposed modification would generate an approximate maximum 2% increase in the total daily traffic using Wallace Street, between the site and the Oxley Highway.

As reviewed by Council's Environmental Health Officer the increased traffic to and from the site is by 2% equates to a 0.5dB(A) increase in road traffic noise. Therefore, the impact of road traffic noise associated with the proposal is predicted to be negligible and within the 2 dB allowable increase for land use developments as described in the Road Noise Policy (DECCW 2011).

The number of train deliveries will not change. However, the number of train wagons per delivery will increase from between 8-14 wagons to 14 wagons per train delivery. The increase in number of wagons will not lead to any increase to that of existing train noise levels.

Bushfire

The site is not identified as being bushfire prone.

Safety, security and crime prevention

The proposed development will be unlikely to create any concealment/entrapment areas or crime spots that would result in any identifiable loss of safety or reduction of security in the immediate area. The processing area is securely fenced.

Social impacts in the locality

Given the nature of the proposed development together with mitigation measures proposed and its' location, the proposal is unlikely to result in any adverse social impacts. The various impacts discussed throughout this report are not considered to result in an unacceptable cumulative social impact.

A social impact assessment for development of this nature is not required under Council's Social Impact Assessment Policy.

Economic impact in the locality

The proposal would result in a positive economic impacts to the locality.

Cumulative Impacts

The expected cumulative impacts of the proposal have been considered in the various assessments accompany the application. The main aspects of the development with the greatest potential to result in cumulative impacts include:

- Noise;
- Air quality; and
- Traffic.

The assessments have demonstrated that the cumulative impacts of development would be within acceptable standards.

(c) The suitability of the site for the development:

No particular hazards that would make the site unsuitable for the proposed increase throughput have been identified.

The suitability of the site in terms of the likely impacts of the development on the environment and the amenity of nearby residents has been discussed in detail throughout the report.

(d) Any submissions made in accordance with this Act or the Regulations:

One (1) written submission has been received following public exhibition of the application.

Key issues raised in the submission received and comments in response to these issues are provided as follows:

Submission Issue/Summary	Planning Comment/Response
Concerns about the extra damage to the road surface in the immediate area. Maybe Boral should be required to upgrade the section of road instead of Council via ratepayer's money as they are the ones damaging it.	As reviewed by Council's development engineering staff, the increase in vehicle movements from the increased throughput is considered insignificant and unlikely to result in direct damage to the road surface in the immediate area. It is therefore not warranted to require the proponent to upgrade the road surface.
Historic concerns surrounding trucks entering the premises before 7am have been addressed by Boral.	Noted.

(e) The Public Interest:

The proposed development satisfies relevant planning controls and is unlikely to impact on the wider public interest.

4. DEVELOPMENT CONTRIBUTIONS APPLICABLE

- As detailed within the report it has been considered that the increase in throughput will not result in any adverse impact to the local road network. Accordingly development contributions are not applicable under Section 94 of the Environmental Planning and Assessment Act 1979 towards roads, open space, community cultural services, emergency services and administration buildings.

5. CONCLUSION

The application has been assessed in accordance with Section 79C of the Environmental Planning and Assessment Act 1979.

Issues raised during assessment and public exhibition of the application have been considered in the assessment of the application. Where relevant, conditions have been recommended to manage the impacts attributed to these issues.

The site is suitable for the proposed development, is not contrary to the public's interest and will not have a significant adverse social, environmental or economic impact. It is recommended that the application be approved, subject to the recommended conditions of consent provided in the attachment section of this report.

Attachments

1View. DA2016 - 404.1 SoEE
2View. DA2016 - 404.1 EPA response with GTAs
3View. DA2016 - 404.1 Recommended Conditions
4View. DA2016 - 404.1 Submission - Holmes

Statement of Environmental Effects
Wauchope Cement Depot : Proposed increase in annual throughput

Prepared for Boral Cement Limited | March 2016

Wauchope Cement Depot - Proposed increase in annual throughput

Statement of Environmental Effects

Prepared for Boral Cement Limited | 31 March 2016

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Wauchope Cement Deport – Proposed increase in annual throughput

Final report

Report J15147RP1 | Prepared for Boral Cement Limited | 31 March 2016

Prepared by	Verity Blair	Approved by	Brett McLennan
Position	Associate Planner	Position	Director
Signature		Signature	
Date	31 March 2016	Date	31 March 2016

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Appendices

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1 Introduction

1.1 Purpose of report

This Statement of Environmental Effects (SEE) has been prepared for Boral Cement Limited (Boral) by EMM Consulting Pty Ltd (EMM) in relation to Boral's Wauchope Cement Depot (the Depot). Boral is seeking development consent to increase cement throughput at the Depot from its current maximum rate of 15,000 tonnes per annum (tpa) to 60,000 tpa. The application also seeks provision for the inclusion of flyash as a percentage of the increased annual throughput.

The increase in throughput is required in order to service growing demand from local markets and the wider regional area, including projects such as the Pacific Highway upgrade and new housing development areas along the mid north coast of New South Wales (NSW). It is not envisaged that the proposal will be limited to any set timeframe.

The proposed increase in throughput will not require any additions or modifications to existing buildings or plant at the Depot.

1.2 The applicant

Boral Cement Limited is a wholly owned subsidiary of Boral Limited.

Boral Limited is an international building and construction materials group, headquartered in Sydney, Australia. With more than A$5.5 billion worth of annualised sales, Boral serve customers in building and construction industries with operations concentrated in three key geographical markets – Australia, the USA and Asia. Boral has approximately 12,000 full time employees.

In Australia, Boral has over 430 operating sites. Boral produces and distributes a broad range of construction materials, including quarry products, cement, fly-ash, pre-mix concrete and asphalt; and building products including clay bricks and pavers, clay and concrete roof tiles, concrete masonry products, plasterboard and timber.

2 Site description and existing operations

2.1 Site and surrounds

2.1.1 The site

The Depot is located at 4 Wallace Street, Wauchope (the site), approximately 20 km west of Port Macquarie. The site, around 1,000 m^2 in area, forms part of a larger title known as Lot 21 DP 1205839, which has an overall registered street address of 39 Randall Street, Wauchope. The registered owner of the site is Transport for NSW (TfNSW) and Boral has negotiated a sub-lease and rail siding agreement with TfNSW through the Australian Rail Track Corporation (ARTC). A site location plan is provided in Figure 2.1.

The site is developed with a single storey office and single storey amenities room, equipment shed/oil store, compressor room, truck loading station and surface water management system. Three cement/flyash storage silos (two x 130 t and one x 180 t) are located in the centre of the site on concrete hard stand. A weighbridge and truck loading area is located beneath the central silo and a washout bay is located to the south of the weighbridge. Site access and egress is provided on Wallace Street via a crossover in the centre of the front property boundary.

Landscaping, comprising bushes and smaller trees, is provided along the side boundaries of the site. A line of heritage listed canary palms is planted along the eastern verge of Wallace Street, with one of these located to the north of the site's crossover (refer Photograph 2.1). The perimeter of the site is fenced with chain mesh to a height of approximately 1.8m, with lockable chainmesh gates at the entrance. A site layout plan is provided in Figure 2.2.

The site, located within the Port Macquarie-Hastings local government area (LGA), is zoned General Industrial (IN1) under the *Port Macquarie-Hastings Local Environmental Plan 2011* (LEP 2011) (refer Figure 2.3). The site has been used as a cement depot since 1968 and enjoys continuing use rights under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). There is no existing development consent for the Depot.

2.1.2 Surrounding environment

Wallace Street is located to the east of Wauchope's town centre, with the Oxley Highway immediately to the south providing the main access point. There is an alternative access point for general traffic at the northern end of Wallace Street which crosses the railway line via Rocks Ferry Road. This route cannot be used by larger trucks (including cement tankers) due to the low vertical clearance beneath the railway line at the underpass. The Hastings River is located at the northern end of Wallace Street.

Development on the western side of Wallace Street is residential, characterised by single storey dwellings (refer Photographs 2.1 and 2.2). Land to the east of Wallace Street comprises one large lot (as described above), which has the North Coast railway line running north-south through the centre of the site.

Wauchope Railway Station is located to the south of the Depot and the station and its group of buildings, including a railway bridge, timber platform face, dwelling house and double-sided railway goods shed are listed as state significant heritage items under LEP 2011 (refer Figure 2.4). The Canary Island Palms, which are planted along both sides of Wallace Street are included in this heritage listing.

Land immediately to the north of the Deport is developed with an agricultural supplies business, including a large shed, unpaved forecourt area and office building.

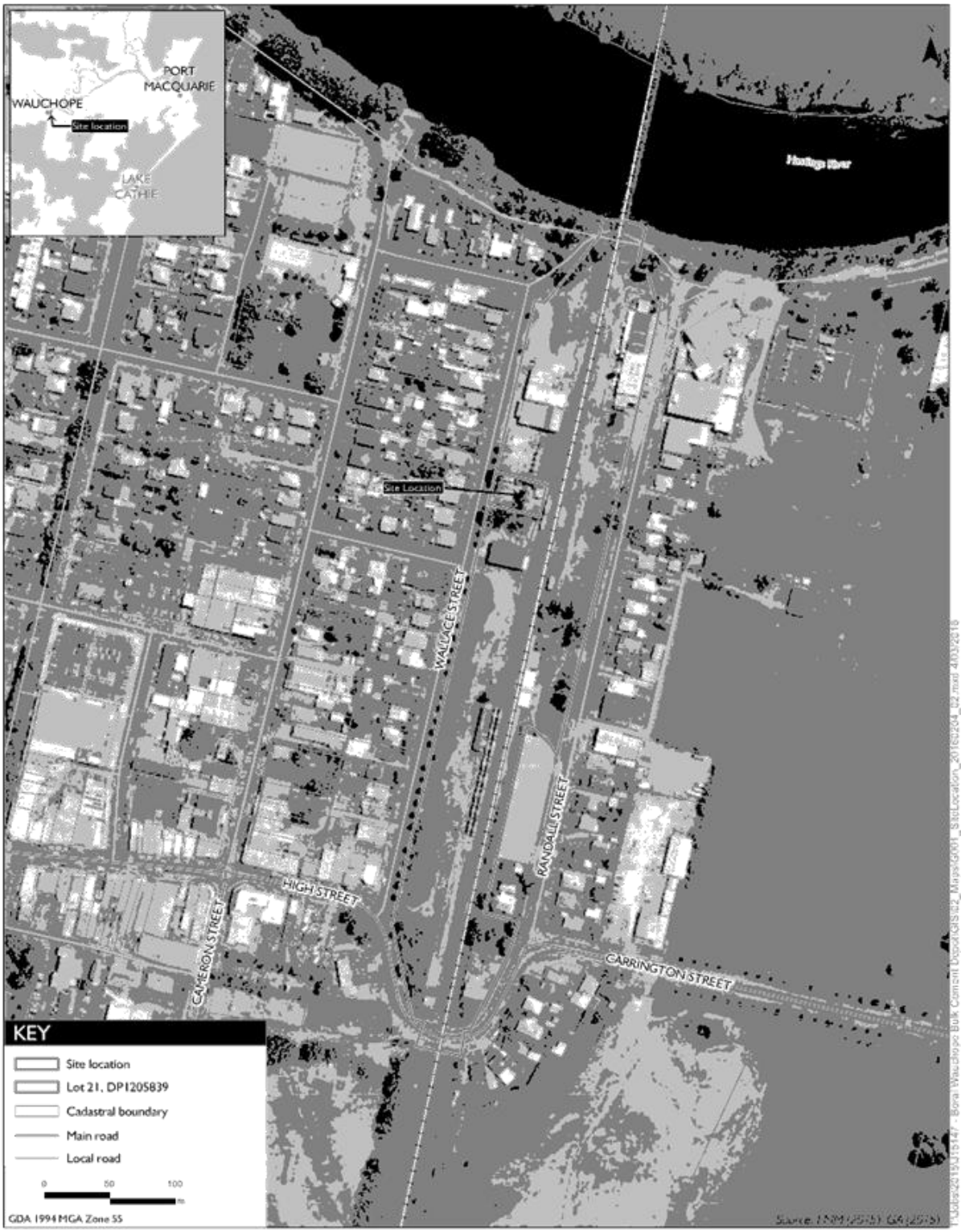
Development to the south of the site is sparse and includes a vehicle spare parts business. A small number of other industrial/commercial uses are located on the eastern side of the railway line, fronting Randall Street. The eastern side of Randall Street is developed with single storey residential properties.

Photograph 2.1 View east to Depot from western side of Wallace Street

Photograph 2.2 View south down Wallace Street from front of Depot

Photograph 2.3 View north up Wallace Street from front of Depot

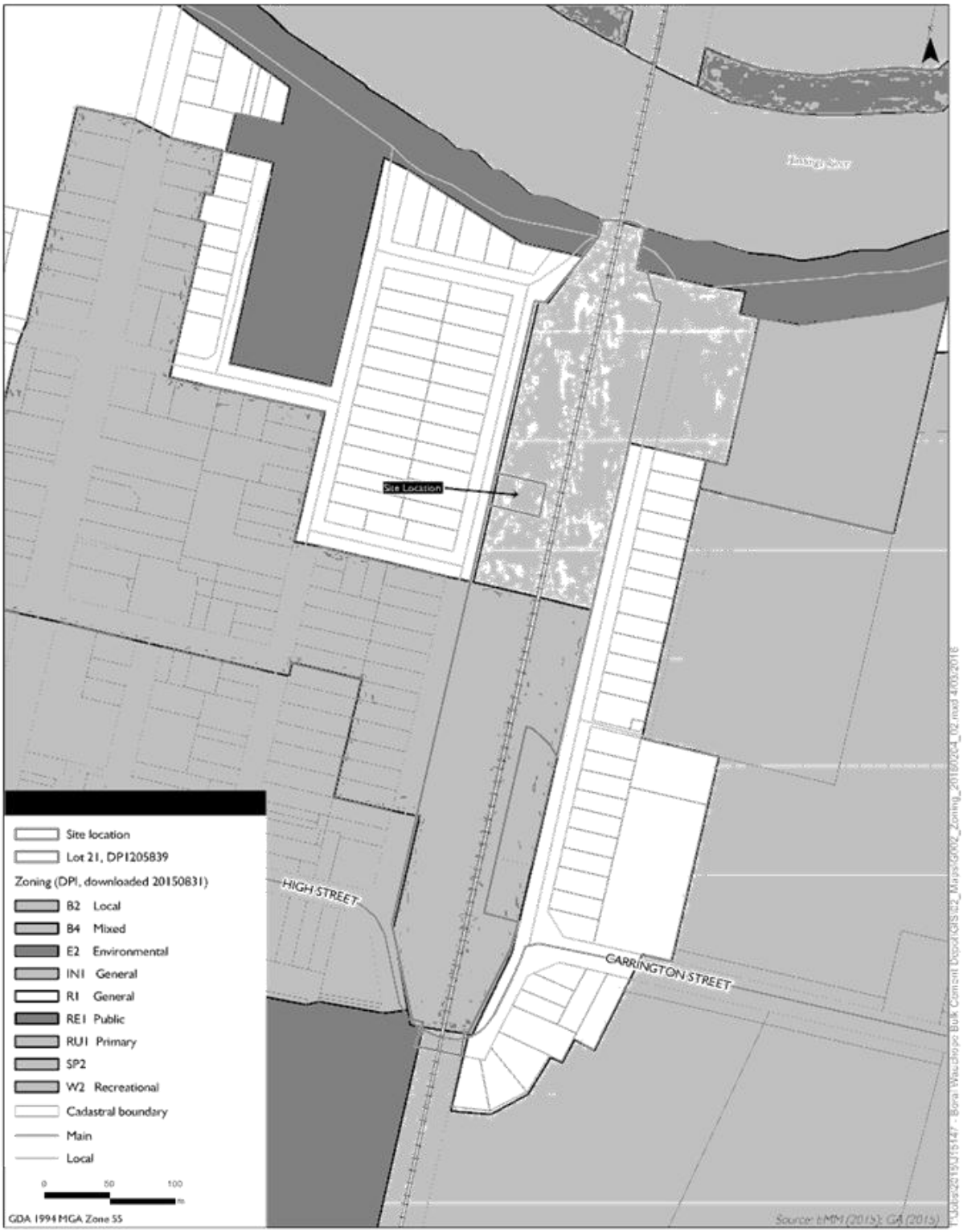
Photograph 2.4 Heritage listed sheds and Canary Island Palms south of the Depot



EMM

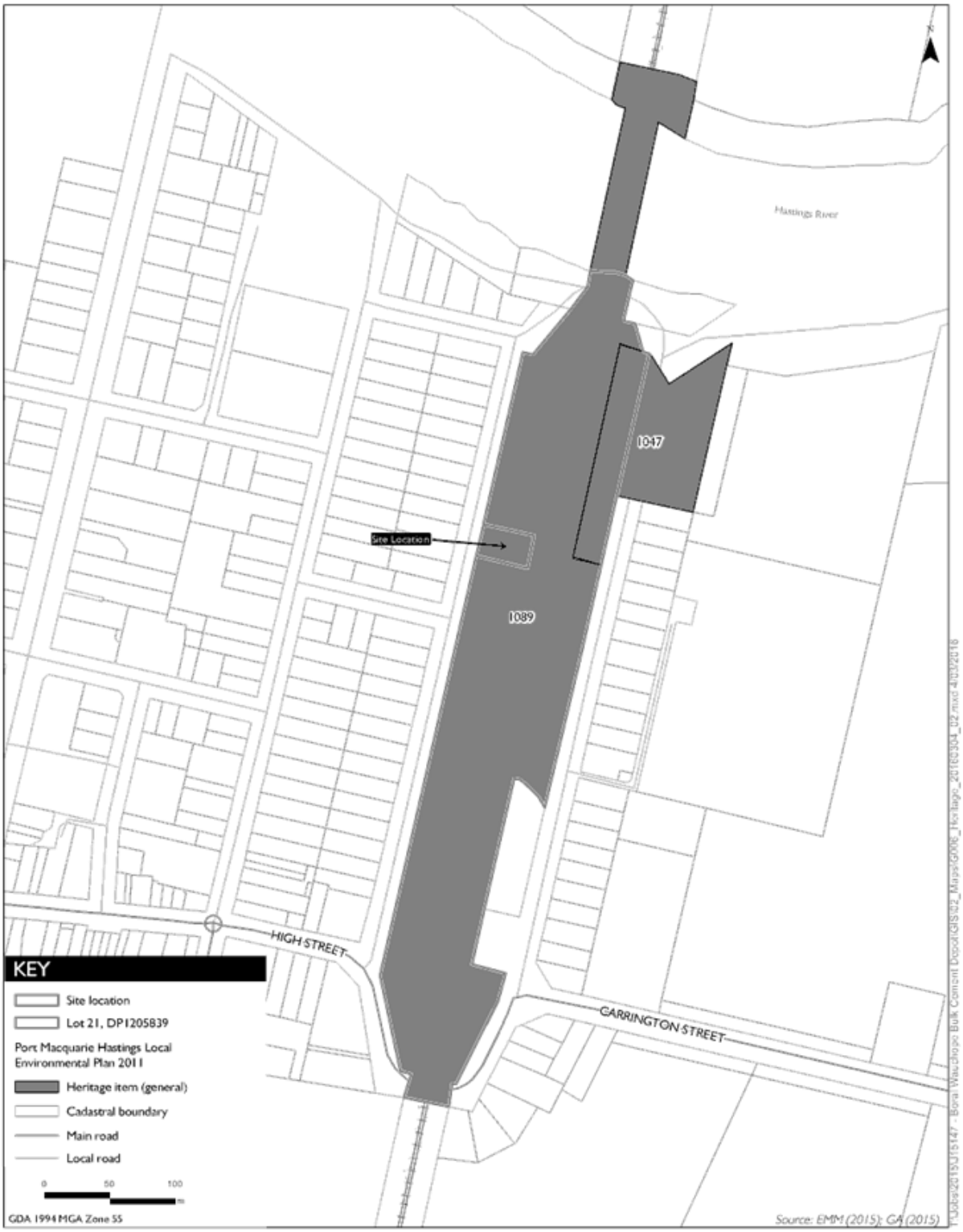
Site location
Boral Wauchope Cement Depot
Proposed increase throughput
Figure 2.1


Site layout
Boral Wauchope Cement Depot
Proposed increase throughput
NORTH COAST RAILWAY
Siding
Equipment shed and oil store
Compressor room
Open drains
Silo 1
Silo 2
Silo 3
Weighbridge
Lunchroom and amenities
Spill station
Office
Truck loading station
Canary Island palm (heritage listed)
WALLACE STREET
KEY
Project components
Site location
Lot 21, DP1205839
GDA 1994 MGA Zone 55
EMM



EMM

Zoning
Boral Wauchope Cement Depot
Proposed increase throughput
Figure 2.3



EMM

Nearby heritage items
Boral Wauchope Cement Depot
Proposed increase throughput
Figure 2.4

2.2 Existing operations

2.2.1 Overview

The purpose of the Depot is to provide an interchange facilitating the receipt of cement powder transported to the site by rail for bulk on-site storage and its onward dispatch to concrete batching plants and construction/project sites around the mid-north coast by powder tankers (or cement trucks).

2.2.2 Transport of materials

Cement powder is currently transported from Boral's Berrima Cement Works by rail up to three days a week (Tuesday and/or Thursday and/or Saturday), with each train consisting of between eight to 14 wagons. Delivery days and the number of wagons associated with each train vary from week to week depending on demand. The amount of cement powder received and distributed varies significantly from day to day and week to week as operations are based on market demand, which changes relative to which projects are being supplied at any one time. Further, the market for cement powder is also influenced by the flow-on effects from the construction industry of seasonal and weather impacts.

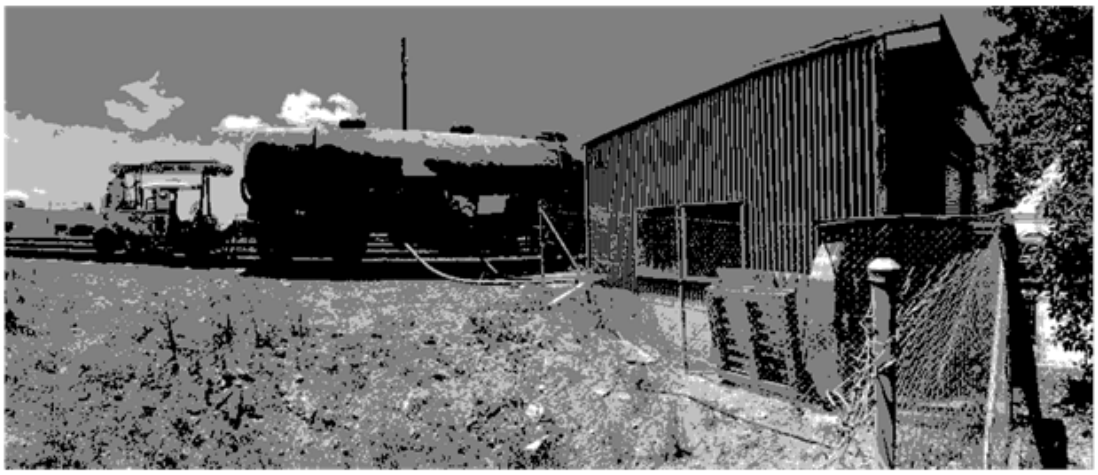
2.2.3 On-site operations

Once the train arrives at the Depot (the siding is located adjacent to the rear of the Depot), the wagons are shunted into place using a shunt tractor. Vacuum discharge hoses are connected and cement powder is discharged from the rail wagons into one of the three silos for bulk storage. It takes approximately 45 minutes to fully empty one cement wagon.

There are three silos (two x 130 t and one x 180 t) located in the centre of the Depot. The powder tankers reverse under the silos, but generally use the central silo which is located above a weighbridge. A hatch on the tanker is manually opened and the silo is connected to the tanker via a cement loading sock, lowered from the silo into the tanker to mitigate the escape of cement powder during the loading process. The weight of the cement creates a seal and once finished is shaken and retracted. In addition, a green cloth curtain has been erected at the rear of the loading area against the prevailing wind to reduce the unwanted dispersal of cement powder. It generally takes around 15 minutes for each tanker to be loaded, including backing in, opening and closing the hatch and paper work. The actual loading time is between five and six minutes. The Depot currently generates up to eight truck loads per day.

It is noted that no industrial waste or bi-products are produced as a result of operations, nor does it involve the handling, transport or storage of any dangerous goods.

Photographs 2.5 to 2.8 below show various elements of the existing operations.



Photograph 2.5 Shunt tractor shunting cement wagon into place at the rear of the site

Photograph 2.6 Cement wagon being discharged into silos via vaccum discharge

Photograph 2.7 Hatch and loading sock connection

Photograph 2.8 Wind mitigation curtain

2.3 Hours of operation and employment

The existing operations provide direct employment of one full-time site manager and three full time drivers.

Operating hours are generally 7.00 am - 5.00 pm Monday to Friday and 7.00 am - 3.00 pm Saturday.

2.4 Environmental management

The Depot is licensed under the NSW *Protection of the Environment Operations Act 1997* (POEO Act). Environmental management procedures are designed to ensure compliance with the relevant environmental protection licence (EPL) conditions and all relevant government legislation and requirements. The EPL currently permits the handling of up to 30,000 tpa of cement or lime.

There is an existing water management system, which includes a Clearmake Water Treatment Unit, located adjacent the amenities building. Water is captured and treated from truck cleaning runoff and general rainfall. Trucks are cleaned in the inflatable wash bay which captures the water before sending to the treatment unit. Within the treatment unit water and solids are separated through filtration systems and treated water is either reused onsite or directed to the stormwater outlets.

All equipment/plant is serviced and checked on a quarterly basis, with electrical contractors servicing all the electrics associated with the site at the same time.

3 Proposed modification

3.1 Introduction

Boral is seeking development consent to increase cement throughput at the Depot from its current maximum rate of 15,000 tpa to 60,000 tpa. The increase is required in order to service increased demand in the local markets, and wider regional area, including the Pacific Highway upgrade and new housing development areas along the mid north coast of NSW. It is not envisaged that the proposal will be limited to any set timeframe.

3.2 Inclusion of flyash

Currently, only cement is received, stored and distributed from the Depot. It is now proposed to receive, store and distribute both cement and flyash.

Roads and Maritime Services (RMS) has advised that future specifications of road construction will require the use of a higher percentage of flyash. The use of flyash improves the strength and durability of concrete and it can also increase workability of cement while reducing water demand.

Boral obtains flyash from Eraring Power Station at Lake Macquarie and transports the product to its depots and concrete batching plants by bulk tankers (the same size and type that are used for onward transport of cement powder). It is proposed to receive flyash at the Depot by road tanker. The potential frequency for the delivery of flyash would be a minimum of one tanker per week and a maximum of two tankers per week. The incorporation of flyash would not increase the proposed maximum throughput of 60,000 tpa as it would substitute cement powder. The flyash would be stored in one of the 130 t silos.

3.3 Traffic generation

Train deliveries will not increase from up to three times a week, however the number of wagons may increase up to a maximum of 14 wagons depending on demand. It is noted that the silos have capacity to store excess cement powder which will facilitate the increased throughput without the need for additional train deliveries.

The proposed increase in throughput will result in an increase in the number of tanker movements associated with cement powder distribution from a maximum of eight per day to a maximum 25 per day. The inclusion of worst-case-scenario truck movements associated with flyash deliveries, ie two truck deliveries on one day, representing the weekly maximum, would potentially increase the number of truck movements to 27 on one day per week.

As stated previously, the amount of cement powder received and distributed varies significantly from day to day and week to week as operations are based on market demand. It is envisaged that the average number of trucks per day will be significantly lower than the maximum sought, however Boral must ensure that provision is made for operation to occur during periods of peak demand.

3.4 Summary of proposed changes

Table 3.1 provides a summary of the key elements of existing operations and those of the proposed modification.

Table 3.1 Comparison of existing and proposed development

Matter	Existing development	Proposed development
Operations		
Throughput levels	Maximum of 15,000 tpa.	Maximum of 60,000 tpa.
Employment	Direct employment of one full-time site manager and three full-time drivers	Direct employment of one full-time site manager, three full-time drivers and two part-time drivers.
Hours of operation	Monday to Friday – 7.00 am to 5.00 pm and Saturday – 7.00 am to 3.00 pm.	Monday to Friday – 7.00 am to 5.00 pm and Saturday – 7.00 am to 3.00 pm.
Raw materials	Cement powder transported to the Depot from Berrima via rail.	Cement powder transported to the Depot by rail. Flyash will substitute, rather than be in addition to, cement powder and will be transported to the site by bulk tanker.
Raw materials transport	One train up to three times a week (Tuesday, Thursday and/or Saturday morning) each with between eight to 14 cement wagons.	One train up to three times a week (Tuesday, Thursday and/or Saturday morning) with a maximum of 14 cement wagons. Fly ash will be delivered by bulk tanker with an average of one tanker per week and a maximum of two tankers per week.
Product transport	Maximum of eight truck loads per day, or 16 daily truck movements. (average of three truckloads per day)	Maximum of 27 truck loads per day or 52 daily truck movements (average of eight truckloads per day), which includes the maximum of two weekly deliveries of flyash.
Infrastructure	Three cement/flyash storage silos (one x 180 t and two x 130 t) with truck loading plant, storage shed, office/amenities and surface water management system.	No change.
Environmental impacts		
Traffic	Existing traffic generation does not significantly impact intersections or road capacities within the local road network.	The proposal will generate minimal impacts on either Wallace Street or the intersection with the Oxley Highway in terms of either road capacity or peak hourly intersection traffic operations. Refer to traffic assessment (Appendix A).
Noise and vibration	Project specific noise levels (noise criteria) have been established based on the results of ambient noise monitoring and methodology provided in the *NSW Industrial Noise Policy* (INP). The relevant INP noise criteria for the Depot was calculated to be $L_{Aeq,15\text{-}min}$ 47 dB. Results of an operator-attended noise survey undertaken at the nearest residential location to the Depot indicate that operational noise levels from site can be up to 64 dB. This is above the relevant project specific noise level derived in accordance with the INP.	The proposal will not change existing hours of operation or require any modifications or additions to existing Depot infrastructure at the Depot. Hence, there will be no change to the level of operational noise emissions from the site above the measured worst case during the noise survey. The proposed modification is in keeping with the INP application notes in that "the proposed modification should not significantly increase the existing noise emissions" after application of feasible and reasonable noise mitigation. Refer to noise assessment (Appendix B).

Table 3.1 Comparison of existing and proposed development

Matter	Existing development	Proposed development
Air quality	Particulate matter emissions associated with the Depot comprise of a mixture of fugitive and combustion engine sources. Potential sources of emission were identified as follows: • loading of cement from rail wagons to elevated silos; • transfer of cement from silos to trucks for dispatch; • wheel-generated dust from vehicle movements across paved surfaces; and • combustion of diesel fuel by dispatch trucks, locomotives and shunting engines. Modelling indicates that the existing operations are below the applicable air quality assessment criteria.	The results of the modelling indicate that the potential impacts generated by the proposed increased operations at the Depot would be low and unlikely to result in exceedance applicable air quality impact assessment criteria. The most significant source of emissions associated with the Depot are related to the transfer of cement product from trains and to trucks and the movement of trucks across the paved Depot yard. There is no change proposed in the number of train deliveries arriving at site, consequently emissions from these sources between the two scenarios are unchanged. Refer to air quality assessment (Appendix C).
Ecology	There is currently a small amount of vegetation located along the sites side boundaries.	No removal of vegetation is proposed.
Water management	Existing water management systems are fit for purpose.	The proposal will not result in any identified changes to the existing water management.
Fire management system	A fire management system is provided in accordance with current relevant Australian Standards.	No change as no additional requirements.
Heritage	One of the heritage listed Canary Palms is located outside the Depot. The current operations do not impact the tree. Heritage listed properties are located in close proximity to the Depot.	The proposal will not have an impact on the Canary Palm or heritage listed properties in close proximity to the Depot.
Visual	The site is located within an industrial zone adjacent a railway line.	The proposal does not include any change to the existing infrastructure and the additional trucks are loaded wholly within the site so that there is no change.
Waste	Very little waste is generated by existing operations and is limited to domestic waste generated by the employees ie, waste from lunches and administration. This is disposed of in domestic waste and recycling bins which are emptied weekly by Council's waste collection service. There is an oil/hydrocarbon spill kit at the site which is used of in the case of a spill and disposed of appropriately at a licensed waste transfer facility.	No change.

4 Legislative framework

This section describes the relevant provisions of NSW legislation, including the NSW *Environmental Planning and Assessment Regulation* 2000 (EP&A Regulation), environmental planning instruments (EPIs) and development control plans (DCPs) as required by Section 79C(1)(a) of the EP&A Act. No proposed instruments, planning agreements or coastal zone management plans are relevant to the proposed modification.

4.1 Continuing use rights

The Depot is located within the IN1 zone in accordance with LEP 2011 and the use is permitted under this zone with planning consent. While no development consent has been obtained for the use, the Depot enjoys continuing use rights in accordance with section 109 of the EP&A act, which states:

> 109 Continuance of and limitations on other lawful uses
>
> (1) Nothing in an environmental planning instrument operates so as to require consent to be obtained under this Act for the continuance of a use of a building, work or land for a lawful purpose for which it was being used immediately before the coming into force of the instrument or so as to prevent the continuance of that use except with consent under this Act being obtained.
>
> (2) Nothing in subsection (1) authorises:
>
> (a) any alteration or extension to or rebuilding of a building or work, or
>
> (b) any increase in the area of the use made of a building, work or land from the area actually physically and lawfully used immediately before the coming into operation of the instrument therein mentioned, or
>
> (c) without affecting paragraph (a) or (b), any enlargement or expansion or intensification of the use therein mentioned, or
>
> (d) the continuance of the use therein mentioned in breach of any consent in force under this Act in relation to that use or any condition imposed or applicable to that consent or in breach of any condition referred to in section 80A (1) (b), or
>
> (e) the continuance of the use therein mentioned where that use is abandoned.
>
> (3) Without limiting the generality of subsection (2) (e), a use is presumed, unless the contrary is established, to be abandoned if it ceases to be actually so used for a continuous period of 12 months.

The Depot has been operational since 1968 and therefore enjoys continuing use rights in accordance with the EP&A Act. In accordance with Clause 109(c), the proposal represents an intensification of the existing use and development consent is therefore required.

4.2 Integrated development

Under section 91 of the EP&A Act, integrated development is development (not being State significant development (SSD) or complying development) that, in order for it to be carried out, requires development consent and one or more of a specified number of approvals, including an EPL under the POEO Act.

Clause 6 of Schedule 1 of the POEO Act, which identifies scheduled activities, applies to cement or lime works, specifically:

> (1) This clause applies to the following activities:
>
> cement or lime handling, meaning the handling of cement, fly ash, powdered lime (other than agricultural lime) or any other similar dry cement products.
>
> cement or lime production, meaning the production of cement or lime:
>
> (a) by heating argillaceous or calcareous materials to produce cement clinkers, grinding clinkers or slags, or
>
> (b) by hydrating quicklime.
>
> (2) Each activity referred to in Column 1 of the Table to this clause is declared to be a scheduled activity if it meets the criteria set out in Column 2 of that Table.

Table

Column 1	**Column 2**
Activity	**Criteria**
cement or lime handling	capacity to handle more than 150 tonnes of cement or lime per day or 30,000 tonnes of cement or lime per year
cement or lime production	capacity to produce more than 150 tonnes of cement or lime per day or 30,000 tonnes of cement or lime per year

In accordance with Clause 6 of Schedule 1 of the POEO Act, the site currently operates under EPL No. 1503 (due for review on 3 August 2019) for the category *Cement and Lime Handling* between 0 to 30,000 tpa. The EPL will need to be amended to allow for cement and lime handling up to 60,000 tpa.

The proposal to increase throughput at the Depot up to 60,000 tpa is therefore integrated development.

4.3 Designated development

Section 77A of the EP&A Act provides that designated development (not being SSD) is declared to be designated development by an EPI or the EP&A Regulation.

Schedule 3 of the EP&A Regulation specifies what development is designated development and pursuant to clause 28 of Part 1 of Schedule 3 of the Regulations states:

> Railway freight terminals (including any associated spur lines, freight handling facilities, truck or container loading or unloading facilities, container storage, packaging or repackaging facilities):

(a) that involve more than 250 truck movements per day, or

(b) that involve the clearing of more than 20 hectares of native vegetation, or

(c) that are located:

(i) within 40 metres of a natural water body, wetland or environmentally sensitive area, or

(ii) within 500 metres of a residential zone or dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, odour, dust, lights, traffic or waste.

The proposal to increase throughput at the Depot will:

- not involve more than 250 truck movements per day;
- not involve any clearing of land; and
- not be located within 40 m of a natural water body, wetland or environmentally sensitive area.

However, the Depot is located within 500 m of a residential zone and dwellings that are not associated with the Depot.

In addition, Part 2 of Schedule 3 of the EP&A Regulation relates to whether alterations or additions are deemed to be designated development. Clause 35 of the EP&A Regulation requires the consent authority to consider if there is a significant increase in the environmental impacts of the total development. It goes on to state:

> Development involving alterations or additions to development (whether existing or approved) is not designated development if, in the opinion of the consent authority, the alterations or additions do not significantly increase the environmental impacts of the total development (that is the development together with the additions or alterations) compared with the existing or approved development.

Clause 36 sets out the factors to be taken into consideration. These are as follows:

> In forming its opinion as to whether or not development is designated development, a consent authority is to consider:
>
> (a) the impact of the existing development having regard to factors including:
>
> (i) previous environmental management performance, including compliance with the conditions of any consents, licences, leases or authorisations by a public authority and compliance with any relevant codes of practice, and
>
> (ii) rehabilitation or restoration of any disturbed land, and
>
> (iii) the number and nature of all past changes and their cumulative effects, and

(b) the likely impact of the proposed alterations or additions having regard to factors including:

(i) the scale, character or nature of the proposal in relation to the development, and

(ii) the existing vegetation, air, noise and water quality, scenic character and special features of the land on which the development is or is to be carried out and the surrounding locality, and

(iii) the degree to which the potential environmental impacts can be predicted with adequate certainty, and

(iv) the capacity of the receiving environment to accommodate changes in environmental impacts, and

(c) any proposals:

(i) to mitigate the environmental impacts and manage any residual risk, and

(ii) to facilitate compliance with relevant standards, codes of practice or guidelines published by the Department or other public authorities.

In order to determine whether or not the proposal constitutes designated development in accordance with clause 28 of Part 1 of Schedule 3 and clause 35 of Part 2 of Schedule 3 of the EP&A Regulation, Boral provided PMHC with a briefing letter dated 24 February 2016 setting out details of the proposal and any potential environmental impacts, along with technical assessments of potential traffic, air quality and acoustic impacts. Following a review of these documents, Council responded in writing (refer Appendix D) to confirm that there do not appear to be any significant environmental impacts as a result of the proposal and accordingly, they do not consider the proposal to be designated development.

4.4 Other relevant environmental planning instruments and development control plans

Other relevant EPIs and DCPs are identified as (but not limited to) the following:

4.4.1 State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) identifies development that is SSD, and State significant infrastructure and critical State significant infrastructure. Generally, the NSW Minister for Planning is the consent authority for these forms of development and infrastructure.

The proposal is not deemed to be SSD in accordance with clause 7 of Schedule 1, relating to cement works. The proposal is not defined as 'cement works' given it does not 'manufacture' cement. The proposal does not trigger any requirements in relation to 'existing railway sidings or associated development' (clause 19 of Schedule 1) as it does not involve have a capital investment of more than $30 million.

4.4.2 State Environmental Planning Policy 33 – Hazardous and Offensive Development

Under State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) a preliminary hazard assessment (PHA) prepared in accordance with the current circulars or guidelines must be submitted with a DA for potentially hazardous or offensive development. The guideline *Applying SEPP 33* (NSW Department of Planning 2011) includes a checklist and a risk screening procedure to determine whether a development is potentially hazardous or offensive.

An assessment against *Applying SEPP 33* found that the project is not potentially hazardous.

4.4.3 State Environmental Planning Policy 55 – Remediation of Land

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55) provides for a statewide planning approach to the remediation of contaminated land. Under clause 7(1) of SEPP 55, prior to granting consent to the carrying out of any development on land, a consent authority is required to give consideration as to whether land is contaminated and, if the land is contaminated, whether the land is suitable for the purpose of the development or whether remediation is required.

While Council has identified that the site is mapped as potentially contaminated land, the proposal does not seek to disturb/break the existing concrete hard stand which covers the majority of the site. It is therefore considered that that the proposal will not increase the risk of exposure to contamination to an unacceptable level with respect to human health or the environment.

4.4.4 Port Macquarie-Hastings Local Environmental Plan 2011

i Zoning

As previously stated, the site is zoned General Industrial (IN1) under the LEP 2011. The objectives of the zone are:

- To provide a wide range of industrial and warehouse land uses.
- To encourage employment opportunities.
- To minimise any adverse effect of industry on other land uses.
- To support and protect industrial land for industrial uses.
- To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.

The proposal, to amend an existing industrial operation, meets the objectives of the zone as it will allow for the increased throughput at an existing cement depot which will facilitate other facilities and services (ie concrete batching plants) to meet the increasing demand for cement in the mid north coast of NSW. In addition, as demonstrated by the noise, air quality and traffic assessments, the proposal will not have any significant environmental impacts on surrounding industrial and residential land uses when compared to impacts of the existing operations on the site.

The use is permitted with consent in the IN1 zone as it is considered to be general industry.

ii Heritage

Schedule 5 of LEP 2011 lists heritage items within the LGA. The heritage items within the vicinity of the Depot are set out in Table 4.1 below. The location of the heritage items is provided in Figure 2.4.

Table 4.1 Nearby heritage items

Suburb	Item name	Address	Property description	Significance
Wauchope	Cheese and butter factory	2 Randall Street	Lot 1, DP 852150; part railway land (SRA leases 12485 and 256187)	Local
Wauchope	Wauchope Railway Station group, including railway bridge, timber platform face, dwelling house, double-sided railway goods shed and Canary Island palms	Bounded on west by Wallace Street, on east by cheese and butter factory and Randall Street, to north by northern abutments of railway bridge over Hastings River and to south by railway level crossing linking Carrington and High Streets	Lot 21, DP 1205839	State

Notes: 1.Schedule 5 of Port Macquarie-Hastings LEP 2011.

The proposal will not have any impact on the nearby heritage items as it does not involve any changes to the existing Depot.

4.4.5 Port Macquarie Hastings Development Control Plan 2013

The *Port Macquarie Hastings Development Control Plan 2013* (DCP 2013) applies to the Port Macquarie-Hastings LGA. However, given that the proposal relates to an existing industrial use, within an industrial area, and does not involve any additions or alterations to existing plant or infrastructure, the controls within the DCP are not considered to be relevant.

5 Stakeholder consultation

5.1 Council

A pre-lodgement meeting was held between representatives of Boral, Council and EMM on 19 January 2016 to discuss the proposal. Prior to the meeting, a briefing document outlining the proposed increase in throughput at the Depot was provided to Council. The briefing document included a brief description of existing and proposed operations

At the pre-lodgement meeting, Council representatives requested further information about the proposal in order to determine whether it constitutes designated development under the provisions of the EP&A Act.

This information, including an air quality assessment, traffic assessment and noise assessment, was provided to Council on 24 February 2016 and on 1 March 2016 Council confirmed in writing that the proposal does not constitute designated development (refer Appendix D).

5.2 Department of Planning and Environment

Prior to Council determining that the proposal does not constitute designated development, Boral sought Secretary's Environmental Assessment Requirements (SEARs) from the DP&E in order to ensure that all necessary assessment could be undertaken in the case that the proposal was designated development.

While these SEARs are now redundant, the assessment requirements set out in the SEARs have still been addressed within this SEE.

5.3 Community engagement

Regular engagement with neighbours and other interested stakeholders who live and work around Boral's sites forms an important part of the business' operational approach.

As an assurance that community engagement objectives are being met, each year the business randomly selects a number of sites for the conduct of 'stakeholder perception benchmarking'. The process involves the gathering of feedback about site performance via in-person and online means.

The Depot was included in this program for the first time in February 2012. The program was extended to the site for 2015 given the proposal to seek development consent for an increase in throughput at the Depot.

On 29 October 2015, a letter was distributed to 43 households along the western side of Wallace Street, northern and southern side of Webb Street, and along Randall Street on the eastern side of the railway line advising residents of the proposal.

On 5 November 2015, Boral representatives visited properties within this footprint between the hours of 2.00 pm and 5.30 pm during very inclement weather. They spoke directly with residents at 18 of 27 households (two thirds) visited. During each conversation, residents were asked for their views about the site's current performance. They were also informed that a development application was being developed for the site's future needs.

Of the responses received, none were critical of the current operations, with all residents saying they generally don't notice what takes place at the site each day.

Three residents on Wallace Street mentioned the use of the street by heavy vehicles prior to 7.00 am, however all thought it more likely a neighbouring business was responsible for these. Boral's representatives committed to having this investigated by the local team. This was subsequently investigated and it was confirmed that the heavy vehicles would have been associated with other businesses and not associated with the Depot.

These results contrasted with those gathered by the 2012 exercise. Some negative responses received at that time led to a site improvement program which, analysing the most recent results appears to have achieved desired outcomes and greatly improved relations with neighbours.

It is envisaged that further engagement with neighbours will be undertaken once the DA is lodged with Council including the distribution of a newsletter outlining the details of the application, and one-on-one briefings with Boral personnel where requested by stakeholders.

6 Environmental assessment

6.1 Introduction

In order to properly assess the impacts of the proposal, a number of technical studies were undertaken to explore the existing conditions and whether or not the proposal would result in any significant environmental impacts. These studies include:

- a traffic assessment by EMM.
- a noise assessment by EMM; and
- an air quality assessment by Ramboll Environ Australia Pty Ltd (Ramboll).

Given that the proposal does not involve any additions or alterations to the existing plant or infrastructure at the Depot, it was not considered necessary for any additional technical studies such as heritage or visual to be undertaken.

6.2 Traffic assessment

An assessment of the likely future road and intersection traffic impacts for the proposed increase in annual throughput at the Depot (from 15,000 to 60,000 tpa) was been undertaken (refer Appendix A). In summary, the proposal will generate minimal impacts on Wallace Street and its intersection with the Oxley Highway in terms of either road capacity or peak hourly intersection traffic operations.

The proposal will result in an approximate 2% increase above the daily vehicle movements or one to two additional hourly truck movements, both of which are negligible in terms of impacts on traffic flows.

It is concluded that the effect of the additional site generated daily truck traffic movements using Wallace Street will be minimal on either an average daily or maximum peak hourly basis and would have minimal traffic capacity or amenity impacts on Wallace Street or its intersection with the Oxley Highway. Further, the proposal will not generate any adverse traffic impacts within the locality of Wauchope (including the town centre) and will have beneficial transport impacts in a regional context as rail transport rather than road transport will be utilised for the majority of the transport route for the supply of cement products to Port Macquarie and the surrounding region.

6.3 Noise impact assessment

EMM prepared a noise assessment of the proposal with reference to the INP, including *INP Application Notes*. The report is contained in Appendix B.

6.3.1 Operational noise assessment

In relation to operational noise, project specific noise levels (noise criteria) have been established based on the results of ambient noise monitoring and methodology provided in the INP. The relevant INP noise criteria for the Depot was calculated to be $L_{Aeq,15\text{-}min}$ 47 dB.

Results of the operator-attended noise survey undertaken at the nearest residential location to the Depot indicate that operational noise levels from site can be up to 64 dB. This is above the relevant project specific noise level derived in accordance with the INP. It is noted that the attended noise survey at a residence opposite the Depot (NM2) captured a worst-case operational scenario where a train was being unloaded as well as trucks being loaded, entering the site and exiting the site. It is likely that operational noise levels from the Depot would be lower than the measured 64 dB for the majority of the time.

The *INP Application Notes* state that if project specific noise levels (PSNLs) are not achieved from existing operations, a preliminary review of feasible and reasonable mitigation measures should be undertaken to identify potential opportunities to reduce existing operational noise levels.

The implementation of additional mitigation for the Depot would not be considered feasible or reasonable, given the following:

- the nature of the activity and the way trucks are required to access the Depot;
- the limited operating hours (day only); and
- the relative proximity of the nearest residences.

The *INP Application Notes* state that if the existing premises cannot achieve PSNLs after the feasible and reasonable noise mitigation review, the proposed modification should not significantly increase the existing noise emissions.

In summary, the proposed increase in throughput will not change existing hours of operation or require any modifications or additions to existing site infrastructure at the Depot. Hence, there will be no change to the level of operational noise emissions from the site above the measured worst case at the site. The proposed modification is therefore in keeping with the *INP Application Notes* in that "the proposed modification should not significantly increase the existing noise emissions" after application of feasible and reasonable noise mitigation.

6.3.2 Road traffic noise assessment

The additional generated daily traffic movements would all be via Wallace Street to the south. Wallace Street is estimated to carry approximately 1,200 daily vehicle movements. The proposed modification would generate an approximate maximum 2% increase in the total daily traffic using Wallace Street, between the site and the Oxley Highway. This increase in traffic volume would lead to a negligible increase (< 0.5 dB) in road traffic noise from Wallace Street. Therefore, the impact of road traffic noise associated with the proposal is predicted to be negligible and within the 2 dB allowable increase for land use developments as described in the *Road Noise Policy* (DECCW 2011).

6.4 Air quality

An air quality assessment was undertaken by Ramboll (refer Appendix C). Emissions of particulate matter were estimated for existing and proposed increased throughput operations at the Depot. Atmospheric dispersion modelling predictions of air pollution emissions was undertaken using the CALPUFF dispersion model.

The results of the dispersion modelling conducted for Depot highlight the following:

- the predicted incremental and cumulative concentrations and dust deposition levels are well within NSW Environment Protection Authority assessment criteria and National Environment Protection Measure advisory reporting goals for all pollutants and averaging periods modelled;
- predicted incremental concentrations are minor in comparison with the indicative ambient background concentrations; and
- the magnitude of increase in concentrations/deposition rates between existing and proposed operations is very small relative to both ambient levels and applicable impact assessment criterion.

The results of the modelling indicate that the potential impacts generated by the proposed increased throughput at the Depot would be low and unlikely to result in exceedance applicable air quality impact assessment criteria. Therefore adverse air quality impacts are considered unlikely.

6.5 Other

As stated elsewhere in this report, the proposal will not have any impact on the visual amenity of the area, nearby heritage items, local ecology or waste and water management as it does not involve any changes to the existing Depot.

7 Justification of the proposal and conclusion

Boral is seeking development consent to increase cement throughput at the Depot from its current maximum rate of 15,000 tpa to 60,000 tpa. The application also seeks provision for the inclusion of flyash as a percentage of the increased annual throughput.

The increase in throughput is required in order to service growing demand from local markets and the wider regional area, including projects such as the Pacific Highway upgrade and new housing development areas along the mid north coast of NSW.

The proposed increase in throughput will not require any additions or modifications to existing buildings or plant at the Depot.

The proposal constitutes an intensification of the operations at the Depot which currently enjoy continuing use rights under the EP&A Act and therefore development consent is required.

Based on the information provided in this SEE, development consent should be granted for the following reasons:

- technical reports demonstrate that there are no significant increases in noise, odour, dust or traffic impacts that will affect the amenity of the neighbourhood;
- there will be no light or waste impacts as a result of the proposal;
- the proposal does not require any change to the existing infrastructure and plant at the site;
- there have been no recent complaints logged relating to noise, air quality or traffic and further, recent stakeholder engagement with residents in the immediate vicinity did not identify any issues regarding current operations;
- no vegetation is required to be removed;
- no heritage items, including the canary palm at the front of the site, will be impacted by the proposal; and
- the proposal will be economically beneficial to the area by providing materials to facilitate development, as well as providing employment for people from the local area.

Abbreviations

AQA	Air quality assessment
ARTC	Australian Rail Track Corporation
DP	Deposited Plan
DP&E	Department of Planning and Environment
EMM	EMM Consulting Pty Ltd
EP&A Act	NSW *Environmental Planning and Assessment Act* 1979
EP&A Regulation	NSW *Environmental Planning and Assessment Regulation* 2000
EPA	Environmental Protection Authority
EPL	Environmental Protection Licence
IN1	General Industrial zone
km	kilometre(s)
LEP	Local Environmental Plan
LGA	Local Government Area
m	metres
NIA	Noise impact assessment
NSW	New South Wales
POEO Act	NSW *Protection of the Environment Operations Act* 1997
RMS	Roads and Maritime Services
SEE	Statement of Environmental Effects
SEPP	State Environmental Planning Policy
TfNSW	Transport for New South Wales
TPA	Tonnes per annum

Appendix A

Traffic assessment

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24 February 2016

Ed Neely
Boral Property Group
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Clunies Ross Street
Prospect NSW 2148

Re: Wauchope Cement Depot
Traffic assessment of proposed increased throughput

Dear Ed,

1 Introduction

Boral is seeking development consent to increase the throughput at the Wauchope Cement Depot (the Depot) from 15,000 tonnes per annum (tpa) to 60,000 tpa. The Depot is located on Wallace Street within the railway station precinct. The increase is required in order to service increased demand for concrete in the local markets, and wider regional area, including the Pacific Highway upgrade and new housing development areas along the mid north coast of New South Wales. The proposed increase in throughput will not require any modifications to buildings or plant at the Depot.

Currently, only cement is received, stored and distributed from the Depot. It is now proposed to receive, store and distribute both cement and flyash. Flyash is required due to changes in Roads and Maritime Services (RMS) specifications for concrete for road projects with the inclusion of flyash in the composition of concrete. Boral obtains flyash from Eraring Power Station, which will be transported to the Depot in bulk tankers (the same size and type that are used for onward transport of cement powder). The potential frequency for the delivery of flyash would be a minimum of one tanker per week and a maximum of two tankers per week. The incorporation of flyash would not increase the proposed maximum throughput of 60,000 tpa as it would substitute cement powder. The flyash would be stored in one of the 130 t silos.

The primary traffic change as a result of the increased throughput will be an increase from a maximum of eight truck loads of cement per day to a maximum of 25 truckloads of cement and/or flyash per day. As stated above, there will be no change to existing plant/infrastructure at the Depot.

Boral uses rail transport for the delivery of the majority of raw cement products to the Depot, sourced from Boral's Berrima cement works. The use of rail transport minimises road transport for the supply of cement products to the Wauchope and Port Macquarie areas. Within the local Wauchope and Port Macquarie areas, the cement products are distributed via either of two routes from the Depot. These transport routes are shown in Figure 1.1.

Transport routes

Boral Wauchope Cement Depot
Traffic Assessment

Figure 1.1

2 Existing Road Network and Traffic Volumes

The existing road network at Wauchope primarily comprises the Oxley Highway and a number of other intersecting north - south traffic routes (including Cameron Street and Wallace Street) which intersect with or cross the Oxley Highway, within the Wauchope Town Centre and railway station precinct.

Other major road routes are Beechwood Road, which connects Wauchope to Beechwood, and the road to Telegraph Point in the west and Bago Road, which connects Wauchope to the Pacific Highway and Herons Creek south of Wauchope.

Over the past 20 years, a number of traffic studies have been commissioned by Port Macquarie-Hastings Council (Council) looking at future traffic management strategies for Wauchope. The most recent study was undertaken by AECOM in September 2012 (Wauchope's Strategic Traffic Study), which included a summary of the previous and most recent traffic proposals for the town centre.

The most recent traffic survey information from 2012 and the most recent proposed road and traffic management works for the town centre (which were determined by the Council following the most recent study) are included in the Wauchope Traffic Data Summary (Attachment A).

The main focus of the traffic management works for Wauchope are an improvement to the main town centre intersection on the Oxley Highway (High Street) at Cameron Street and other related intersection improvements along the connecting major road routes to the town centre from the west via Waugh Street and Blackbutt Drive.

There are no town centre traffic management proposals which would specifically affect the traffic capacity or the street environment of Wallace Street. The current morning and afternoon peak hourly traffic volumes (and estimated daily traffic volumes) using the Oxley Highway and Cameron Street routes through Wauchope are summarised in Table 1, from the most recent AECOM traffic surveys in 2012.

Table 1 Summary of Wauchope traffic volumes on the major traffic routes

Road and location	Morning peak hourly volume	Afternoon peak hourly volumes	Estimated equivalent daily traffic volume*
Oxley Highway east of Railway Line	898	954	9,300
Oxley Highway east of Cameron Street	979	1,010	9,950
Cameron Street north of the Oxley Highway	394	360	3,800
Cameron Street south of the Oxley Highway	769	723	7,500
Wallace Street north of the Oxley Highway	164	150	1,550

Notes: ** = the estimated equivalent daily traffic volumes are ten times the average of the peak hourly traffic volumes.*

The daily traffic volumes using Wallace Street have not been surveyed in any of the recent Wauchope town centre traffic studies since 1996. Due to its lack of direct road connections with most of the other town centre streets further to the west in Wauchope, Wallace Street is generally a much less heavily trafficked route than Cameron Street within the Wauchope town centre. The current traffic volumes using Wallace Street are estimated in Table 1 as equivalent to between one third and one half of the current peak hourly and daily traffic movements which are using the equivalent section of Cameron Street, north of the Oxley Highway in the Wauchope town centre. These estimates were confirmed during observations of traffic using Cameron Street in the morning peak in late 2015 and early 2016.

In summary, the traffic volumes in Wallace Street are minimal in comparison to the other roads within the local road network.

3 Traffic Movements

3.1 Current traffic movements

The current traffic movements from the Depot are a maximum of eight daily truck loads of 25 -27 tonne capacity cement tankers, which represents 16 daily truck traffic movements. All these truck movements currently use Wallace Street south of the Depot to travel via the Oxley Highway, either east or west via the transport routes shown in Figure 1.1.

There is an alternative underpass crossing for general traffic which can cross the railway line north of the Wauchope railway station via Rocks Ferry Road. This route can be accessed from the northern end of Wallace Street, but cannot be used by the site truck traffic due to the low vertical clearance beneath the railway line at the underpass.

3.2 Proposed traffic movements

The proposal will result in an increase in the maximum number of truck loads per day from the Depot, from eight to 25 trucks, which represents a maximum increase of 17 additional daily truck loads or 34 additional daily truck movements. The overall increase would represent between three to four additional hourly truck movements using Wallace Street, south of the site, over a ten hour period during the daytime on a peak output working day, which would include both the normal weekday morning and afternoon peak hourly traffic periods.

At the intersection with Wallace Street and the Oxley Highway, the additional peak hourly intersection traffic movements would generally represent:

- one additional hourly truck movement turning left out at the intersection;
- one additional hourly truck movement turning right out at the intersection;
- one additional hourly truck movement turning left in at the intersection; and
- one additional hourly truck movement turning right in at the intersection.

The inclusion of worst-case-scenario truck movements associated with flyash deliveries, ie two truck deliveries on one day, representing the weekly maximum, would increase the additional truck movements to 38. This still represents between three to four additional hourly truck movements using Wallace Street and therefore does not impact the predicted peak hourly turning traffic movements.

4 Traffic impacts of the proposal

The maximum additional hourly truck movements at the Depot have been assessed, rather than an average to ensure that the 'worst-case' scenario traffic impacts are assessed.

In day to day operations, the number of truck movements generated by the Depot will vary significantly as operations are based on market demand, which can change with the infrastructure projects being supplied at any time. Additionally, the market for cement powder can also be influenced by the flow-on effects from delays within the construction industry from seasonal and weather impacts. Further, it is noted that the Depot is serviced by a fleet of five tankers which also service Boral facilities at Coffs Harbour and Kooragang Island (Newcastle). This means that there are generally only one to three tankers servicing Wauchope at any one time and making allowance for loading, travel time and unloading, there is generally only one truck waiting to be loaded, when there is already a truck being loaded on the site. Normally the daily average traffic movements from the site will be significantly less than the maximum allowed for, resulting in a total of one to two additional hourly truck movements.

Assuming the additional generated daily traffic movements would all travel via Wallace Street to the south (34 additional daily truck movements) these would generate an approximate 2% increase above the approximate traffic volume of 1,550 daily vehicle movements which are currently using Wallace Street at the Oxley Highway intersection. This increase would not be noticeable and would have no impact on existing traffic flow conditions for other traffic using Wallace Street.

The additional project generated peak hourly intersection traffic movements would also generally be below the minimum threshold of additional traffic movements that could potentially affect the peak hourly traffic operations of an intersection (ie a change of one vehicle movement or less per hour for any traffic movement at the intersection).

Therefore, it is considered that the proposal will not affect the current peak hourly traffic operations of the Wallace Street and Oxley Highway intersection (or any other intersection within the Wauchope town centre) and a more detailed intersection traffic analysis (using SIDRA or a similar intersection analysis program) is not required for the proposal as there would be unlikely to be any significant change in either the intersection traffic delays or level of service as a result of the additional peak hourly truck traffic movements generated.

Wallace Street serves industrial traffic from a number of other sites in addition to the Depot. The road pavement of Wallace Street is believed to have been adequately constructed to accommodate industrial type truck traffic movements, including truck traffic from a number of other industrial sites, in addition to the existing and additional trucks from the Depot.

5 Conclusion

A preliminary assessment of the likely future road and intersection traffic impacts for the proposed increase in annual throughput at the Depot (from 15,000 to 60,000 tpa) has been undertaken and the proposal will generate minimal impacts on either Wallace Street or its intersection with the Oxley Highway in terms of either road capacity or peak hourly intersection traffic operations.

The proposal will result in an approximate 2% increase above the daily vehicle movements or one to two additional hourly truck movements, both of which are negligible in terms of impacts on traffic flows.

It is concluded that the effect of the additional site generated daily truck traffic movements using Wallace Street will be minimal on either an average daily or maximum peak hourly basis and would have minimal traffic capacity or amenity impacts on Wallace Street or its intersection with the Oxley Highway. Further, the proposal will not generate any adverse traffic impacts within the locality of Wauchope (including the town centre) and will have beneficial transport impacts in a regional context as rail transport rather than road transport will be utilised for the majority of the transport route for the supply of cement products to Port Macquarie and the surrounding region.

Should you have any queries regarding this letter, or require any additional information, please do not hesitate to contact the undersigned on 02 9493 9500.

Yours sincerely

Dr Tim Brooker
Associate Transport Planner
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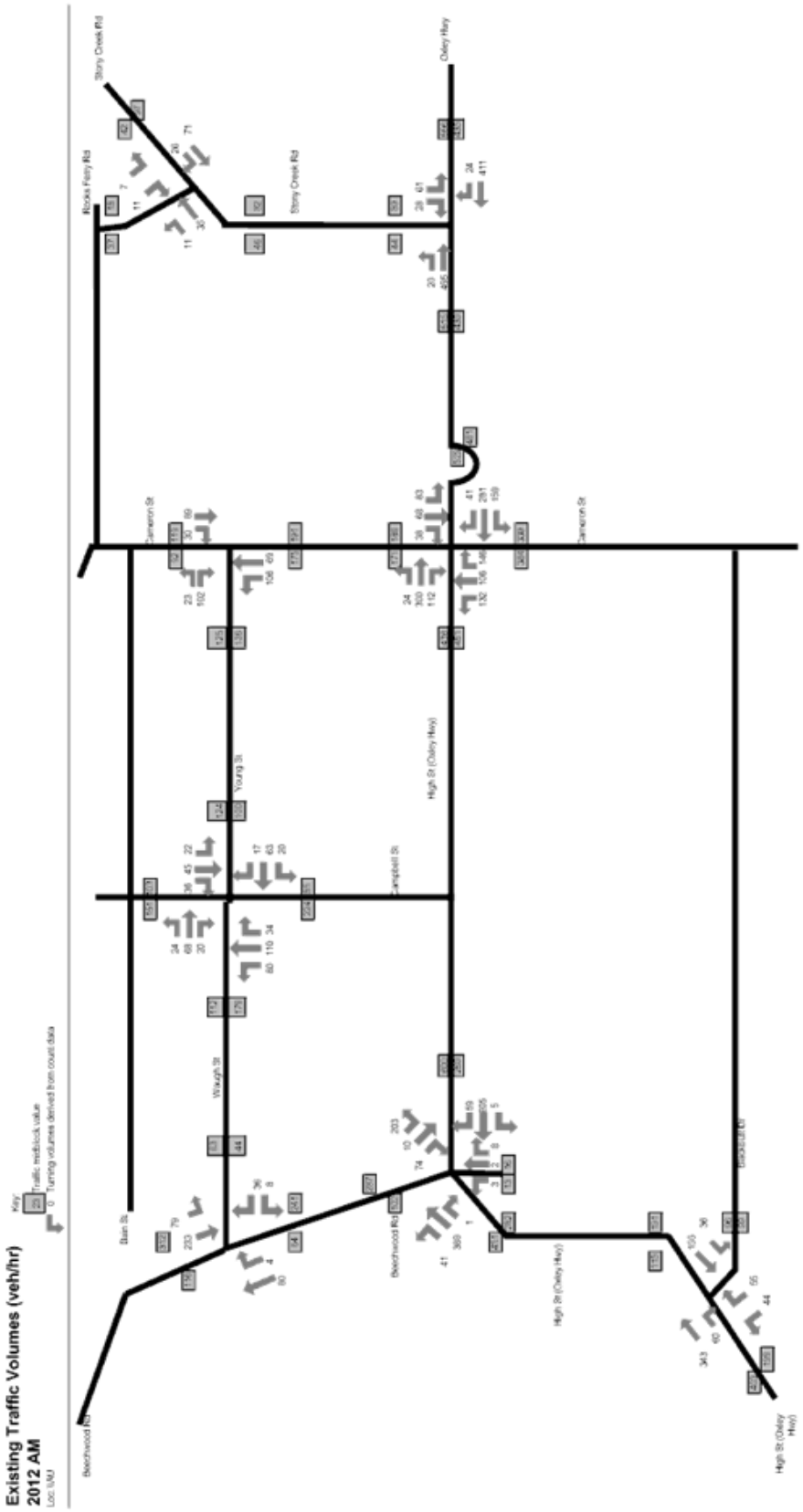
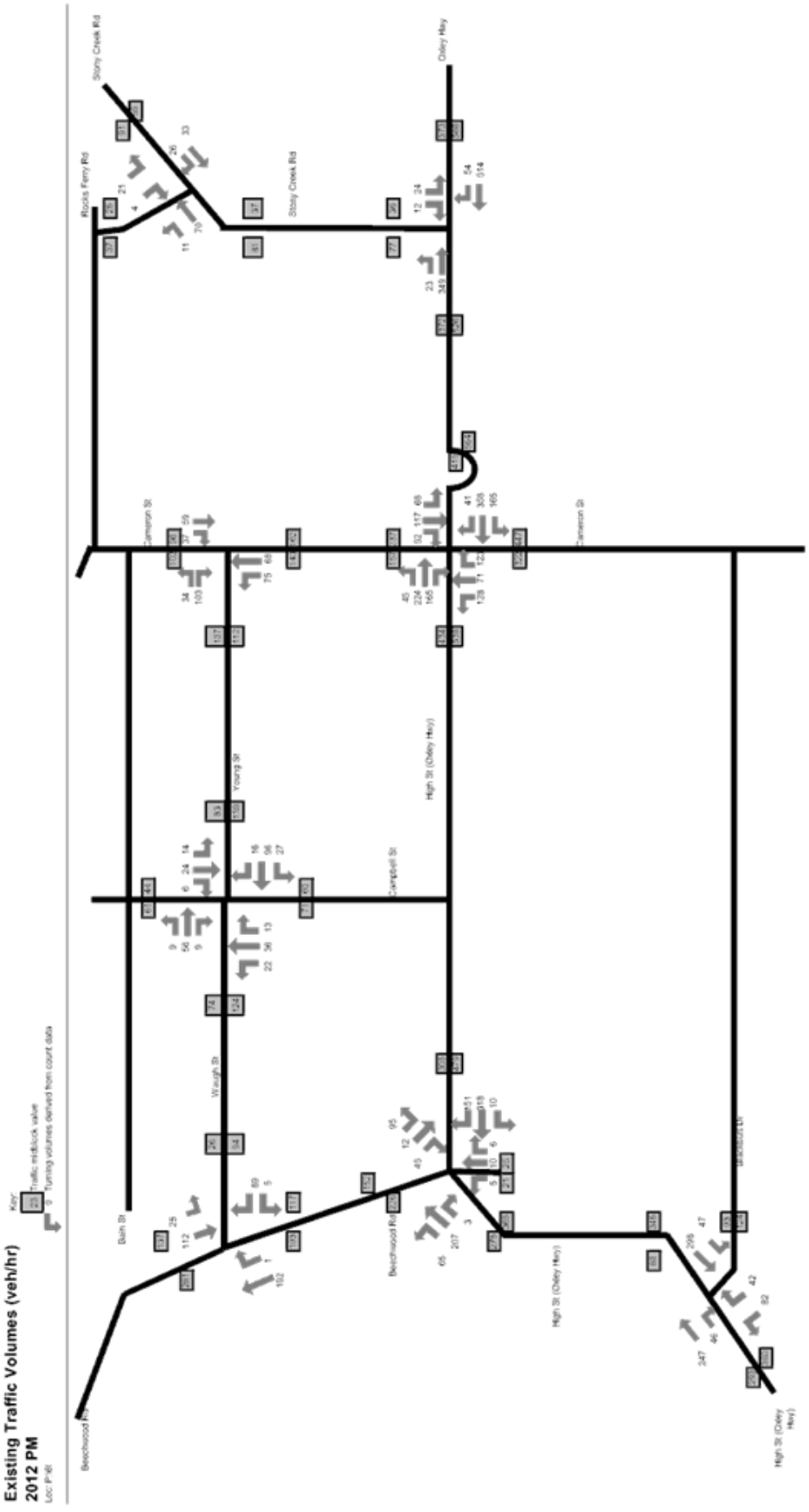
Appendix A

Wauchope Traffic Data Summary


Existing Traffic Volumes (veh/hr)
2012 AM
Key
Traffic midblock value
Turning volumes derived from count data
Stony Creek Rd
Oxley Hwy
Rocks Ferry Rd
Cameron St
Young St
High St (Oxley Hwy)
Campbell St
Waugh St
Bain St
Beechwood Rd
Elizabeth St


Existing Traffic Volumes (veh/hr)
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Stony Creek Rd
Oxley Hwy
Rocks Ferry Rd
Cameron St
High St (Oxley Hwy)
Young St
Campbell St
Waugh St
Bain St
Beechwood Rd
Jackson Dr

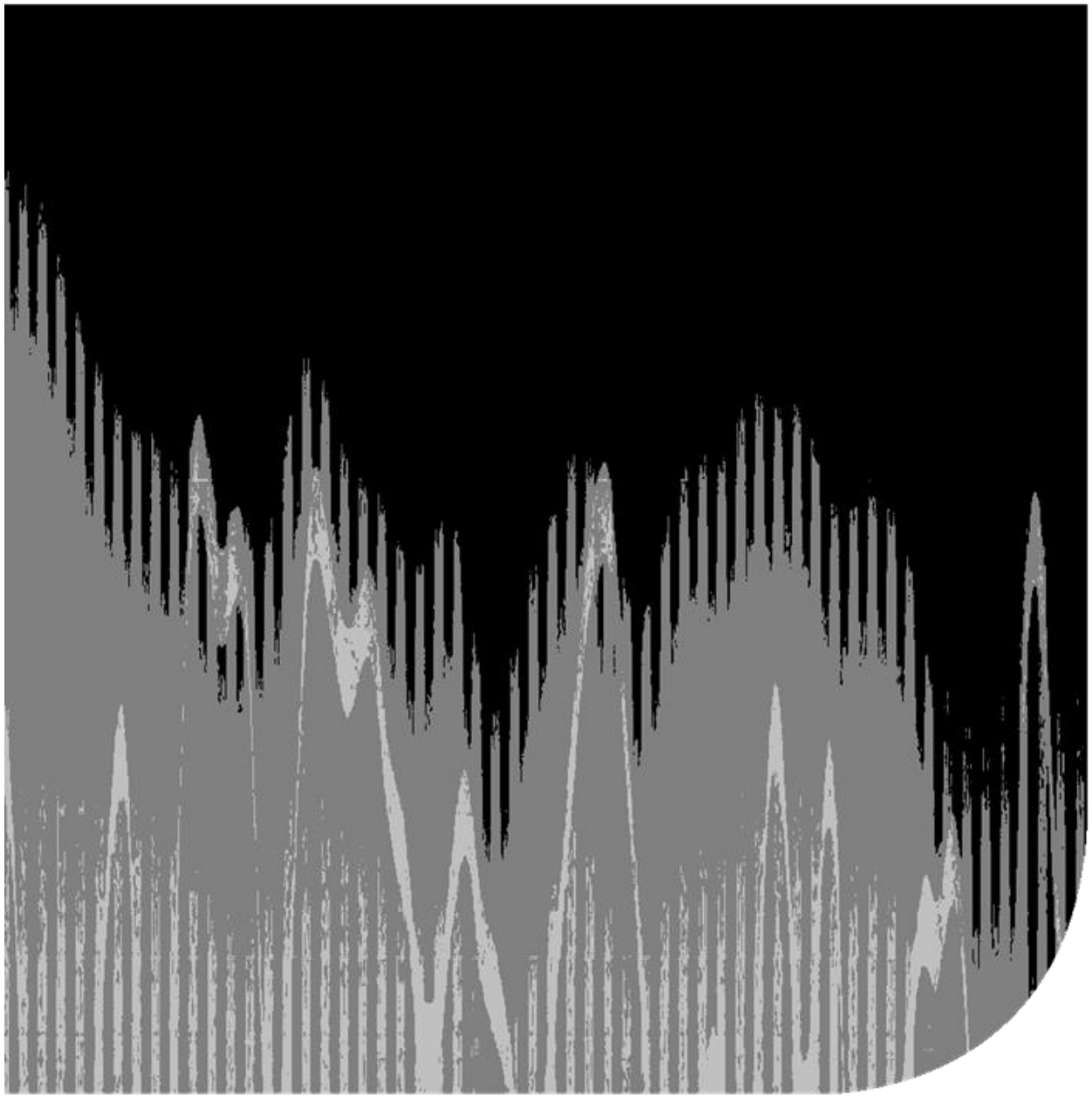
Appendix B

Acoustic assessment

Wauchope Bulk Cement Depot

Noise impact assessment

Prepared for Boral Cement Limited | 24 February 2016



Wauchope Bulk Cement Depot

Noise impact assessment

Prepared for Boral Cement Limietd | 24 February 2016

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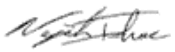
Boral Cement Distribution Plant

Final

Report J15147RP1 | Prepared for Boral Cement Limited | 24 February 2016

Prepared by	**Lucas Adamson**	**Katie Teyhan**	Approved by	**Najah Ishac**
Position	Acoustic Consultant	Associate	Position	Director
Signature			Signature	
Date	24 February 2016	24 February 2016	Date	24 February 2016

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Tables

Figures

1 Introduction

EMM Consulting Pty Limited (EMM) was commissioned by Boral Cement Ltd (Boral) to prepare a noise impact assessment (NIA) suitable to accompany a development application to modify their bulk cement depot (the Depot) operations located on Wallace Street, Wauchope, NSW.

The Depot has been operated by Boral since 1968. The depot discharges cement powder from rail wagons to three silos for bulk storage and then into articulated powder tankers for road distribution. The depot operates under continuing use rights.

This report presents the results and findings of the NIA which has been prepared with reference to the *NSW Industrial Noise Policy* (Environment Protection Authority (EPA) 2000) (INP), including the associated Application Notes and the *NSW Road Noise Policy* (RNP) (EPA 2011).

As described in Section 3 of this report, the subject of the modification is an increase in cement powder throughput of the depot from 15,000 tonnes per annum (tpa) to 60,000 tpa. Flyash powder is not used in current operations however provision for the possible inclusion of flyash in the total annual output is being sought as part of the modification.

There will not be any changes to existing site infrastructure or the approved depot footprint. Hence, there will be no change to the level of operational noise emissions from within the site boundary. This noise assessment therefore evaluates the existing level of noise from the site in accordance with the methodology outlined in the INP and associated Application Notes for the assessment of noise from existing industrial premises.

2 Acoustic terminology

A number of technical terms are required for the discussion of noise. These are explained in Table 2.1.

Table 2.1 Glossary of acoustic terms

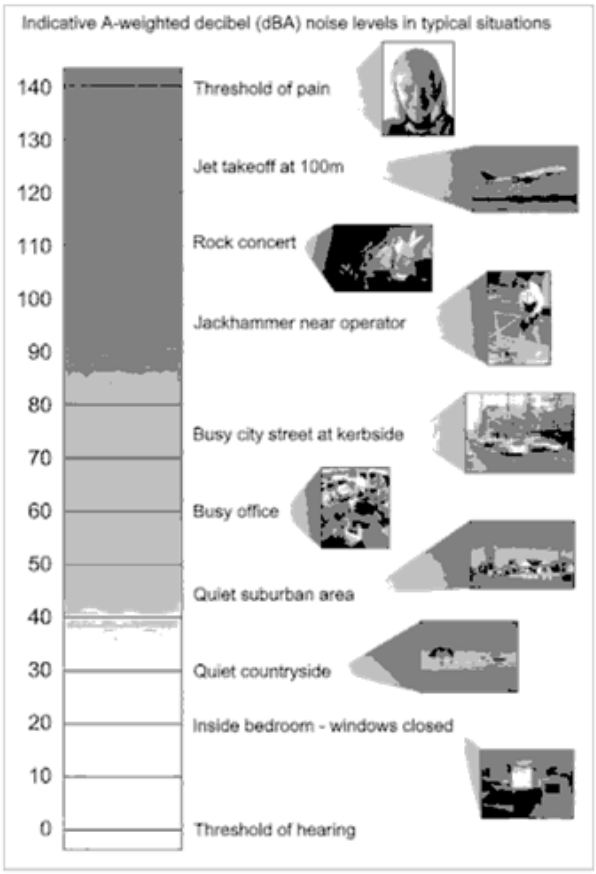
Term	Description
dB	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
L_1	The noise level exceeded for 1% of a measurement period.
L_{10}	A noise level which is exceeded 10% of the time. It is approximately equivalent to the average of maximum noise levels.
L_{90}	Commonly referred to as the background noise, this is the level exceeded 90% of the time.
L_{eq}	It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period. The $L_{eq,15min}$ descriptor refers to an L_{eq} noise level measured over a 15 minute period.
L_{max}	The maximum root mean squared sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single value background level representing each assessment period over the whole monitoring period.
Sound power level	This is a measure of the total power radiated by a source. The sound power of a source is a fundamental property of the source and is independent of the surrounding environment.
Temperature inversion	A positive temperature gradient. A meteorological condition where atmospheric temperature increases with altitude.
INP day period	7 am to 6 pm Monday to Saturday, 8am to 6pm on Sundays and public holidays
INP evening period	6 pm to 10 pm
INP night period	Remaining periods.

It is useful to have an appreciation of decibels, the unit of noise measurement. Table 2.2 gives an indication as to what an average person perceives about changes in noise levels.

Table 2.2 Perceived change in noise

Change in sound level (dB)	Perceived change in noise
1–2	typically indiscernible
3	just perceptible
5	noticeable difference
10	twice (or half) as loud
15	large change
20	four times as loud (or quarter) as loud

Examples of common noise levels are provided in Figure 2.1.



Source: Road Noise Policy (Department of Environment, Climate Change and Water (DECCW) 2011).

Figure 2.1 Common noise levels

3 Project and site description

The Boral Wauchope bulk cement depot (Depot) is located at 4 Wallace Street, Wauchope, (the Site) and is part of a larger site owned by Transport for NSW. The site is zoned IN1 – General Industrial under the Port Macquarie – Hastings Local Environmental Plan 2011 (LEP 2011). Residential encroachment over time has resulted in the site now being within close proximity to residential properties. A number of heritage items classified under LEP 2011 are located within the vicinity of the site.

The Site is developed with a single storey office and single storey amenities room, equipment shed/oil store, compressor room, truck loading station and surface water management system. Three cement storage silos (2x130 t and 1x180 t) are located in the centre of the site. The site surface is concrete hard stand. A weighbridge and truck loading area is located beneath the central silo and a washout bay is located to the south of the weighbridge.

Operating hours are generally 7.00 am to 5.00 pm Monday to Friday and 7.00 am to 3.00 pm Saturday. Due to train delays operating hours at times extend to 3pm on Saturdays. Wauchope train station is located approximately 200 m south of the Depot.

Boral is seeking development consent to increase cement throughput (potentially including flyash) at the Depot from 15,000 tonnes per annum (tpa) to 60,000 tpa (the Project). The increase is required in order to service increased demand in the local markets and wider regional area, including the Pacific Highway upgrade and new housing development areas along the mid north coast of New South Wales.

Cement is currently transported by rail from Boral's Berrima Cement Works and consists of between eight to 10 cement wagons, up to three days a week (Tuesday, Thursday and Saturday). Delivery days and the number of wagons associated with each train vary from week to week depending on demand. Powder is discharged from the rail wagons to three silos for bulk storage and then into articulated 25 t powder tankers for road distribution. The Depot generates up to eight truck loads per day.

The loading point at which the trucks receive materials from the storage silos is located approximately 25 metres from the eastern side of Wallace Street. The main source of operational noise is generated during truck loading.

The proposed increase in throughput will result in an increase in the number of truck movements at the Depot from a maximum of eight trucks per day to a maximum of 25 trucks per day.

Flyash from Eraring Power Station would be transported to the Depot in bulk tankers with delivering occurring at a minimum of one tanker per week and a maximum of two tankers per week. The incorporation of flyash would not increase the proposed maximum throughput of 60,000 tpa as it would substitute cement powder. The flyash would be stored in one of the 130 t silos.

Train deliveries will not increase from one train up to three times a week however, the number of wagons may increase from 8-14 wagons to a maximum of fourteen wagons per train. It is noted that the silos already have ample unused capacity which will permit the increase in storage requirements and throughput without the need for additional train deliveries, or modification to the existing plant, equipment nor buildings.

4 Existing environment

4.1 Noise sensitive assessment locations

The nearest noise-sensitive receivers are the residential properties located opposite the Depot; on the western side of Wallace Street (shown in Figure 4.1).

4.2 Existing acoustic environment

A key element in assessing environmental noise impact from industry is to quantify the existing ambient acoustic environment, including any existing industrial noise where relevant. The existing acoustic environment (i.e. ambient noise) was characterised by long-term unattended and short-term attended noise monitoring. Attended noise measurements were undertaken at several locations in December 2015, including the unattended noise monitoring location (refer Figure 4.1).

4.2.1 Unattended noise monitoring

Unattended noise monitoring was completed by EMM using one noise logger at a representative location (3 Wallace Street, Wauchope) to determine the existing ambient noise environment excluding depot noise contributions. An ARL EL316 environmental noise logger (s/n 16-207-005) was used for the monitoring. Field calibration of the instrument was applied using a Brüel and Kjær type 4230 calibrator (s/n 1442144).

The Rating Background Levels (RBL) and ambient $L_{Aeq,period}$ noise levels derived from EMM's long-term noise monitoring for the operational hours of the Depot are summarised in Table 4.1. Graphical representations of the daily unattended noise monitoring data, associated rainfall and wind speeds for the period are presented in Appendix A. The noise logger data was analysed in accordance with the INP, whereby data was excluded where rainfall and/or winds of greater than 5 m/s were recorded. This analysis was completed using weather data from the Bureau of Meteorology's Automatic Weather Station (AWS) at Port Macquarie airport, NSW located approximately 13 km east-north-east of the Depot. This approach is consistent with recommendations of the INP.

Table 4.1 Unattended noise monitoring summary

Location	INP period	Rating background level (RBL), dB(A)	Measured existing ambient $L_{Aeq(period)}$ noise level
3 Wallace Street (NM1)	Day (Mon – Sat)	42	58

Noise monitoring locations
Boral Wauchope Cement Depot
Noise Impact Assessment

EMM

4.2.2 Attended noise monitoring

Attended noise measurements of 15 minutes duration were completed at two locations, including the unattended monitoring location. The attended noise surveys were conducted using a Brüel and Kjær Type 2250 one-third octave hand-held analyser (s/n 2759405). Field calibration of the instrument was undertaken using a Brüel and Kjær type 4230 calibrator (s/n 1442144). Attended measurements were conducted in accordance with Australian Standard (AS) 1055-1997 *Description and Measurement of Environmental Noise,* Parts 1, 2 and 3. Meteorological conditions throughout each survey period were generally calm and clear with no winds above 5 m/s or rain events.

Table 4.2 presents the results of the attended noise measurements, description of the ambient noise environment and quantification of existing Depot noise emissions at nearby residences. Refer to Figure 4.1 for monitoring locations.

Table 4.2 Attended noise monitoring summary

Location	Date	Start time	L_{eq}	L_{90}	L_{max}	Comments and typical levels (dB)
NM1 (noise logger)	1/12/15	10:20	58	48	80	Train to 80, local road traffic – trucks to 69, cars to 66 Norco plant (constant) 47, plant/vehicles audible at Muddles Farm Centre Birds and insects, distant dog barking Depot not audible **Existing industry $L_{Aeq(15\text{-}min)}$ 47 dB**
NM2 (opposite Depot)	1/12/15	10:43	70	62	89	Truck idling at Depot (constant) 61 Train at Depot being unloaded via forklift, not audible over truck idling Truck leaving Depot to 78 Truck entering Depot, reversing beeper to 89 Door slam at residence next door to 72 Local car pass-by to 68 **Existing Depot $L_{Aeq(15\text{-}min)}$ 64 dB**

Results of operator-attended noise surveys at near-by locations to the Depot indicate that existing industry, including the Depot, as well as rail and local road traffic are the main contributors to ambient noise levels in the vicinity of the subject site.

It is noted that the attended noise survey at NM2 (opposite the Depot) captured a worst-case operational scenario where a train was being unloaded as well as trucks being loaded, exiting and entering the site. It is likely that operational noise levels from the Depot would be lower than the measured 64 dB for the majority of the time.

4.3 Meteorology and other effects on noise levels

Noise propagation over distance can be significantly affected by local weather conditions. Of most interest are source to receiver winds, the presence of temperature inversions and drainage flow effects, as these conditions can enhance received noise levels. To account for these phenomena, the INP specifies meteorological analysis procedures to determine the prevalent weather conditions.

4.3.1 Prevailing Winds

The INP recommends consideration of wind effects if they are a "feature" of the area. The INP defines feature as the presence of source-to-receiver wind speed (measured at 10 m above ground level) of 3 metres per second (m/s) or less, occurring for 30% of the time in any assessment period and season.

This is further clarified by defining source-to-receiver wind direction as being the directional component of wind. The INP states that where wind is identified to be a feature of the area then assessment of noise impacts should consider the highest wind speed at or below 3 m/s, which is considered to prevail for at least 30% of the time.

Detailed analysis of wind data was completed using weather data from the Bureau of Meteorology's (BoM) Automatic Weather Station (AWS) at Port Macquarie airport, NSW (station number 060139). The Port Macquarie airport BoM weather station is located approximately 13 km east-north-east of the site.

The prevailing winds analysis was undertaken in accordance with INP methodologies and considered weather data over a 12 month period (2015). The analysis identified that winds during the day time period are not a feature of the area, as per the INP. Thus, source to receiver winds have not been considered as part of this assessment.

Further, given the proximity of the residences to the subject site the enhancing effect of winds on noise emission levels would be negligible.

4.3.2 Temperature inversions

Temperature inversions (i.e. where atmospheric temperature increases with altitude) typically occur during the night-time period in the winter months and can also increase (i.e. focus) noise levels at surrounding assessment locations. As per the INP, temperature inversions are to be assessed when they are found to occur for 30% of the time (about two nights per week) or greater during the winter months.

Temperature inversions have not been considered in the noise assessment since the Depot is not proposed to operate during the night-time.

4.3.3 Drainage winds

The INP states that a default wind drainage value should be applied during temperature inversions where sources are at a higher altitude than the assessment location with no intervening topography. All assessment locations are at a similar or higher elevation than the subject site and the Depot will not operate during the night-time. Therefore, drainage winds have not been adopted in this assessment.

5 Noise criteria

5.1 Environment Protection Licence (EPL 1503)

The Depot's current Environment Protection Licence, EPL 1503, Section L3 Noise Limits stipulates the following noise limits:

"Noise from the premises must not exceed an $L_{A10,\ (15\ minute)}$ noise emission criteria of 50dB(A), except as expressly provided by this licence."

Additionally, the licence states that:

"Noise from the premises is to be measured or computed at any point within 1 metre of any residential boundary or other noise sensitive receiver to determine compliance with conditions L3.1. 5 dB(A) must be added if noise is tonal or impulsive in character."

5.2 INP project specific noise levels

Noise from industrial sites or processes (eg onsite truck movements) in NSW are regulated by the local Council, Department of Planning and Environment (DP&E) and/or the EPA and usually have a licence and/or approval conditions stipulating noise limits. These limits are normally derived from operational noise criteria applied at assessment locations. They are based on INP guidelines (EPA 2000) or noise levels that can be achieved at a specific site following the application of all feasible and reasonable noise mitigation.

Operational project specific noise levels (PSNLs) have been established in accordance with the INP for the purpose of this assessment. With respect to PSNLs, the INP states:

> They are not mandatory, and an application for a noise producing development is not determined purely on the basis of compliance or otherwise with the noise criteria. Numerous other factors need to be taken into account in the determination. These factors include economic consequences, other environmental effects and the social worth of the development.

The objectives of noise assessment criteria for industry are to protect the community from excessive intrusive noise and preserve amenity for specific land uses.

To ensure these objectives are met, the EPA provides two separate criteria: intrusiveness criteria and amenity criteria. The fundamental difference being intrusiveness criteria apply over 15 minutes in any period (day, evening or night), whereas the amenity criteria apply to the entire assessment period (day, evening or night).

The intrusiveness criteria require that $L_{eq(15\text{-}min)}$ noise levels from the Project during the relevant operational periods (i.e. day, evening and night) do not exceed the RBL by more than 5 dB.

The assessment of amenity is based on noise criteria specific to the land use. The criteria relate only to industrial noise and exclude road or rail noise. Where the measured existing industrial noise approaches recommended amenity criteria, it needs to be demonstrated that noise levels from new industry will not contribute to existing industrial noise.

Residential assessment locations have been categorised in the INP (EPA 2000) urban amenity category. It is noted that no adjustment to the acceptable recommended noise amenity level was necessary during the day since the existing level of industrial noise at the assessment locations was more than 6 dB below the acceptable amenity level. This excludes noise from existing operations at the subject site (as per the INP).

The project-specific noise level (PSNL) is the most stringent of the calculated intrusive or amenity criteria and is provided in Table 5.1 for the Depot.

Table 5.1 Project specific noise levels

Assessment location	Period	Rating Background Level[1](RBL)	Intrusive criteria, dB, $L_{Aeq,15min}$[2]	Amenity criteria, dB $L_{Aeq,period}$[3]	Project specific noise level, dB[4]
All nearest residences	Day	42	47	60 (acceptable) 65 (rec. maximum)	**47 $L_{Aeq,15-min}$**

Notes: *1. The RBL is an INP term and is representative of the background noise level.*

2. Equal to the RBL + 5 dB.

3. Amenity criteria as per Table 2.1 of the INP including appropriate adjustments for existing industrial noise as per Table 2.2 of the INP.

4. The most stringent of the intrusive and amenity noise criteria.

Although presented as different noise parameters, the PSNL of $L_{Aeq,15-min}$ 47 dB, determined in accordance with the INP methodology, is comparable to the current EPL noise limit of $L_{A10,15-min}$ 50 dB.

5.3 Applying INP criteria to existing noise sources

The INP also provides guidance on the application of noise criteria to existing sources of noise such as the Depot:

> The application of the criteria to existing sources of noise would occur where significant modifications (such as to warrant serious and/or ongoing development consent or EPA approval) are made to existing developments or where complaints are received. In applying the policy to existing operations it is acknowledged that the scope for applying feasible and reasonable mitigation measures to existing noise sources is usually far more limited than for new developments. Careful consideration of noise impacts and the feasible and reasonable mitigation measures available at these sites may result in less stringent noise limits than would ideally apply. Sometimes the resultant noise limits will be above the criteria.

The INP Application Notes state that if PSNLs are not achieved from existing operations, a preliminary review of feasible and reasonable mitigation measures should be undertaken to identify potential opportunities to reduce existing operational noise levels.

The INP Application Notes state that if the existing premises cannot achieve PSNLs after the feasible and reasonable noise mitigation review, the proposed modification should not significantly increase the existing noise emissions.

This assessment has adopted the procedures outlined in the INP Application Notes for existing industrial sites.

5.4 Road traffic noise criteria

The principle guidance for assessing the impact of road traffic noise on receptors is in the *Road Noise Policy* (RNP) (DECCW 2011). Vehicles access the site from Wallace Street which is classified as a sub-arterial road in accordance with the RNP.

Table 5.2 presents the road noise assessment criteria reproduced from Table 3 of the RNP.

Table 5.2 Road traffic noise assessment criteria for residential land uses

Road category	Type of project/development	Assessment criteria, dB(A)	
		Day (7 am to 10 pm)	Night (10 pm to 7 am)
Freeway/arterial/sub-arterial roads	Existing residences affected by additional traffic on existing freeway/arterial/sub-arterial roads generated by land use developments.	$L_{eq(15\text{-}hr)}$ 60 (external)	$L_{eq(9\text{-}hr)}$ 55 (external)

Source: EPA (2011).

The RNP states that where existing road traffic noise criteria are already exceeded, any additional increase in total traffic noise level should be limited to 2 dB.

6 Noise assessment

6.1 Existing Depot noise levels

Results of the operator-attended noise survey undertaken at the nearest residential location to the Depot (refer Table 4.2) indicate that operational noise levels from site can be up to 64 dB. This is above the relevant project specific noise level of 47 dB (refer Table 5.1) derived in accordance with the INP.

The proposed increase in throughput will not change existing hours of operation or require any modifications or additions to existing site infrastructure at the Depot. Hence, there will be no change to the level of operational noise emissions from the site above the measured worst case during our site visit. The site visit noise measurement captured operations representative of maximum activity. The proposed modification is therefore in keeping with the INP application notes in that "the proposed modification should not significantly increase the existing noise emissions" after application of feasible and reasonable noise mitigation.

Recent feedback from community consultation undertaken by Boral at neighbouring residences has been positive with regard to noise emissions. Boral spoke directly with 18 of 27 of the nearest residences to the Site and none of these were critical of the current operations. All of the 18 residences said they generally don't notice what occurs at the site each day.

6.2 Feasible and reasonable mitigation

The main noise source associated with operation of the Depot is the manoeuvring of trucks entering and exiting the site.

Essentially, there are three main mitigation strategies for noise control:

- controlling noise at the source (e.g. trucks);
- controlling the transmission of noise (e.g. noise barriers); and
- controlling noise at the receiver (e.g. acoustic treatment of dwellings).

The implementation of additional mitigation for the depot would not be considered feasible or reasonable, given the following:

- the nature of the activity and the way trucks are required to access the Depot;
- the limited operating hours (day only); and
- the relative proximity of the nearest residences.

6.3 Road traffic noise assessment

The current maximum daily traffic movements from the proposed facility are eight truck loads daily, which represents 16 truck traffic movements daily. All these traffic movements currently use Wallace Street south of the site to travel via the Oxley Highway, either east or west of the railway level crossing. The proposed increase in throughput will result in an increase in the maximum number of trucks per day from eight to a maximum of 25 trucks or 50 daily truck movements, an increase of 34 additional daily truck movements for 17 additional daily truck loads.

The additional generated daily traffic movements would all be via Wallace Street to the south. Wallace Street is estimated to carry approximately 1,200 daily vehicle movements. Hence, the proposed modification would generate an approximate maximum 2% increase in the total daily traffic using Wallace Street, between the site and the Oxley Highway. This increase in traffic volume would lead to a negligible increase (< 0.5 dB) in road traffic noise from Wallace Street. Therefore, the impact of road traffic noise associated with the Project is predicted to be negligible and within the 2 dB allowable increase for land use developments as described in the RNP (DECCW 2011).

7 Conclusion

7.1 Overview

EMM has prepared a NIA suitable to accompany a development application to modify the Boral bulk cement depot operations (the depot) located on Wallace Street, Wauchope, NSW which has been in operation since 1968. This noise assessment has been prepared in accordance with the methodology outlined in the INP and associated Application Notes for the assessment of noise from existing industrial premises.

The subject of the modification is an increase in cement/flyash powder throughput of the depot from 15,000 tonnes per annum (tpa) to 60,000 tpa. There will be no changes to existing site infrastructure or the approved depot footprint.

Recent feedback from community consultation undertaken by Boral at neighbouring residences has been positive with regard to noise emissions. Boral spoke directly with 18 of 27 of the nearest residences to the Site and none of these were critical of the current operations. All of the 18 residences said they generally don't notice what occurs at the site each day.

7.2 Operational noise assessment

Project specific noise levels (noise criteria) have been established based on the results of ambient noise monitoring and methodology provided in the INP. The relevant INP noise criteria for the Depot was calculated to be $L_{Aeq,15\text{-}min}$ 47 dB.

Results of the operator-attended noise survey undertaken at the nearest residential location to the Depot indicate that operational noise levels from site can be up to 64 dB. This is above the relevant project specific noise level derived in accordance with the INP. It is noted that the attended noise survey at NM2 (opposite the Depot) captured a worst-case operational scenario where a train was being unloaded as well as trucks being loaded, exiting and entering the site. It is likely that operational noise levels from the Depot would be lower than the measured 64 dB for the majority of the time.

The INP Application Notes state that if PSNLs are not achieved from existing operations, a preliminary review of feasible and reasonable mitigation measures should be undertaken to identify potential opportunities to reduce existing operational noise levels.

The implementation of additional mitigation for the depot would not be considered feasible or reasonable, given the following:

- the nature of the activity and the way trucks are required to access the Depot;
- the limited operating hours (day only); and
- the relative proximity of the nearest residences.

The INP Application Notes state that if the existing premises cannot achieve PSNLs after the feasible and reasonable noise mitigation review, the proposed modification should not significantly increase the existing noise emissions.

The proposed increase in throughput will not change existing hours of operation or require any modifications or additions to existing site infrastructure at the Depot. Hence, there will be no change to the level of operational noise emissions from the site above the measured worst case during our site visit. The proposed modification is therefore in keeping with the INP application notes in that "the proposed modification should not significantly increase the existing noise emissions" after application of feasible and reasonable noise mitigation.

7.3 Road traffic noise assessment

The additional generated daily traffic movements would all be via Wallace Street to the south. Wallace Street is estimated to carry approximately 1,200 daily vehicle movements. The proposed modification would generate an approximate maximum 2% increase in the total daily traffic using Wallace Street, between the site and the Oxley Highway. This increase in traffic volume would lead to a negligible increase (< 0.5 dB) in road traffic noise from Wallace Street. Therefore, the impact of road traffic noise associated with the Project is predicted to be negligible and within the 2 dB allowable increase for land use developments as described in the RNP (DECCW 2011).

Appendix A

Unattended noise monitoring tables and charts

Table A.1 Unattended noise levels

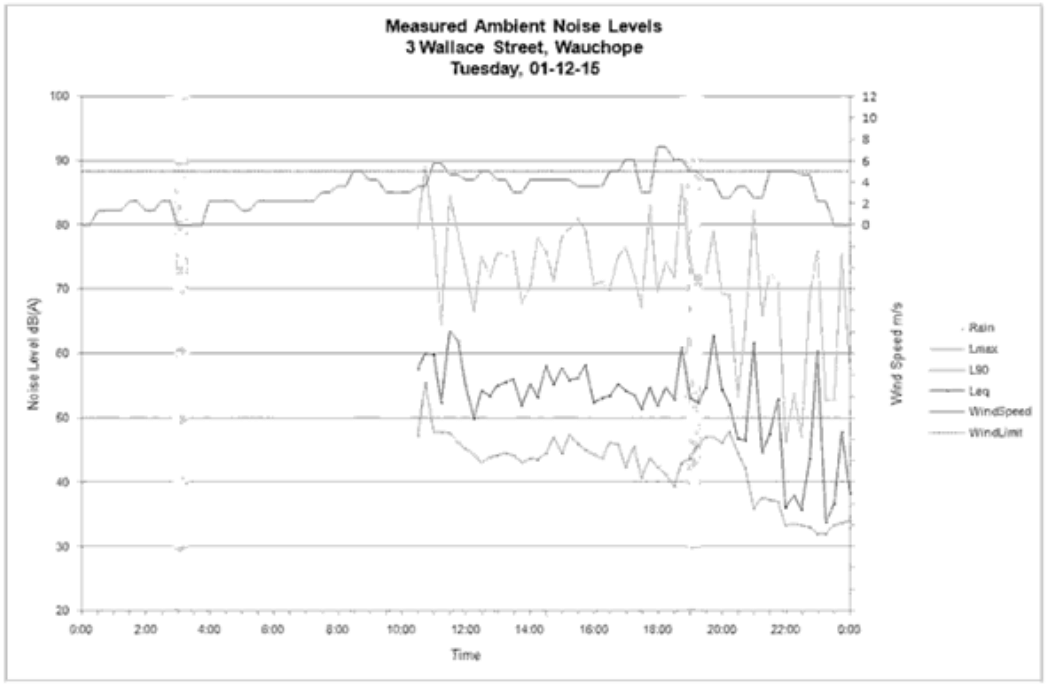
Date	ABL Day	ABL Evening	ABL Night	Leq 11hr Day	Leq 4hr Evening	Leq 9hr Night
Tuesday, 1-12-15	-	36	31	-	56	52
Wednesday, 2-12-15	44	44	33	59	57	53
Thursday, 3-12-15	44	37	30	58	54	52
Friday, 4-12-15	42	36	30	57	60	52
Saturday, 5-12-15	38	35	31	56	59	53
Sunday, 6-12-15	37	35	32	56	57	54
Monday, 7-12-15	41	37	33	62	58	51
Tuesday, 8-12-15	41	36	31	57	59	53
Wednesday, 9-12-15	43	36	32	56	58	51
Summary Values	**41**	**36**	**31**	**58**	**58**	**53**

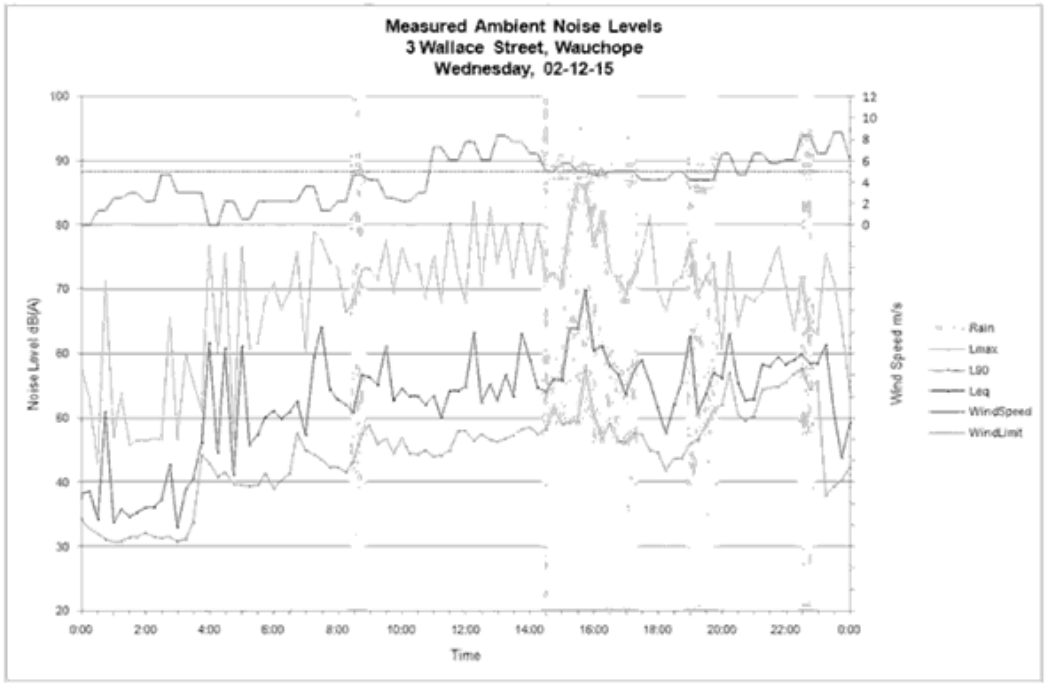
Notes: *1. Day period is between 7 am and 6 pm.*

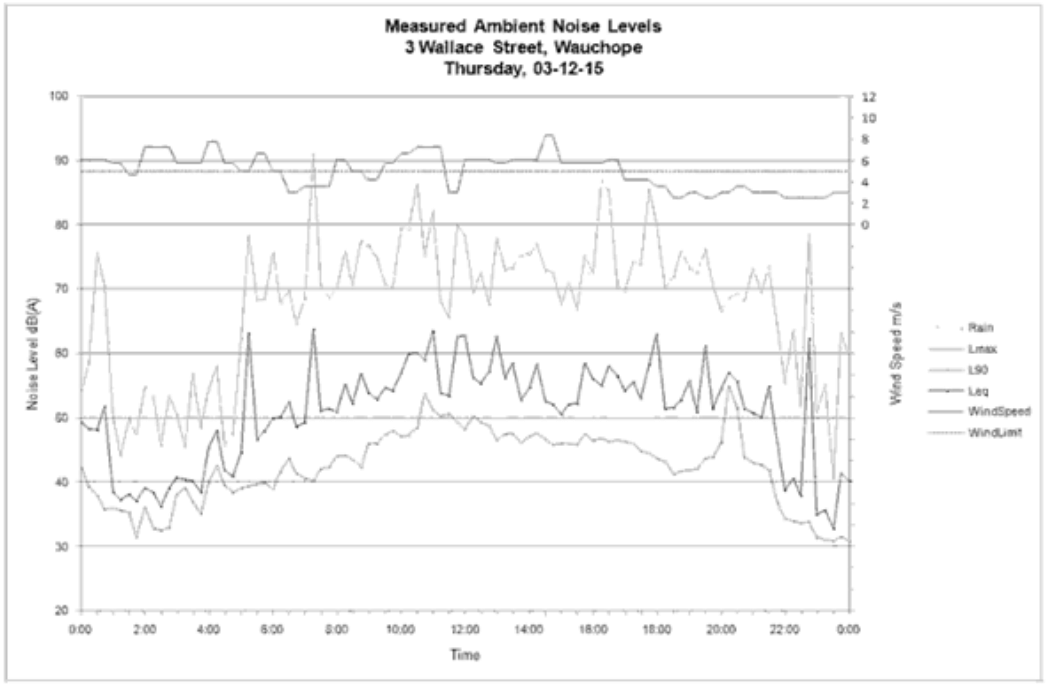
2. Evening period is between 6 pm and 10 pm.

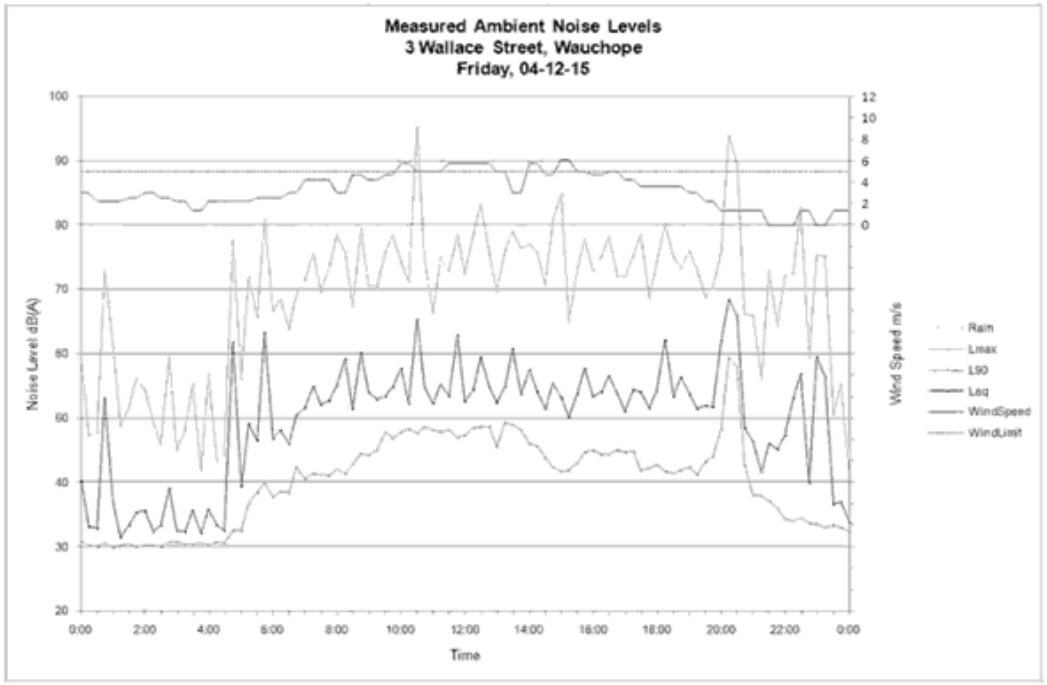
3. Night period is between 10 pm and 7 am.

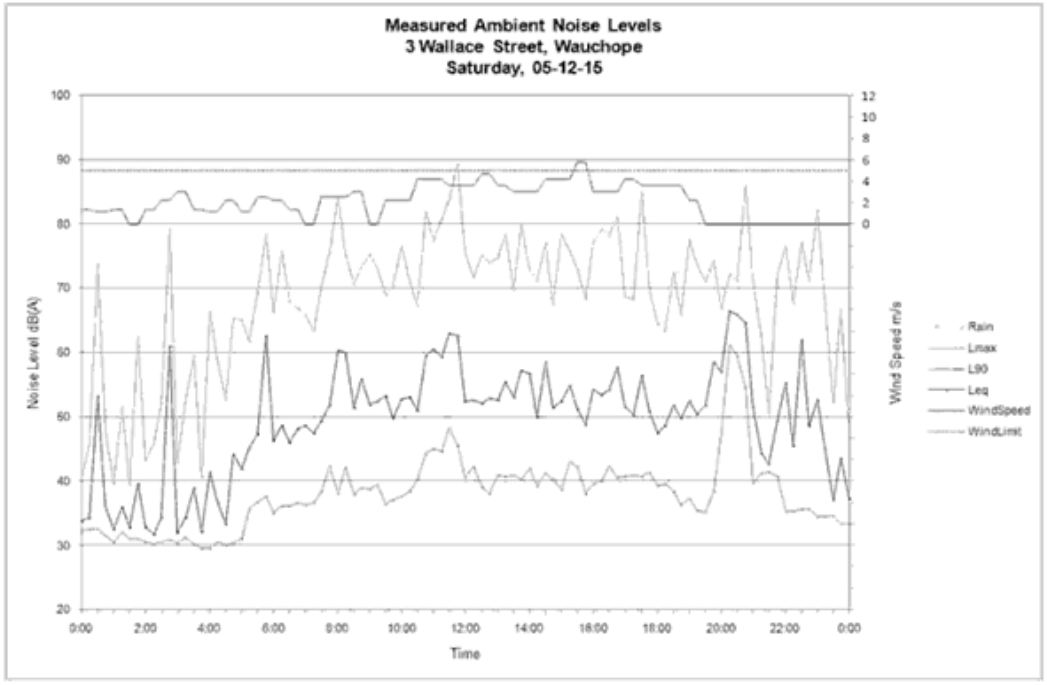
4. "-" indicates where meteorological conditions are inapplicable or where there is insufficient data to calculate a value.

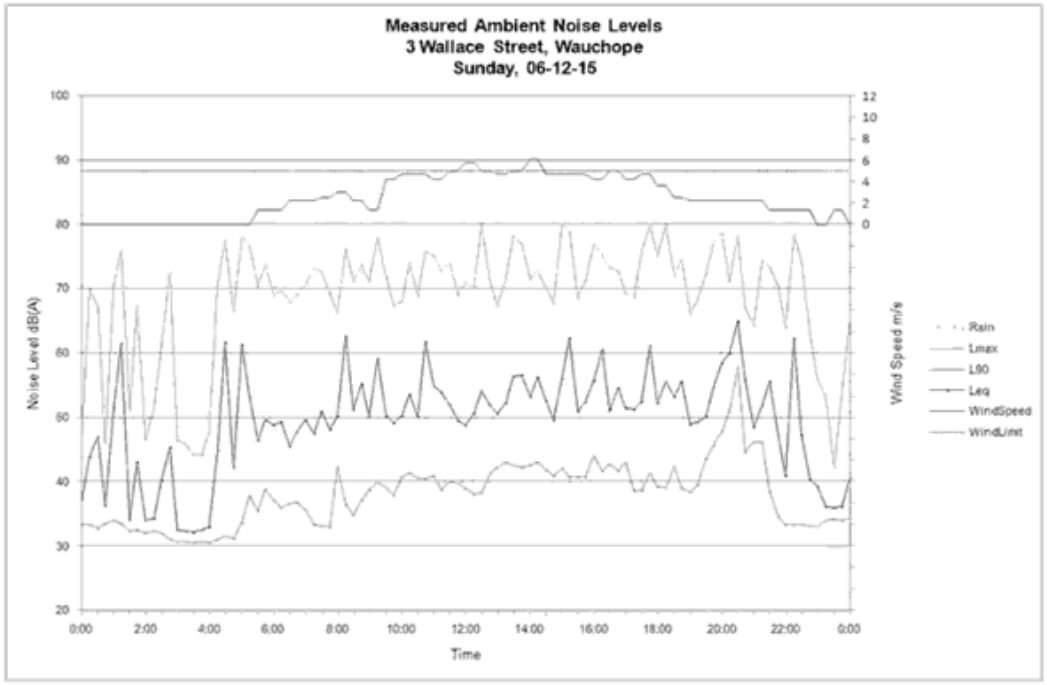

Measured Ambient Noise Levels
3 Wallace Street, Wauchope
Tuesday, 01-12-15
Noise Level dB(A)
Wind Speed m/s
Time
Rain
Lmax
L90
Leq
WindSpeed
WindLimit

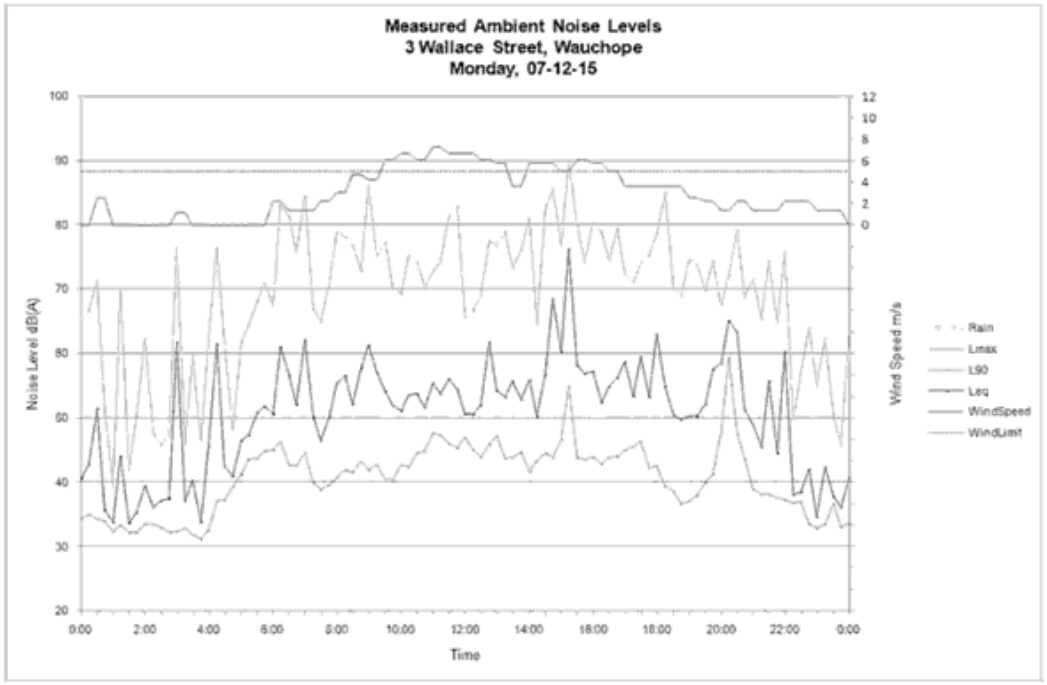

Measured Ambient Noise Levels
3 Wallace Street, Wauchope
Wednesday, 02-12-15
Noise Level dB(A)
Wind Speed m/s
Time
Rain
Lmax
L90
Leq
WindSpeed
WindLimit


Measured Ambient Noise Levels
3 Wallace Street, Wauchope
Thursday, 03-12-15
Noise Level dB(A)
Wind Speed m/s
Time
Rain
Lmax
L90
Leq
WindSpeed
WindLimit


Measured Ambient Noise Levels
3 Wallace Street, Wauchope
Friday, 04-12-15
Noise Level dB(A)
Wind Speed m/s
Time
Rain
Lmax
L90
Leq
WindSpeed
WindLimit


Measured Ambient Noise Levels
3 Wallace Street, Wauchope
Saturday, 05-12-15
Noise Level dB(A)
Wind Speed m/s
Time
Rain
Lmax
L90
Leq
WindSpeed
WindLimit


Measured Ambient Noise Levels
3 Wallace Street, Wauchope
Sunday, 06-12-15
Noise Level dB(A)
Wind Speed m/s
Time
Rain
Lmax
L90
Leq
WindSpeed
WindLimit


Measured Ambient Noise Levels
3 Wallace Street, Wauchope
Monday, 07-12-15
Noise Level dB(A)
Wind Speed m/s
Time
Rain
Lmax
L90
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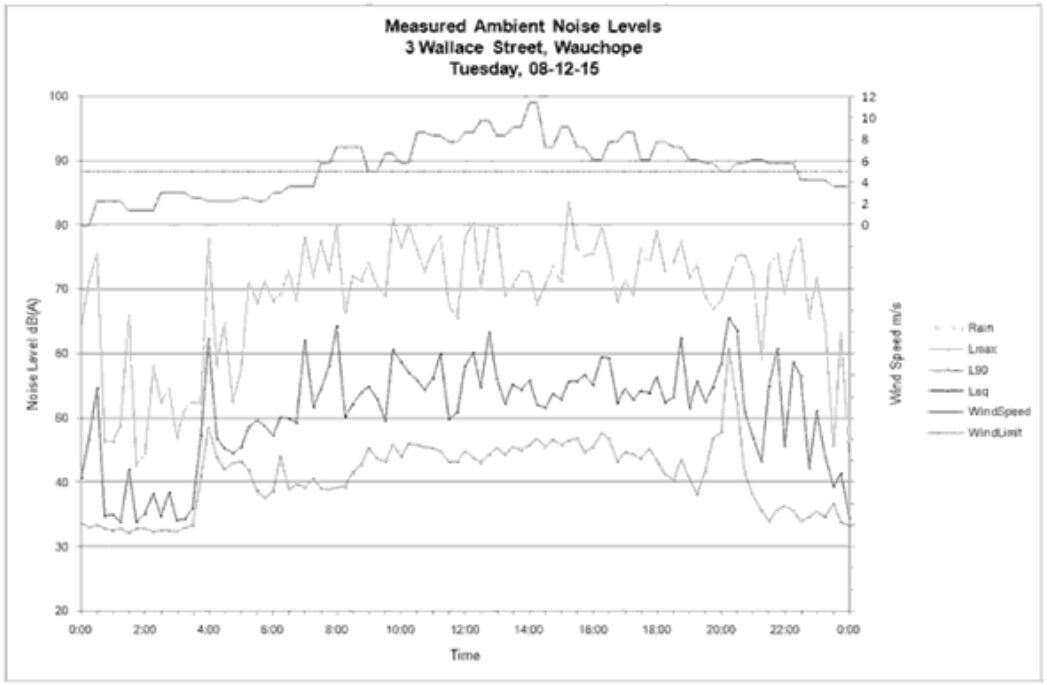
WindSpeed
WindLimit


Measured Ambient Noise Levels
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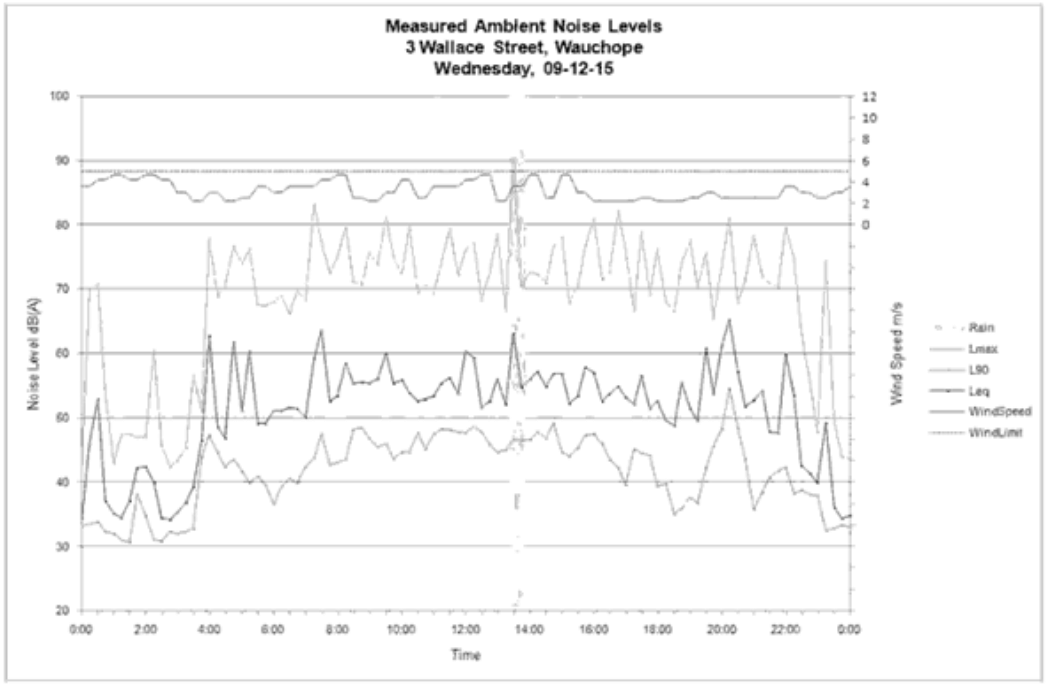
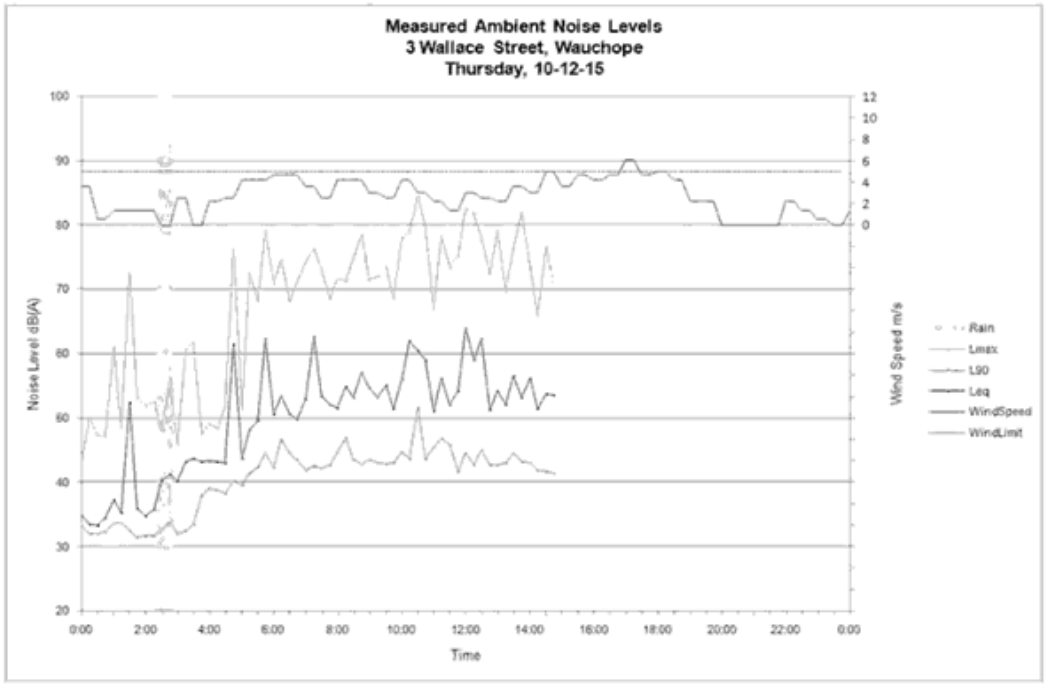
Tuesday, 08-12-15
Noise Level dB(A)
Wind Speed m/s
Time
Rain
Lmax
L90
Leq
WindSpeed
WindLimit


Measured Ambient Noise Levels
3 Wallace Street, Wauchope
Wednesday, 09-12-15
Noise Level dB(A)
Wind Speed m/s
Time
Rain
Lmax
L90
Leq
WindSpeed
WindLimit


Measured Ambient Noise Levels
3 Wallace Street, Wauchope
Thursday, 10-12-15
Noise Level dB(A)
Wind Speed m/s
Time
Rain
Lmax
L90
Leq
WindSpeed
WindLimit

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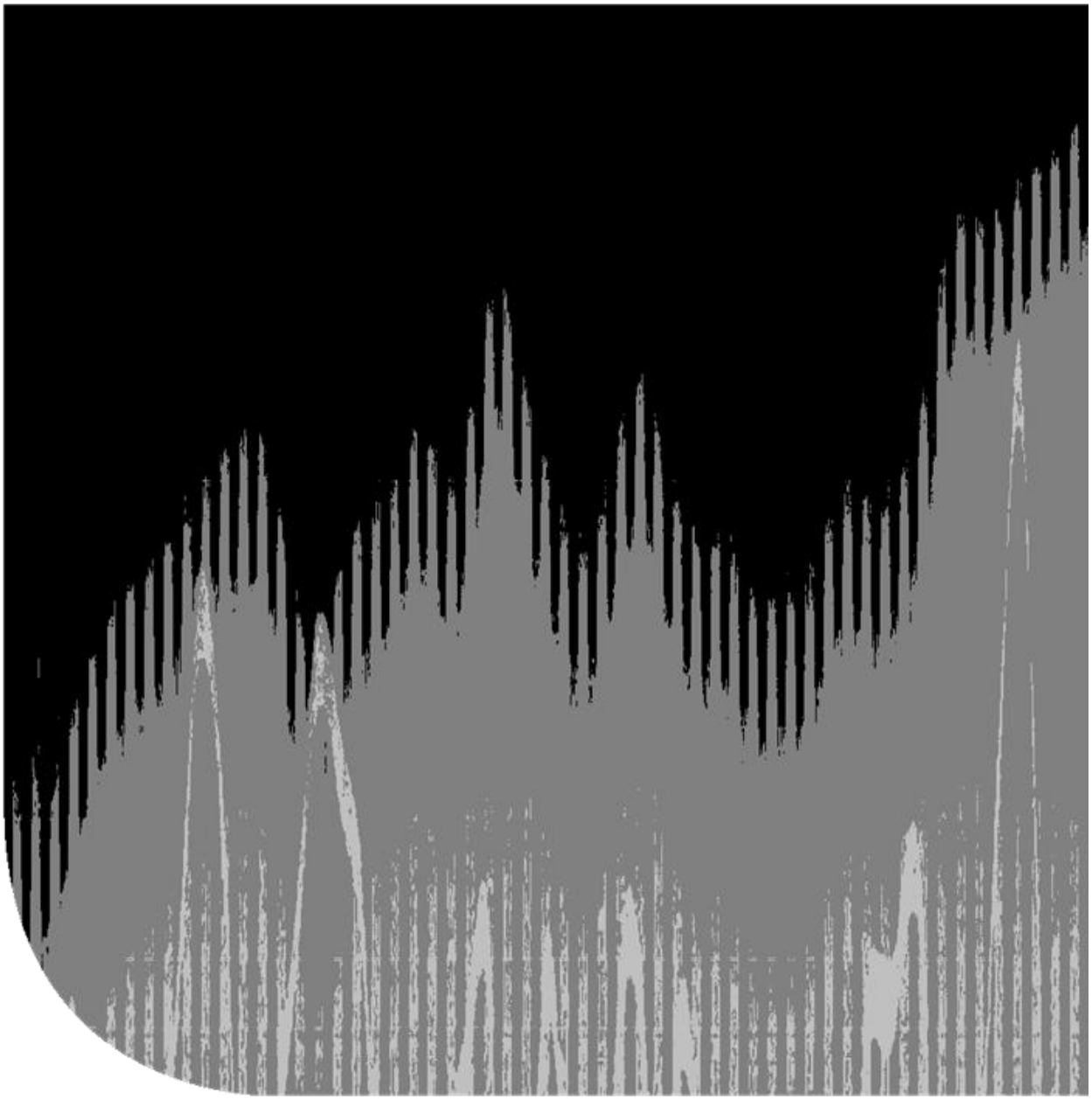

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Appendix C

Air Quality Assessment

Intended for
EMM Consulting Pty Ltd

Document type
Report

Date
February 2016

AIR QUALITY IMPACT ASSESSMENT BORAL WAUCHOPE BULK CEMENT DEPOT INCREASED THROUGHPUT

RAMBOLL ENVIRON

AIR QUALITY IMPACT ASSESSMENT
BORAL WAUCHOPE BULK CEMENT DEPOT INCREASED THROUGHPUT

Revision	Date	Made by	Checked by	Approved by	Signed
Final	25/02/2016	S Fishwick	R.Kellaghan	S.Fishwick	

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APPENDICES

EXECUTIVE SUMMARY

Ramboll Environ Australia Pty Ltd was commissioned by EMM Consulting Pty Limited (EMM) on behalf of Boral Cement Limited (Boral) to undertake an Air Quality Impact Assessment for the proposed increase in throughput at the Wauchope Bulk Cement Depot (the Depot). The Depot site is located in Wauchope on the Mid-North coast of NSW.

Approval is sought by Boral to increase the throughput at the Depot from 15,000 tonnes per annum to 60,000 tonnes per annum.

Emissions of particulate matter were estimated for existing and proposed increased throughput operations at the Depot site. Atmospheric dispersion modelling predictions of air pollution emissions was undertaken using the CALPUFF dispersion model.

The results of the dispersion modelling conducted for the Depot highlight the following:

- The predicted incremental and cumulative concentrations and dust deposition levels are well within NSW Environment Protection Authority assessment criteria and National Environment Protection Measure ambient air quality standards for all pollutants and averaging periods modelled;
- Predicted incremental concentrations are minor in comparison with the indicative ambient background concentrations;
- The magnitude of increase in concentrations/deposition rates between existing and proposed operations is very small relative to both ambient levels and applicable impact assessment criterion

On the basis of the modelling conducted, adverse air quality impacts arising from proposed increased throughput operations at the Depot are considered unlikely.

1. INTRODUCTION

Boral Cement Limited (Boral), a wholly owned subsidiary of Boral Limited, requires a minor increase in cement and fly ash powder throughput at the Wauchope Bulk Cement Depot (the Depot) to service increased demand in the local markets, and wider regional area, including the Pacific Highway Upgrade and new housing development areas along the mid north coast of New South Wales.

On behalf of Boral, EMM Consulting Pty Limited (EMM) has engaged Ramboll Environ Australia Pty Limited (Ramboll Environ) to complete an Air Quality Impact Assessment (AQIA) for the proposed increased in throughput at the Depot.

The AQIA is guided by the NSW Environment Protection Authority (NSW EPA, then NSW DEC) document *The Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* ("the Approved Methods for Modelling", DEC 2005).

Figure 1-1: Regional setting of the Depot Site

Source: EMM (2016)

2. PROJECT DESCRIPTION AND SETTING

2.1 Project description

The Depot is comprised of concrete hardstand, office and amenities, cement/flyash storage silos, storage sheds light vehicle parking and a surface water management system. Cement powder is currently transported in rail wagons from the Boral Berrima Cement Works. Each wagon holds between 54 and 58 tonnes of powder and deliveries consist of between 8 to 10 wagons, up to 3 days a week (Tuesday, Thursday and Saturday). Powder is discharged from the rail wagons to three silos for bulk storage and then into articulated 25 tonne powder tankers for road distribution.

Boral is seeking to submit a development application to permit an increase in cement and flyash powder throughput at the Depot from 15,000tonnes per annum (tpa) to 60,000tpa. Currently, only cement is received, stored and distributed from the Depot. It is now proposed to receive, store and distribute both cement and flyash.

Roads and Maritime Services (RMS) has advised that future specifications of road construction will require the use of a higher percentage of flyash. The use of flyash improves the strength and durability of concrete and it can also increase workability of cement while reducing water demand.

Boral obtains flyash from Eraring Power Station at Lake Macquarie and transports the product to the Depot in bulk tankers (the same size and type that are used for onward transport of cement powder). The potential frequency for the delivery of flyash would be a minimum of one tanker per week, and a maximum of two tankers per week. The incorporation of flyash would not increase the proposed maximum throughput of 60,000tpa as it would substitute cement powder. The flyash would be stored in one of the 130t silos.

An overview of the differences between existing and proposed operations is presented in **Table 2-1**.

Table 2-1: Comparison of existing and proposed development

Project component	Existing development	Proposed development
Throughput levels	Maximum of 15,000 tpa.	Maximum of 60,000tpa.
Employment	Direct employment of one full-time site manager and three full-time drivers	Direct employment of one full-time site manager, three full-time drivers and two part-time drivers.
Hours of operation	Monday to Friday – 7am to 5pm and Saturday – 7am to 3pm.	Monday to Friday – 7am to 5pm and Saturday – 7am to 3pm. The minor change is proposed to accommodate unloading of wagons when there are delays on the railway line.
Raw materials	Cement powder transported to the Depot from Berrima via rail.	Cement powder transported to the Depot by rail. Flyash will substitute, rather than be in addition to, cement powder and will be transported to the site by bulk tanker.
Raw materials transport	One train up to three times a week (Tuesday, Thursday and/or Saturday morning) each with between eight to 14 cement wagons.	One train up to three times a week (Tuesday, Thursday and/or Saturday morning) with a maximum of 10 cement wagons. Fly ash will be delivered by bulk tanker with an average of one tanker per week and a maximum of two tankers per week.
Product transport	Maximum of eight truck loads per day, or 16 daily truck movements. (average of three truckloads per day))	Maximum of 25 truck loads per day or 50 daily truck movements (average of eight truckloads per day)
Infrastructure	Three cement/flyash storage silos (one x 180 t and two x 130 t) with truck loading plant, storage shed, office/amenities and surface water management system.	No change.

2.2 Land use and topography

The Depot site (Depot) is located within the town of Wauchope on the mid-north coast of NSW. The Depot is adjacent to an Australian Rail Track Corporation (ARTC) rail spur and surrounded by a mixture of industrial and residential land uses.

The Depot is located in generally flat, low-lying terrain on the southern bank of the Hastings River. The elevation of the Depot site and surrounding residences is approximately 10m

Australian Height Datum (AHD). Further afield, the topography increases gradually to the south of Wauchope.

A three-dimensional representation of the local topographic features is illustrated in **Figure 2-1**. A vertical exaggeration of 2 has been applied to assist with topography visualisation.

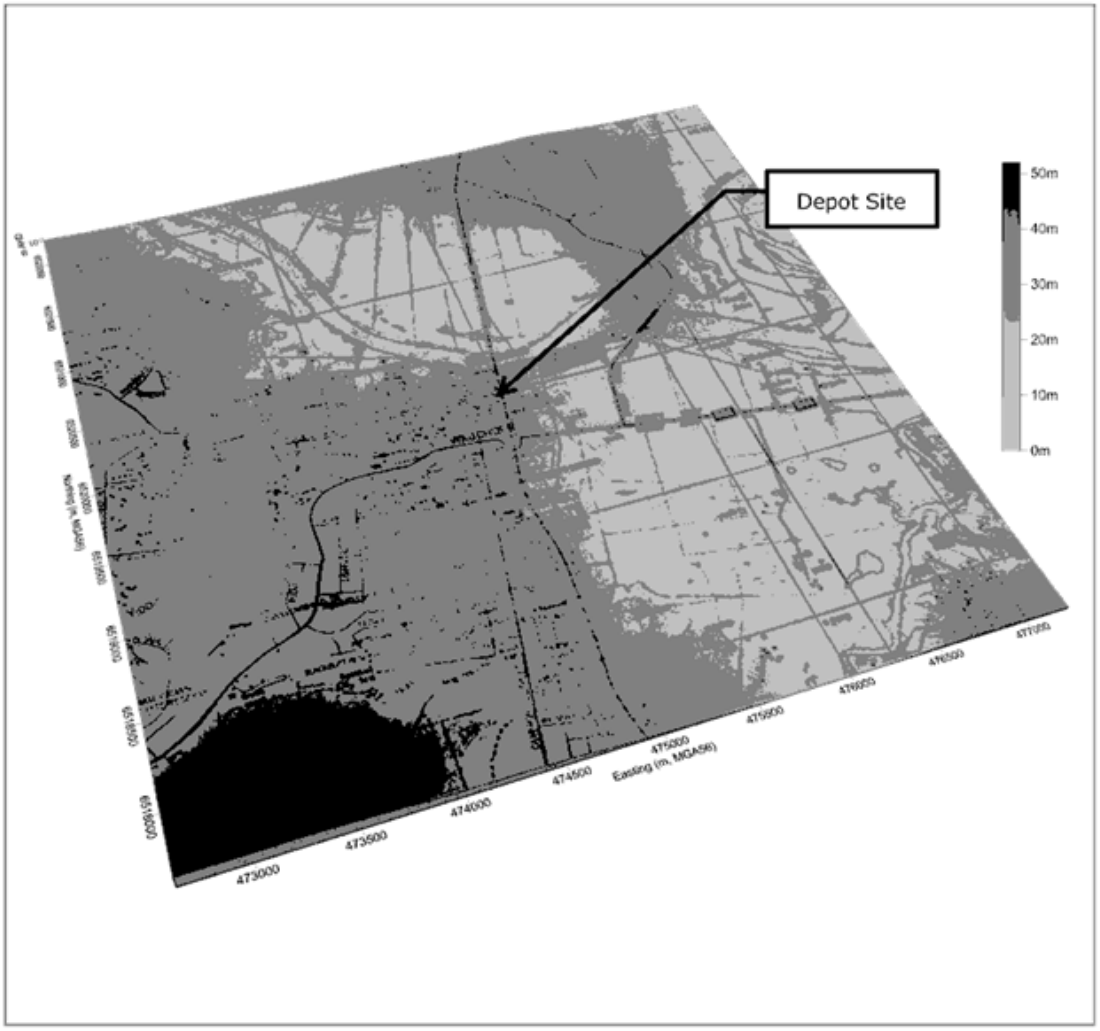

Figure 2-1: Local topographic features – Wauchope

2.3 Nearest residences

The Depot is located in the vicinity of a number of residential and industrial properties. The closest receptors to the Depot have been identified and selected as assessment locations for this report with relevant details listed within **Table 2-2**. **Figure 2-2** illustrates the location of these sensitive receptor locations relative to the Depot.

Table 2-2: Details of surrounding receptor locations

Receptor ID	Location (m, MGA56)		Elevation (m, AHD)
	Easting	Northing	
R1	474922	6520072	8
R2	474920	6520057	8
R3	474920	6520044	9
R4	474915	6520028	9
R5	474917	6520013	9
R6	474910	6519997	9
R7	474909	6519982	9
R8	474906	6519969	9
R9	474904	6519955	9
R10	474906	6519937	9
R11	474895	6519903	10
R12	475038	6519881	8
R13	475041	6519894	8
R14	475044	6519912	8
R15	475047	6519930	8
R16	475050	6519946	8
R17	475053	6519958	8
R18	475055	6519972	8
R19	475057	6519993	8
R20	475060	6520005	8
R21	475063	6520028	8
R22	475026	6520049	8
R23	474957	6520030	8
R24	474934	6519931	9

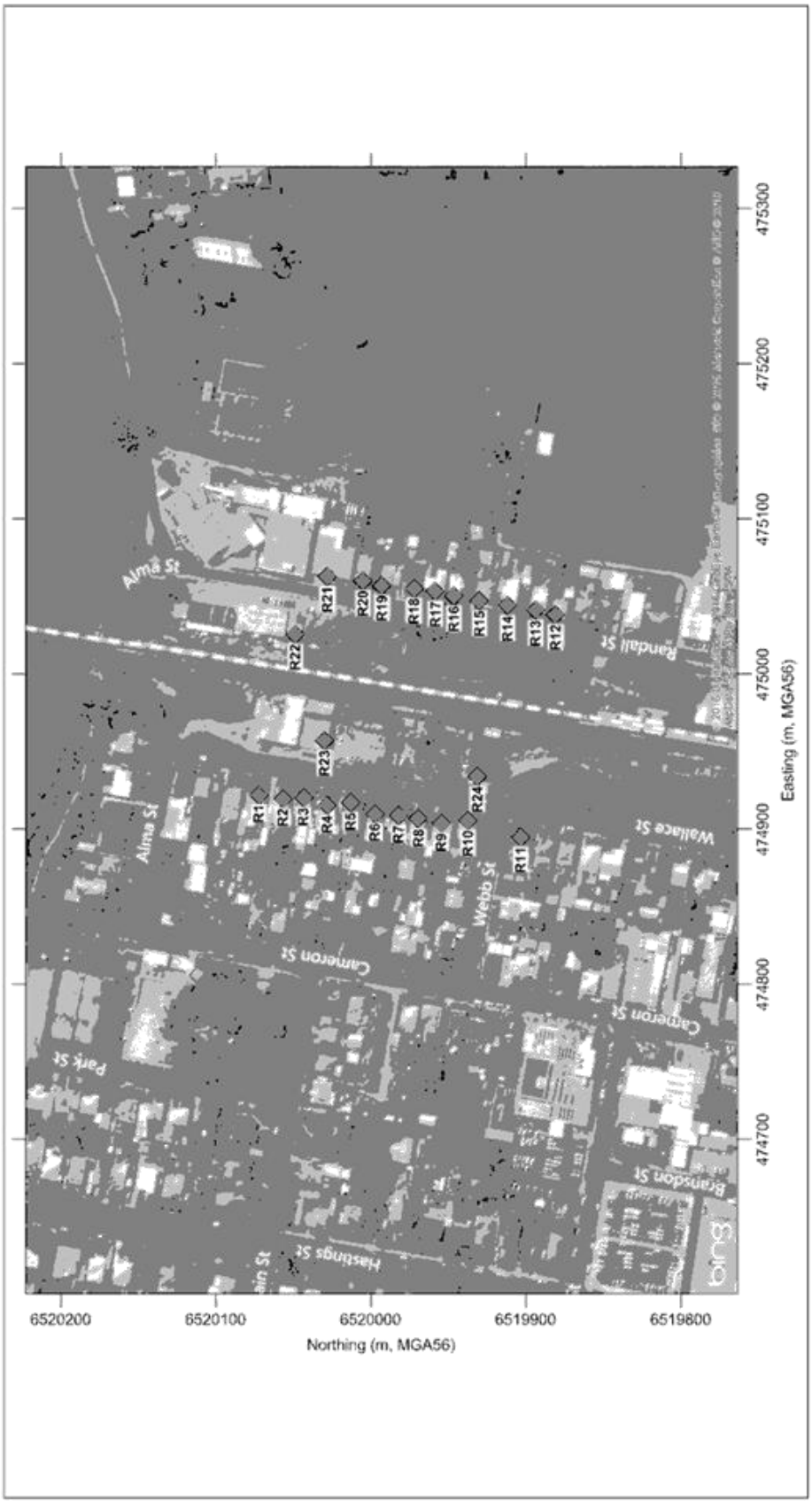

Figure 2-2: Surrounding receptor locations

3. AIR QUALITY ASSESSMENT CRITERIA

The Depot must demonstrate compliance with the impact assessment criteria outlined in the Approved Methods for Modelling (DEC, 2005). The impact assessment criteria are designed to maintain ambient air quality that allows for the adequate protection of human health and well-being.

The Approved Methods for Modelling specifies that the impact assessment criteria for 'criteria pollutants[1]' are applied at the nearest existing or likely future off-site sensitive receptor and compared against the 100th percentile (i.e. the highest) dispersion modelling prediction. Both the incremental and cumulative impacts need to be presented, requiring consideration of existing ambient background concentrations for the criteria pollutants assessed.

For this assessment, focus has been given to the emissions of primary particulate matter (PM), including total suspended particulate matter (TSP) and particulate matter with an equivalent aerodynamic diameter of less than 10 microns (PM_{10}) and 2.5 microns ($PM_{2.5}$). Dust deposition, as a result of the TSP emissions, is also assessed.

3.1 Goals applicable to airborne particulate matter

Air quality limits for PM are typically given for various particle size metrics, including TSP, PM_{10} and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ require specific consideration due to their health impact potential.

The impact assessment criteria for TSP and PM_{10} are prescribed in the Approved Methods for Modelling, however $PM_{2.5}$ is not included. Under the National Environment Protection (Ambient Air Quality) Measure (AAQ NEPM), ambient air quality standards were initially prescribed for 24-hour PM_{10} concentrations (NEPC, 1998). The AAQ NEPM was varied in 2003 to include 'advisory reporting standards' for $PM_{2.5}$ (NEPC, 2003) and again in 2015 to adopt these 'advisory reporting standards' as formal standards for $PM_{2.5}$ (NEPC, 2015). The latest varied AAQ NEPM also introduces an annual reporting standard for PM_{10} and establishes long term goals for $PM_{2.5}$, to be achieved by 2025 (NEPC, 2015).

The purpose of the AAQ NEPM is to attain *'ambient air quality that allows for the adequate protection of human health and wellbeing'*, assessed through air quality monitoring data collected and reported by each State and Territory. The AAQ NEPM standards are not necessarily applicable to the assessment of impacts of emissions sources on individual sensitive receptors.

For the purpose of this report, impacts are preferentially assessed against the NSW EPA's impact assessment criteria. In the case of $PM_{2.5}$, where impact assessment criteria do not exist, impacts are reported against the latest AAQ NEPM standards.

The air quality criteria applied for PM in this assessment are presented in **Table 3-1**.

[1] 'Criteria pollutants' is used to describe air pollutants that are commonly regulated and typically used as indicators for air quality. In the Approved Methods the criteria pollutants are TSP, PM_{10}, NO_2, SO_2, CO, ozone (O_3), deposition dust, hydrogen fluoride and lead.

Table 3-1: Impact assessment criteria for PM

Pollutant	Averaging Period	Concentration (µg/m³)	Reference
TSP	Annual	90	NSW EPA[1][2]
PM_{10}	24 hours	50	NSW EPA[1]
	Annual	30	NSW EPA[1]
$PM_{2.5}$	24 hours	25	NEPM[3]
	Annual	8	NEPM[3]

Note 1: NSW DEC, 2005 *Approved Methods for Modelling*

Note 2: NSW EPA impact assessment criterion based on the subsequently rescinded National Health and Medical Research Council (NHMRC) recommended goal

Note 3: NEPC, 2015, Variation to the *National Environment Protection (Ambient Air Quality) Measure,*

3.2 Dust deposition criteria

Nuisance dust deposition is regulated through the stipulation of maximum permissible dust deposition rates. The NSW EPA impact assessment goals for dust deposition are given in **Table 3-2** illustrating the allowable increment in dust deposition rates above ambient (background) dust deposition rates which would be acceptable so that dust nuisance could be avoided.

Table 3-2: Impact assessment criteria for dust deposition

Averaging Period	Maximum Increase in Deposited Dust Level	Maximum Total Deposited Dust Level
Annual	2 g/m²/month	4 g/m²/month

Source: Approved Methods for Modelling, DEC 2005

4. CLIMATE AND DISPERSION METEOROLOGY

Meteorological mechanisms affect the generation, dispersion, transformation and eventual removal of pollutants from the atmosphere. Dust generation rates are particularly dependent on wind energy, the moisture budget, which is a function of rainfall and evaporation rates, material movement, and activity.

The extent to which pollution will accumulate or disperse in the atmosphere is dependent on the degree of thermal and mechanical turbulence within the boundary layer (the general term for the layer of the atmosphere adjacent to the earth's surface) and other factors such as wind speed and direction.

Thermal turbulence is driven by incoming solar radiation and surface heating during the daylight hours. Mechanical turbulence is associated with wind speed, in combination with the surface roughness of the surrounding area. The stability of the atmosphere increases with a decrease in thermal and mechanical turbulence.

Air pollutant dispersion consists of vertical and horizontal components of motion. Vertical motion is defined by the stability of the atmosphere (e.g. a stable atmosphere has low vertical dispersion potential) and the depth of the surface-mixing layer (typically defined as the vertical distance between the earth's surface and a temperature inversion during the day).

The horizontal dispersion of pollution in the boundary layer is primarily a function of the wind field (i.e., wind speed and direction). The wind speed determines both the distance of downwind transport and the rate of dilution as a result of plume 'stretching'. The wind direction, and the variability in wind direction, determines the general path pollutants will follow and the horizontal spread of the plume.

Airborne particulate concentration levels, therefore, fluctuate in response to changes in atmospheric stability, mixing depth and winds (Oke, 2003; Sturman and Tapper, 2006; Seinfeld and Pandis, 2006).

In order to characterise the dispersion meteorology of the Wauchope region, long-term climate records, time-resolved meteorological monitoring data and meteorological modelling for the region was drawn upon, as documented in the following sections.

4.1 Meteorological data and selected year

No meteorological monitoring is conducted at the Depot, nor is a requirement of licenced operating conditions. The NSW EPA specifies in Section 4.1 of the Approved Methods for Modelling that meteorological data representative of a site should be used in the absence of actual onsite observations. The data should cover a period of at least one year with a percentage completeness of at least 90%. Depot representative data can be obtained from either a nearby meteorological monitoring station or synthetically generated using the CSIRO prognostic meteorological model The Air Pollution Model (TAPM).

In the absence of onsite meteorological monitoring data, a combination of meteorological modelling and regional monitoring datasets were drawn upon. Details regarding the meteorological modelling conducted are presented in this section. The following regional data sets were used in the meteorological analysis:

- 1-hour average meteorological data from the Bureau of Meteorology (BoM) Automatic Weather Stations (AWS) at Port Macquarie Airport (Station Number 060139) and Taree Airport (Station Number 060141) recorded between 2010 and 2014; and
- Long-term climate statistics (1995 to 2014) obtained from the BoM Port Macquarie Airport AWS.

Wind roses been generated from recorded wind speed and direction data at the Port Macquarie Airport AWS and the Taree Airport AWS for the period between 2010 and 2014. These figures are presented within **Appendix 1** and indicate that minimal inter-annual variation in winds

occurred across this period. On the basis of illustrated inter-annual consistency in recorded wind speed and direction the most recent complete calendar year at the time of modelling (2014) has been adopted as the modelling period for this assessment.

4.2 Meteorological modelling

Due to the proximity to the coastline of the Depot and lack of local observations, the CALPUFF (Version 6.2) modelling system has been selected for application in this assessment.

The CALPUFF Modelling system comprises three main components: the CALMET meteorological model, the CALPUFF air dispersion model and the CALPOST post-processor, in addition to a large set of pre-processing programs designed to interface the model to standard routinely available meteorological and geophysical databases.

The CALMET meteorological model develops wind and temperature fields on a three-dimensional gridded modelling domain (Scire *et. al.*, 2000). Associated two dimensional fields such as mixing height, surface characteristics, and dispersion properties are also included in the file produced by CALMET. The interpolated wind field is then modified within the model to account for the influences of topography, as well as differential heating and surface roughness associated with different land uses across the modelling domain. These modifications are applied to the winds at each grid point to develop a final wind field. The final wind field thus reflects regional airflow patterns in addition to the influences of local topography and land uses.

The CALMET model can integrate hourly average surface meteorological data as input, including wind speed, wind direction, mixing depth, cloud cover, temperature, relative humidity, pressure and precipitation. Additionally, CALMET can use concurrent upper air meteorological data containing similar parameters in order to calculate the conditions at heights above ground level.

Hourly-average surface meteorological conditions recorded at the two BoM stations listed in **Section 4.1** were processed for input into CALMET. In the absence of a suitably complete upper air monitoring dataset, the CSIRO's TAPM software was used to generate the upper air meteorological parameters required for input within CALMET. TAPM was configured and run in accordance with the Section 4.5 of the Approved Methods for Modelling. The configuration of CALMET using a combination of Prognostic Model output data from TAPM and surface observations is in general accordance with the Hybrid Mode recommended in TRC (2011).

The configuration of the CALMET model applied within this assessment is outlined in **Table 4-1**.

Table 4-1: CALMET Grid Settings and Input Data	
CALMET Grid Settings and Input Data	
Meteorological grid domain	45 km x 45 km
Meteorological grid resolution	300 m
Vertical resolution (cell heights)	10 (0 m, 20 m, 40 m, 80 m, 160 m, 320 m, 640 m, 1,200 m, 2,000 m, 3,000 m, 4,000 m,)
Modelling year	1 January 2014 to 31 December 2014
Surface meteorological stations	Port Macquarie Airport (BoM) Taree Airport (BoM)
Upper air meteorological stations	TAPM 3-Dimensional Prognostic Dataset
Land Use	Generated from aerial photography and topographic maps
Topography	SRTM-3 Topography Data
CALMET Radius Parameter Values	
TERRAD	4 km
R	10 km
RMAX	25 km

4.3 Prevailing wind regime

The annual wind rose for the Depot , generated from the CALMET-predicted hourly wind speed and direction, is presented in **Figure 4-1**. The CALMET predicted winds are dominated by westerly and northeasterly airflow. The annual average CALMET wind speed for the 2014 modelling period was 2.8 m/s, with a frequency of calm conditions (wind speeds less than 0.5 m/s) predicted to be 10.7%.

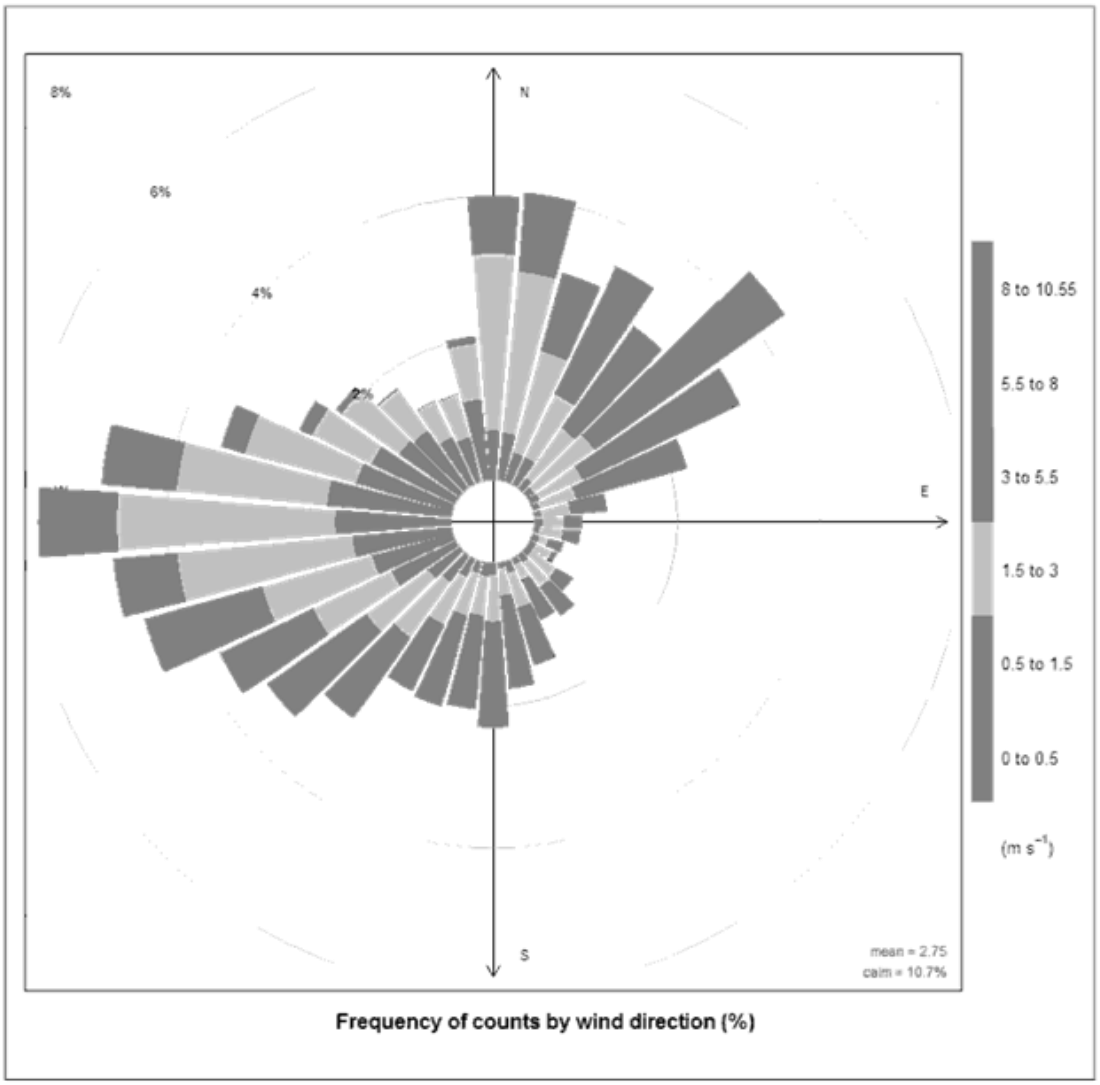

Figure 4-1: CALMET-Predicted Annual Average Wind Rose – Depot Site – 2014

4.4 Seasonal and diurnal wind regime

Seasonal and diurnal (dividing the day into night and day) wind roses for the CALMET-predicted meteorological dataset are presented within **Appendix 1**.

Seasonal variation in wind speed and direction is evident in the predicted dataset for the Depot site. During autumn and winter, westerly winds dominate, with only minor air flow experienced from other directions. In spring and summer the northeast component becomes dominant. Average wind speed is lowest during autumn and highest in summer. The occurrence of calm conditions is greatest during autumn.

During night-time hours, wind speeds are lower, calms are higher and winds from the west and north are dominant. During the day, winds occur predominately from the northeast.

4.5 Ambient temperature

Monthly mean minimum temperatures are in the range of 7°C to 18°C, with mean maxima of 19°C to 28°C, based on the long-term average record from the BoM Port Macquarie Airport AWS. Peaks occur during summer months with the highest temperatures typically being recorded between December and February. The lowest temperatures are usually experienced during June and July.

The CALMET-generated 2014 Depot site temperature dataset has been compared with long-term trends recorded at the Port Macquarie Airport AWS to determine the representativeness of the dataset. **Figure 4-2** presents the monthly variation in predicted temperature during 2014 compared with the mean, minimum and maximum temperatures from Port Macquarie Airport. There is good agreement between temperatures predicted for the Depot site during 2014 and the recorded historical trends, indicating that the dataset is representative of conditions likely to be experienced in the region.

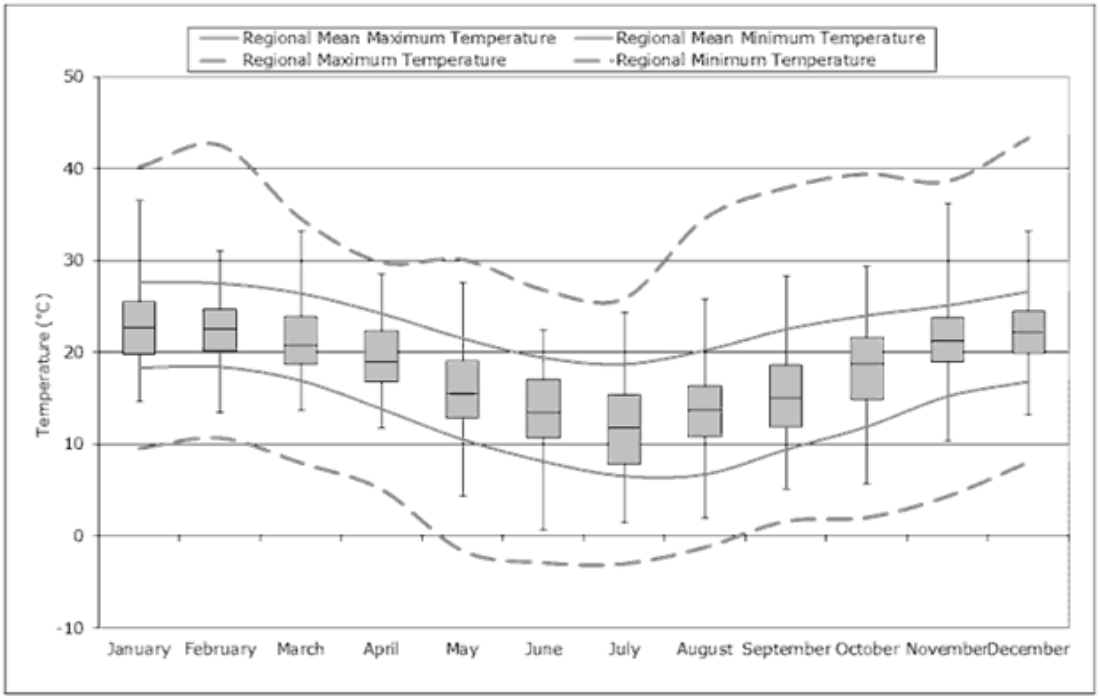

Figure 4-2: Temperature Comparison between CALMET Wauchope 2014 dataset and Historical Averages (1995-2015) – Port Macquarie Airport

Note: 2014 CALMET predictions at the Wauchope Depot site are illustrated by the 'box and whisker' indicators. Boxes indicate 25th, median and 75th percentile temperature values while upper and lower whiskers indicate maximum and minimum values. Maximum and minimum temperatures from long-term measurements at Port Macquarie Airport are depicted as line graphs.

4.6 Rainfall

Precipitation is important to air pollution studies since it impacts on dust generation potential and represents a removal mechanism for atmospheric pollutants.

Based on historical data recorded at Port Macquarie, the area is characterised by moderate to high rainfall, with a mean annual rainfall of approximately 1,400mm, and an annual rainfall range between 990mm and 2,010mm. Rainfall is notably lower between the months of July and October than the remainder of the year. According to the long term records, an average of 144 rain days occur per year.

To provide a conservative (upper bound) estimate of the airborne particulate matter concentrations occurring due to the Depot, wet deposition (removal of particles from the air by rainfall) was excluded from the dispersion modelling simulations undertaken in this report.

4.7 Atmospheric stability

Atmospheric stability refers to the degree of turbulence or mixing that occurs on the atmosphere and is a controlling factor in the rate of atmospheric dispersion of pollutants.

The Monin-Obukhov length (L) provides a measure of the stability of the surface layer (i.e. the layer above the ground in which vertical variation of heat and momentum flux is negligible; typically about 10 % of the mixing height). Negative L values correspond to unstable atmospheric conditions, while positive L values correspond to stable atmospheric conditions. Very large positive or negative L values correspond to neutral atmospheric conditions.

Figure 4-3 illustrates the seasonal variation of atmospheric stability derived from the Monin-Obukhov length predicted by CALMET for the Depot site. The diurnal profile presented illustrates that atmospheric instability increases during daylight hours as convective energy increases, whereas stable atmospheric conditions prevail during the night-time. This profile indicates that the potential for atmospheric dispersion of emissions would be greatest during day time hours and lowest during evening through to early morning hours.

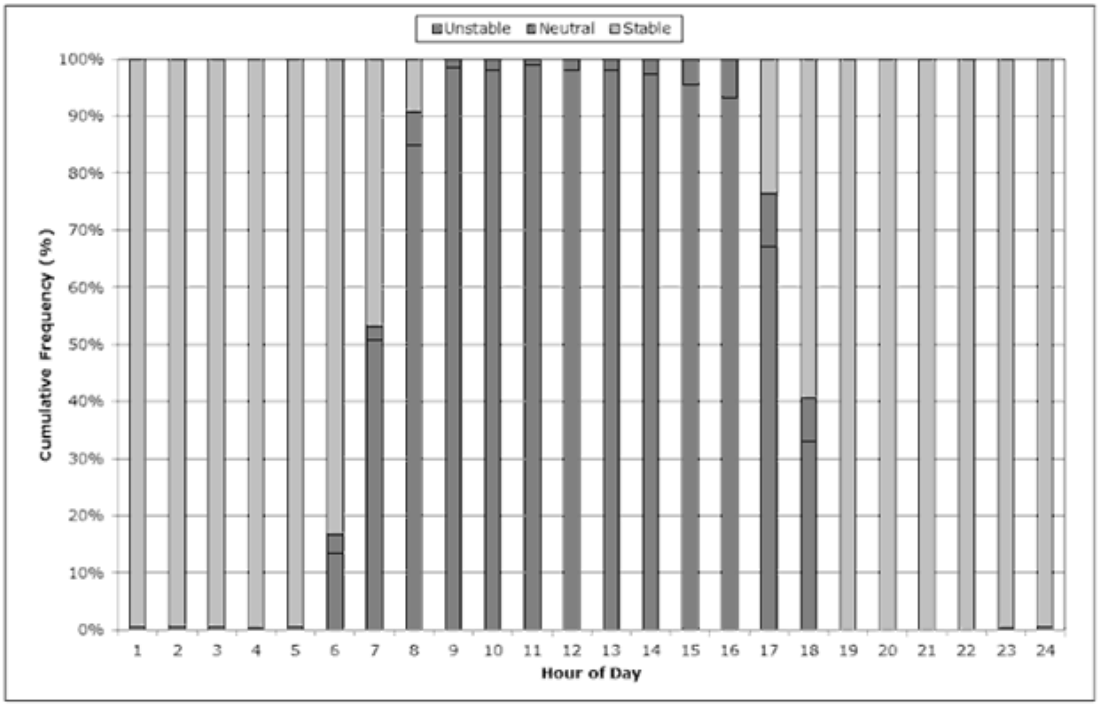

Figure 4-3: CALMET-predicted Diurnal Variation in Atmospheric Stability– Depot Site 2014

4.8 Mixing depth

The diurnal variation in CALMET-predicted atmospheric mixing depth for the Depot site is illustrated in **Figure 4-4**. It can be seen that greater boundary layer depths are experienced during the day time hours, peaking in the mid to late afternoon. Higher day-time wind velocities and the onset of incoming solar radiation increases the amount of mechanical and convective turbulence in the atmosphere. As turbulence increases so too does the depth of the boundary layer, generally contributing to higher mixing depths and greater potential for atmospheric dispersion of pollutants.

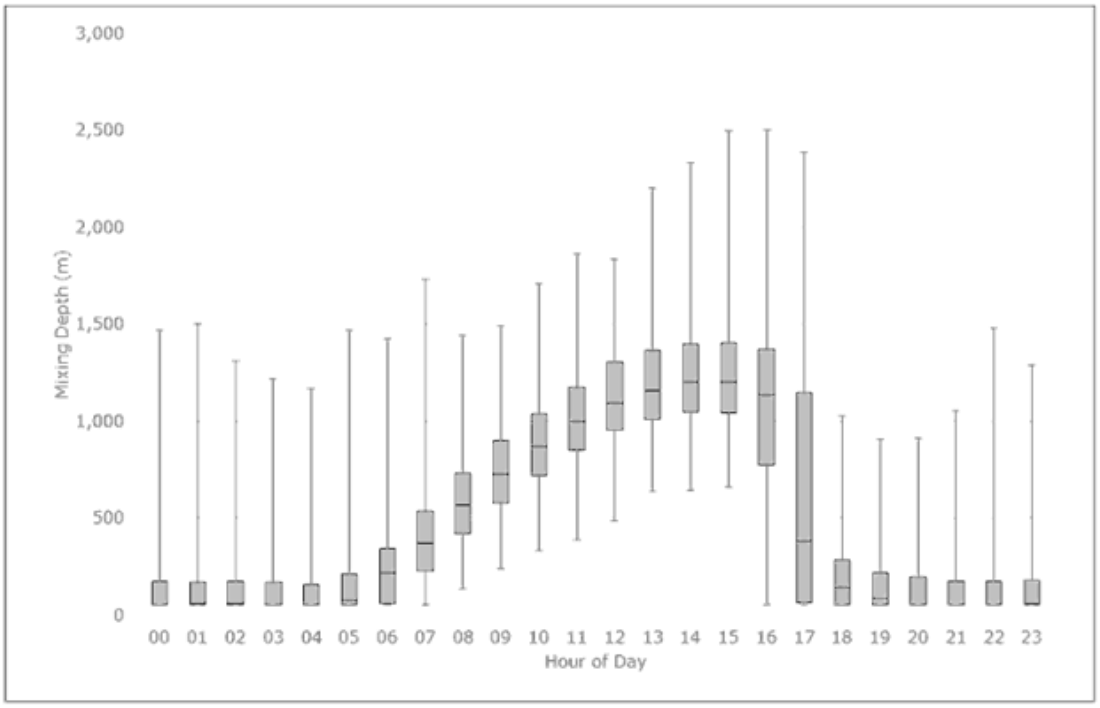

Figure 4-4: CALMET-predicted Diurnal Variation in Atmospheric Mixing Depth – Depot Site

Note: Boxes indicate 25th, Median and 75th percentile of CALMET-predicted mixing height data while upper and lower whiskers indicate maximum and minimum values.

5. EXISTING AIR QUALITY ENVIRONMENT

The quantification of cumulative air pollution concentrations and the assessment of compliance with ambient air quality limits necessitate the characterisation of baseline air quality. Given that particulate matter emissions represent the primary pollutant of concern generated by the Depot, it is pertinent that existing sources and ambient air pollutant concentrations of these pollutants are considered.

5.1 Existing local sources of atmospheric emissions

Review of the National Pollutant Inventory (NPI) database and NSW EPA Environment Protection Licence (EPL) register lists the following sources of air pollution emissions in the surrounding 10 km from Depot:

- Volcanic Resources Quarry, 129 Milligans Road, Wauchope – approximately 9.5 km south-southwest of the Depot;
- Sungrow Australia Dairy Processing, 2 Randall Street Wauchope – approximately 0.2 km northeast of the Depot;
- Hansen Construction Materials, Quarry Road, Wauchope, - approximately 4.7 km west-southwest of the Depot;
- Hansen Construction Materials, Sancrox Road, Wauchope, - approximately 8.0 km east-northeast of the Depot; and
- Port Macquarie Council Sewage Treatment Works, Bain Steet, Wauchope – approximately 1.3 km west-northwest of the Depot.

It is not considered that any of the above listed operations would contribute significantly to cumulative concentrations in the vicinity of the Depot, due to either the nature of the operations or the distance from the Depot. Review of the EPL issued for the adjacent Sungrow Australia Dairy Processing facility highlights that key emissions from that facility are related to odour, rather than particulate matter emissions.

In addition to the above operations, the following 'background' sources may also contribute to particulate matter emissions in the vicinity of the Depot site:

- Dust entrainment due to vehicle movements along unsealed and sealed public roads;
- Petrol and diesel emission from vehicle movements along public roads;
- Wind generated dust from exposed areas within the surrounding region;
- Episodic emissions from local vegetation burning (e.g. grass and bush fires);
- Seasonal emissions from household wood burning fires.

More remote sources which contribute episodically to suspended particulates in the region include dust storms and bushfires. Whereas dust storms predominately contribute primary particulates from mechanical attrition, bushfires are a source of fine particulates including both primary particulates and secondary particulates formed by atmospheric gas to particle conversion processes.

5.2 Monitoring data available for baseline air quality characterisation

No ambient air quality monitoring is undertaken at the Depot site, nor are there any publicly available monitoring data sources for the surrounding region at the time of reporting with which to quantify existing concentrations of TSP, PM_{10} or $PM_{2.5}$.

However, during the Environmental Assessment stage of the Pacific Highway upgrade between Sapphire and Woolgoolga, the NSW Roads and Traffic Authority (RTA, now RMS) commissioned the establishment of a real-time air quality monitoring station at Korora, approximately 140 km north-northeast of the Depot. This air quality monitoring station was configured to record a range of meteorological and air quality parameters, including PM_{10} and $PM_{2.5}$.

The results of this monitoring were published in Working Paper 8 of the Environmental Assessment for the Sapphire and Woolgoolga (RTA, 2007) and have been referenced in this assessment.

The monitoring station was situated approximately 20 m from the Pacific Highway, 1 km west of the Pacific Ocean and 5 km north-northeast of the central business district of Coffs Harbour. The section of the Pacific Highway was marked with a 100 km/hr speed limit. Monitoring was conducted for the period between 14 October 2005 and 31 January 2006.

The following points are made regarding the Korora RTA monitoring dataset:

- Monitoring was conducted during the Christmas-New Year period, with traffic rates along the Pacific Highway higher than at other times of the year; and
- Monitoring was conducted during summer, where a higher frequency of sea-breeze occurs. Consequently, the influence of sea salt aerosols on recorded particulate matter concentrations, in particular $PM_{2.5}$, may be above average.

Furthermore, the Working Paper 8 (RTA, 2007) states the following:

Due to the proximity of the monitoring site to the Pacific Highway, the concentrations of air quality parameters measured include traffic emissions. Therefore, the concentrations detected are likely to be higher than the background levels for the local area and will give a conservative indication of the air quality experienced on the NSW north coast.

Consequently, it is considered that the adoption of the Korora RTA monitoring dataset will provide a conservative estimate of baseline air quality in area surrounding the Depot. In the absence of a more recent, local air quality monitoring dataset, it is considered that the use of the Korora RTA monitoring dataset is appropriate for the representation of PM concentrations in coastal, rural NSW within this assessment.

5.3 PM_{10} and $PM_{2.5}$ concentrations – Korora RTA Dataset

The daily varying (24-hour average) PM_{10} and $PM_{2.5}$ concentrations recorded at Korora are illustrated in **Figure 5-1**. It can be seen that the recorded 24-hour average PM_{10} and $PM_{2.5}$ concentrations fluctuate throughout the presented period.

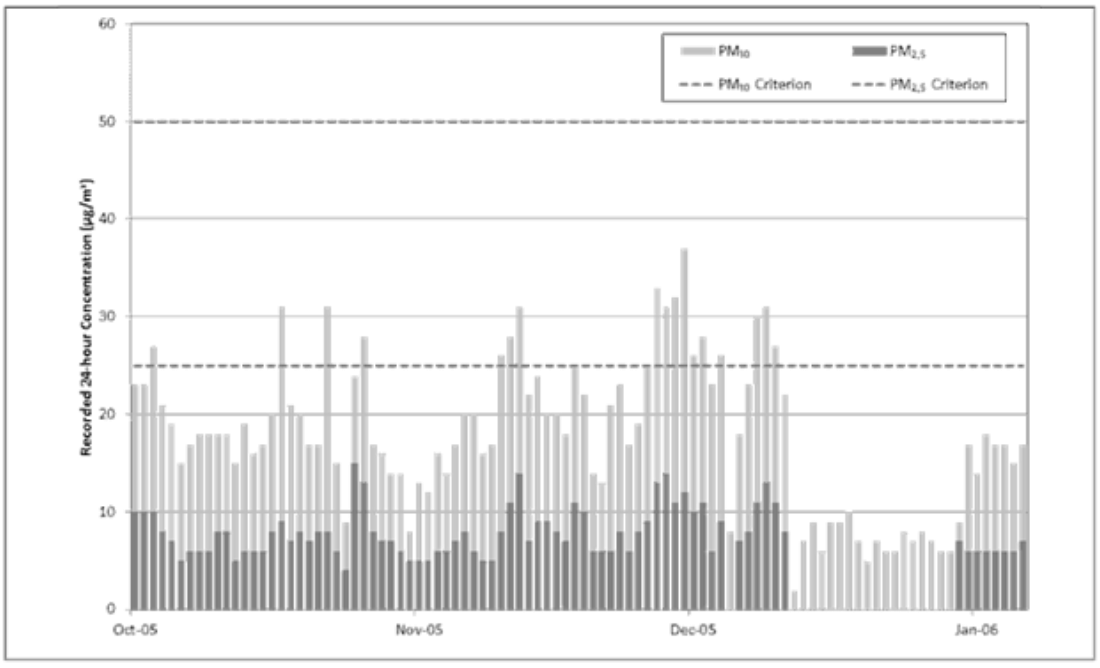

Figure 5-1: Time-series of 24-hour average PM_{10} and $PM_{2.5}$ concentrations recorded at Korora – October 2005 to January 2006

A range of statistics for the Korora RTA monitoring dataset is presented within **Table 5-1**.

Table 5-1: Korora RTA monitoring dataset statistics – October 2005 to January 2006		
Monitoring Statistic	**PM_{10}**	**$PM_{2.5}$**
Number of Measurements	98	80
Minimum	2.0 µg/m³	4.0 µg/m³
Maximum	37.0 µg/m³	15.0 µg/m³
Mean	17.8 µg/m³	7.9 µg/m³
Median	17.0 µg/m³	7.0 µg/m³
25th Percentile	13.3 µg/m³	6.0 µg/m³
50th Percentile	17.0 µg/m³	7.0 µg/m³
75th Percentile	23.0 µg/m³	9.0 µg/m³
Inter-quartile Range	9.7 µg/m³	2.0 µg/m³

A frequency distribution of 24-hour average PM_{10} and $PM_{2.5}$ concentrations recorded by the Korora RTA monitoring station is presented in **Figure 5-2**. This figure highlights that 24-hour average PM_{10} and $PM_{2.5}$ concentrations are typically less than 30 µg/m³ and 10 µg/m³ respectively throughout the Korora RTA dataset.

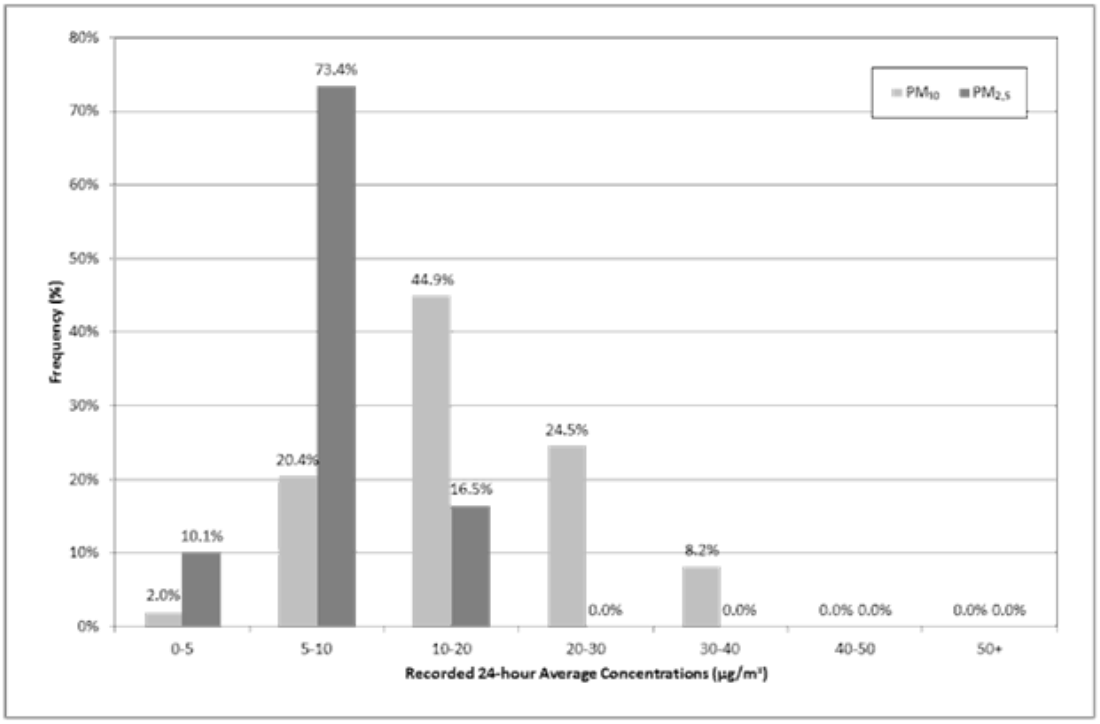

Figure 5-2: Distribution of 24-hour average PM_{10} and $PM_{2.5}$ concentrations – Korora – October 2005 to January 2006

To assess the cumulative 24-hour average PM_{10} and $PM_{2.5}$ impacts of Depot emissions with ambient background PM_{10} and $PM_{2.5}$ concentrations, the maximum recorded 24-hour average concentrations recorded at the Korora site will be combined with the maximum 24-hour average predicted concentration at each receptor location to derive the 100th percentile concentration in

accordance with the Level 1 assessment approach outlined Section 5.1.1 of the Approved Methods for Modelling (EPA, 2005). This is a conservative approach for assessing maximum impacts as it assumes the maximum background occurs on the same day as the maximum increment from the Depot. Maximum 24-hour average PM_{10} and $PM_{2.5}$ background concentrations of 37 µg/m³ and 15 µg/m³ will be applied.

The median PM_{10} and $PM_{2.5}$ concentrations of the Korora RTA dataset were used to assess cumulative annual average concentrations at each sensitive receptor location. Due to the limited time period of recorded concentrations and the conservative nature of the dataset (as discussed in **Section 5.3**), it is considered that the application of the median concentration rather than the average concentration, is appropriate for this assessment. The median PM_{10} and $PM_{2.5}$ concentrations to be adopted as background are 17 µg/m³ and 7 µg/m³ respectively.

5.4 TSP monitoring data

There is currently no monitoring of ambient TSP concentrations conducted in the vicinity of the Depot site.

Based on Ramboll Environ's experience of paired PM_{10} and TSP monitoring datasets in rural areas (ENVIRON, 2009), the PM_{10} particle size mass fraction is typically of the order of 40% of the recorded TSP mass. On this basis, and in the absence of site-specific monitoring data for TSP, a baseline TSP concentration of 43 µg/m³, derived from the median PM_{10} concentration of the Korora RTA dataset (17 µg/m³), will be adopted as indicative of existing annual average TSP concentrations.

5.5 Dust deposition

While not required under licence conditions, Boral have historically undertaken dust deposition monitoring at a single monitor located at the entrance to the Depot site. Dust deposition monitoring data recorded between October 2012 and December 2013 at the Depot monitoring station was provided by Boral for analysis.

Between October 2012 and December 2013, monthly average dust deposition results (reported as insoluble solids) ranged from 0.7 g/m²/month to 4.7 g/m²/month, with a maximum 12-month period average of 2.0 g/m²/month.

5.6 Adopted background air quality

Table 5-2 presents the background air quality levels to be adopted for the cumulative impact assessment of the Depot.

Table 5-2: Adopted Baseline Air Quality

Pollutant	Averaging Period	Background
TSP	Annual	43 µg/m³
PM_{10}	24-hour	37 µg/m³
	Annual	17 µg/m³
$PM_{2.5}$	24-hour	15 µg/m³
	Annual	7 µg/m³

6. EMISSIONS ESTIMATION

Fugitive dust and fuel combustion sources associated with the existing and proposed increased operations of the Depot were principally quantified through the application of NPI emission estimation techniques (specifically the Emission Estimation Technique Manual for Mining and United States Environmental Protection Agency (US-EPA) AP-42 emission factor equations). Predicted particulate emissions were quantified for each particle size fraction, with the TSP size fraction also used to provide an indication of dust deposition rates. Fine particles (PM_{10} and $PM_{2.5}$) were estimated using ratios for the different particle size fractions available within the literature (principally the US-EPA AP-42).

In addition to particulate matter, emissions of gaseous air pollutants generated by truck and rail-related combustion of diesel fuel. Impacts from these pollutants arising from Depot operations are likely to be negligible and have not been considered further within this assessment.

6.1 Sources of operational emissions

Particulate matter emissions associated with the Depot comprise of a mixture of fugitive and combustion engine sources. Potential sources of emission were identified as follows:

- Loading of cement from rail wagons to elevated silos;
- Transfer of cement from silos to trucks for dispatch;
- Wheel-generated dust from vehicle movements across paved surfaces; and
- Combustion of diesel fuel by dispatch trucks, locomotives and shunting engines.

It is noted that emissions from the combustion of diesel fuel by dispatch trucks have been excluded from this assessment due to the short amount of time that trucks are moving onsite and the policy for engine shut off during loading operations.

6.2 Emission scenario

Two emission scenarios have been developed representative of current operations (scenario 1) and proposed increased throughput operations (scenario 2) at the Depot site. Details on the assumptions made for the two emission scenarios are listed within **Appendix 2**.

6.3 Emission reduction factors

In 2011, the NSW Environment Protection Authority (EPA) added a pollution reduction program (PRP) to the environment protection licence (EPL) for the Depot relating to the control of particulate matter emissions.

To address the requirements of the PRP, Boral implemented the following operational procedures were improved:

- Trucks are instructed to wait under the silo before driving off until the extraction system collects airborne dust;
- Trucks are required to leave the site gate with the hatches closed to avoid any dust release off-site;
- The timing of the lifting of the cement loading shute was extended to make sure there was no residual product left in the shute;
- Improved servicing of dust extraction system filter bags; and
- A wind and dust restriction curtain was installed in early October 2012;

To account for the dust extraction system in the emission estimation, an emission reduction factor of 83% was applied to the corresponding emission calculations (reduction factor for hooding with fabric filters from NPI, 2012).

6.4 Particulate matter emissions

A summary of Depot emissions by source type and scenario is presented in **Table 6-1** and illustrated in **Figure 6-1**. Control measures proposed for implementation, as documented in **Section 6.3**, have been taken into account in the emission estimates.

Table 6-1 and **Figure 6-1** highlight that the most significant source of emissions are associated with the Depot are related to the transfer of cement product from trains and to trucks and the movement of trucks across the paved Depot yard. There is no change proposed in the number of train deliveries arriving at site, consequently emissions from these sources between the two scenarios are unchanged.

Further details regarding emission estimation factors and assumptions are provided in **Appendix 2**.

Table 6-1: Calculated Annual TSP, PM_{10} and $PM_{2.5}$ Emissions

Emissions Source	Calculated Emissions (kg/annum) by Source		
	TSP	PM_{10}	$PM_{2.5}$
Scenario 1 – Current Operations			
Cement unloading to silos	7.5	2.6	0.3
Cement dispatch truck loading	9.3	4.4	0.7
Cement dispatch truck movements	3.9	0.8	0.2
Shunter engine	0.5	0.5	0.5
Locomotive idling	1.5	1.5	1.4
Scenario 1 Total	**22.8**	**9.7**	**3.1**
Scenario 2 – Current Operations			
Cement unloading to silos	30.0	10.2	1.0
Cement dispatch truck loading	37.3	17.7	2.7
Cement dispatch truck movements	12.3	2.4	0.6
Shunter engine	0.5	0.5	0.5
Locomotive idling	1.5	1.5	1.4
Scenario 2 Total	**81.6**	**32.2**	**6.2**

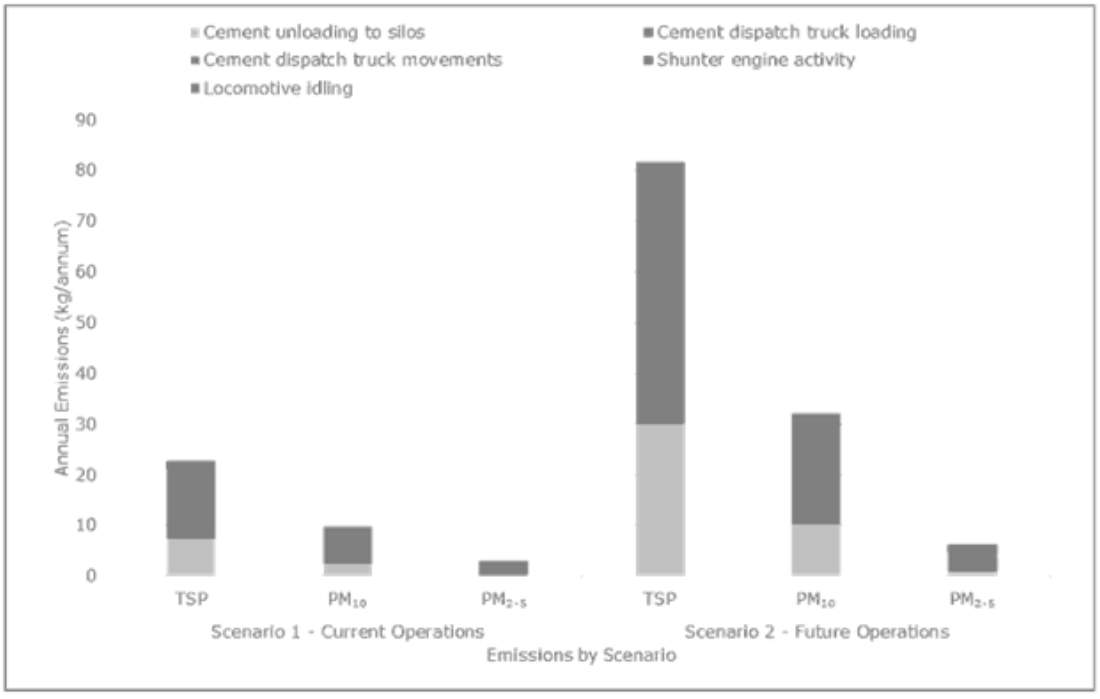

Figure 6-1: Summary of annual particulate matter emissions by source type and scenario

7. ASSESSMENT METHODOLOGY

7.1 Dispersion model selection and application

To account for the potential complex meteorological conditions that could occur due to the coastal setting of the Depot , the CALPUFF (Version 6.2) modelling system was selected for application within this assessment (as discussed in **Section 4**). CALPUFF is accepted for use in air quality assessments in settings with complex topography (DEC, 2005). Model configuration was conducted in accordance with the recommendations in TRC (2011). .

CALPUFF is a transport and dispersion model that advects "puffs" of material emitted from the modelled sources, simulating dispersion and transformation processes along the transport pathway. Temporal and spatial variations in the meteorological fields selected are explicitly incorporated in the resulting distribution of puffs throughout the simulation period. The primary output files from CALPUFF contain either hourly concentration or hourly deposition fluxes evaluated at selected receptor locations and at grid intercepts across the modelling domain.

Air pollutant concentrations of particulate matter pollutants were simulated for a regular Cartesian receptor grid covering a 2.5km (east-west) by 2.5km (north-south) computational domain, set within the CALMET modelling domain and centred over the Depot site, with a grid resolution of 100m. Additionally, concentrations were predicted at the various sensitive receptor locations listed in **Table 2-2**. Pollution simulations were undertaken for the 12 month period between 1 January 2014 and 31 December 2014.

7.2 Modelling scenario

As identified in **Section 6.2**, two emission scenarios have been developed to estimate operational emissions of TSP, PM_{10} and $PM_{2.5}$ from the Depot for current and proposed operations. The air dispersion modelling has predicted ground-level concentrations and deposition rates for these two scenarios. The methodology and results of the emissions inventory developed for this study are presented in **Section 6** and **Appendix 2**.

7.3 Presentation of model results

Dispersion simulations were undertaken to predict the concentrations of TSP, PM_{10} and $PM_{2.5}$ and dust deposition rates. Model results are expressed as the maximum predicted concentration for each averaging period at the selected assessment locations over the 2014 modelling period.

The results are presented in the following formats:

- Tabulated results of particulate concentrations and dust deposition rates at the selected assessment locations are presented and discussed in **Section 8**.
- Isopleth plots, illustrating spatial variations in Depot-only incremental maximum 24-hour average PM_{10} concentrations are provided in **Appendix 3**.

8. DISPERSION MODELLING RESULTS

The predicted incremental and cumulative TSP, PM_{10} and $PM_{2.5}$ concentrations and dust deposition rates are presented in **Table 8-1** (Scenario 1) and **Table 8-2** (Scenario 2) for each of the identified receptor locations. The criteria applicable to the assessment are applicable to cumulative concentrations, with the exception of dust deposition which is assessed against the incremental criterion.

The following key points are noted from the results in **Table 8-1**:

- The predicted incremental and cumulative concentrations and dust deposition levels are well within NSW EPA assessment criteria and AAQ NEPM standards for all pollutants and averaging periods modelled; and
- Predicted incremental concentrations are minor in comparison with the indicative ambient background concentrations.

The change in predicted Depot-only incremental concentration or deposition rate is presented in **Figure 8-1**. The following points are noted:

- At all receptors, the predicted concentration/deposition rate increases due to the proposed increase in throughput for all pollutants and averaging periods;
- The receptors most likely to experience an increase are those closest to the western site boundary (receptors R5, R6, R7 and R8) and the closest receptors to the north and south of the Depot (receptors R23 and R24 respectively); and
- The pollutant and averaging period predicted to experience the greatest change from existing impacts is 24-hour average PM_{10}.

Despite the above changes in impacts, the magnitude of increase in concentrations/deposition rates is very small relative to both ambient levels and applicable impact assessment criterion. Consequently the increase in impacts associated with the proposed throughput increase is considered negligible.

On the basis of the modelling conducted, adverse air quality impacts arising from proposed increased throughput operations at the Depot are considered unlikely.

Incremental 24-hour average concentration isopleth plots for Depot-only increments are presented in **Appendix 3**. Isopleth plots of the maximum 24-hour average concentrations presented do not represent the dispersion pattern on any individual day, but rather illustrate the maximum daily concentration that was predicted to occur at each model calculation point given the range of meteorological conditions occurring over the 2014 modelling period.

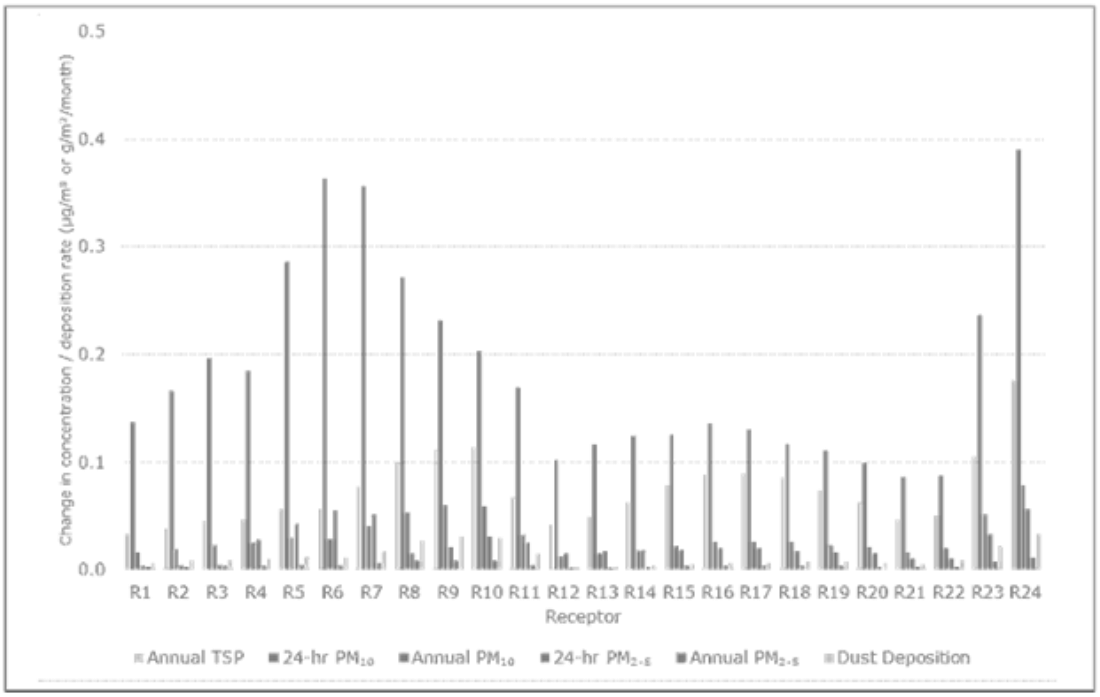

Figure 8-1: Increase in Depot-only increment at neighbouring residences – Scenario 1 to Scenario 2

Table 8-1: Predicted particulate matter concentration/deposition results – Scenario 1

Residence ID	Concentration/Deposition due to Depot in Isolation						Cumulative Concentration due to Depot + Background Air Quality				
	TSP Annual Average µg/m³	PM_{10} Maximum 24-hr µg/m³	PM_{10} Annual Average µg/m³	$PM_{2.5}$ Maximum 24-hr µg/m³	$PM_{2.5}$ Annual Average µg/m³	Deposition Annual Average g/m²/month	TSP Annual Average µg/m³	PM_{10} Maximum 24-hr µg/m³[b]	PM_{10} Annual Average µg/m³	$PM_{2.5}$ Maximum 24-hr µg/m³[b]	$PM_{2.5}$ Annual Average µg/m³
Criteria	**NA**	**NA**	**NA**	**NA**	**NA**	**2**	**90**	**50**	**30**	**25[a]**	**8[a]**
R1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	43.0	37.1	17.0	15.1	7.0
R2	<0.1	0.1	<0.1	0.1	<0.1	<0.1	43.0	37.1	17.0	15.1	7.0
R3	<0.1	0.2	<0.1	0.1	<0.1	<0.1	43.0	37.2	17.0	15.1	7.0
R4	<0.1	0.2	<0.1	0.2	<0.1	<0.1	43.1	37.2	17.0	15.2	7.0
R5	<0.1	0.3	<0.1	0.2	<0.1	<0.1	43.1	37.3	17.0	15.2	7.0
R6	<0.1	0.3	<0.1	0.2	<0.1	<0.1	43.1	37.3	17.0	15.2	7.0
R7	<0.1	0.3	<0.1	0.2	<0.1	<0.1	43.1	37.3	17.0	15.2	7.0
R8	0.1	0.3	<0.1	0.2	<0.1	<0.1	43.1	37.3	17.0	15.2	7.0
R9	0.1	0.3	<0.1	0.2	<0.1	<0.1	43.1	37.3	17.1	15.2	7.0
R10	0.1	0.4	<0.1	0.3	<0.1	<0.1	43.1	37.4	17.1	15.3	7.0
R11	<0.1	0.4	<0.1	0.3	<0.1	<0.1	43.1	37.4	17.0	15.3	7.0
R12	<0.1	0.4	<0.1	0.3	<0.1	<0.1	43.0	37.4	17.0	15.3	7.0
R13	<0.1	0.4	<0.1	0.4	<0.1	<0.1	43.0	37.4	17.0	15.4	7.0
R14	<0.1	0.5	<0.1	0.4	<0.1	<0.1	43.0	37.5	17.0	15.4	7.0
R15	<0.1	0.5	<0.1	0.5	<0.1	<0.1	43.0	37.5	17.1	15.5	7.0
R16	<0.1	0.5	<0.1	0.5	<0.1	<0.1	43.1	37.5	17.1	15.5	7.1
R17	<0.1	0.5	<0.1	0.5	<0.1	<0.1	43.1	37.5	17.1	15.5	7.1
R18	<0.1	0.5	<0.1	0.4	<0.1	<0.1	43.1	37.5	17.1	15.4	7.1
R19	<0.1	0.4	<0.1	0.4	<0.1	<0.1	43.0	37.4	17.1	15.4	7.0
R20	<0.1	0.4	<0.1	0.4	<0.1	<0.1	43.0	37.4	17.0	15.4	7.0
R21	<0.1	0.3	<0.1	0.3	<0.1	<0.1	43.0	37.3	17.0	15.3	7.0
R22	<0.1	0.2	<0.1	0.2	<0.1	<0.1	43.0	37.2	17.0	15.2	7.0
R23	0.1	0.3	<0.1	0.2	<0.1	<0.1	43.1	37.3	17.1	15.2	7.0
R24	0.2	0.5	<0.1	0.4	<0.1	<0.1	43.2	37.5	17.1	15.4	7.1

NA – Not applicable. Criteria are applicable to cumulative concentrations.

a) The NEPM Advisory Reporting Standards for $PM_{2.5}$ are referenced for screening assessment purposes.

b) The maximum cumulative value is a sum of the maximum increment and the maximum baseline concentrations.

Table 8-2: Predicted particulate matter concentration/deposition results – Scenario 2

Residence ID	Concentration/Deposition due to Depot in Isolation						Cumulative Concentration due to Depot + Background Air Quality				
	TSP Annual Average µg/m³	PM_{10} Maximum 24-hr µg/m³	PM_{10} Annual Average µg/m³	$PM_{2.5}$ Maximum 24-hr µg/m³	$PM_{2.5}$ Annual Average µg/m³	Deposition Annual Average g/m²/month	TSP Annual Average µg/m³	PM_{10} Maximum 24-hr µg/m³[b]	PM_{10} Annual Average µg/m³	$PM_{2.5}$ Maximum 24-hr µg/m³[b]	$PM_{2.5}$ Annual Average µg/m³
Criteria	**NA**	**NA**	**NA**	**NA**	**NA**	**2**	**90**	**50**	**30**	**25[a]**	**8[a]**
R1	<0.1	0.3	<0.1	0.1	<0.1	<0.1	43.1	37.3	17.0	15.1	7.0
R2	<0.1	0.3	<0.1	0.1	<0.1	<0.1	43.1	37.3	17.0	15.1	7.0
R3	<0.1	0.4	<0.1	0.1	<0.1	<0.1	43.1	37.4	17.0	15.1	7.0
R4	0.1	0.4	<0.1	0.2	<0.1	<0.1	43.1	37.4	17.0	15.2	7.0
R5	0.1	0.6	<0.1	0.2	<0.1	<0.1	43.1	37.6	17.1	15.2	7.0
R6	0.1	0.7	<0.1	0.3	<0.1	<0.1	43.1	37.7	17.1	15.3	7.0
R7	0.2	0.6	<0.1	0.2	<0.1	<0.1	43.2	37.6	17.1	15.2	7.0
R8	0.2	0.5	<0.1	0.2	<0.1	<0.1	43.2	37.5	17.1	15.2	7.0
R9	0.3	0.5	0.1	0.3	<0.1	<0.1	43.3	37.5	17.1	15.3	7.0
R10	0.2	0.6	0.1	0.3	<0.1	<0.1	43.2	37.6	17.1	15.3	7.0
R11	0.1	0.5	<0.1	0.3	<0.1	<0.1	43.1	37.5	17.1	15.3	7.0
R12	<0.1	0.5	<0.1	0.3	<0.1	<0.1	43.1	37.5	17.0	15.3	7.0
R13	<0.1	0.5	<0.1	0.4	<0.1	<0.1	43.1	37.5	17.0	15.4	7.0
R14	<0.1	0.6	<0.1	0.4	<0.1	<0.1	43.1	37.6	17.1	15.4	7.0
R15	0.1	0.6	<0.1	0.5	<0.1	<0.1	43.1	37.6	17.1	15.5	7.1
R16	0.1	0.7	<0.1	0.5	<0.1	<0.1	43.1	37.7	17.1	15.5	7.1
R17	0.1	0.7	<0.1	0.5	<0.1	<0.1	43.1	37.7	17.1	15.5	7.1
R18	0.1	0.6	<0.1	0.4	<0.1	<0.1	43.1	37.6	17.1	15.4	7.1
R19	0.1	0.5	<0.1	0.4	<0.1	<0.1	43.1	37.5	17.1	15.4	7.0
R20	0.1	0.5	<0.1	0.4	<0.1	<0.1	43.1	37.5	17.1	15.4	7.0
R21	<0.1	0.4	<0.1	0.3	<0.1	<0.1	43.1	37.4	17.0	15.3	7.0
R22	<0.1	0.3	<0.1	0.2	<0.1	<0.1	43.1	37.3	17.1	15.2	7.0
R23	0.2	0.5	0.1	0.3	<0.1	<0.1	43.2	37.5	17.1	15.3	7.0
R24	0.3	0.9	0.2	0.5	<0.1	<0.1	43.3	37.9	17.2	15.5	7.1

NA – Not applicable. Criteria are applicable to cumulative concentrations.

a) The NEPM Advisory Reporting Standards for $PM_{2.5}$ are referenced for screening assessment purposes.

b) The maximum cumulative value is a sum of the maximum increment and the maximum baseline concentrations.

9. CONCLUSIONS

Ramboll Environ was commissioned by EMM on behalf of Boral to undertake an Air Quality Impact Assessment for the proposed increase in throughput at the Depot.

Dispersion model predictions of 24-hour average and annual average TSP, PM_{10} and $PM_{2.5}$ concentrations and dust deposition rates were made for existing and proposed increased operations at the Depot site.

The results of the modelling indicate that the potential impacts generated by the proposed increased operations at the Depot would be low and unlikely to result in exceedance applicable air quality impact assessment criteria.

10. REFERENCES

The following documents and resources have been used in the production of this report:

Bureau of Meteorology. Long-term climate statistics and hourly observations from Port Macquarie Airport and Taree Airport AWS.

Countess Environmental (2006) *WRAP Fugitive Dust Handbook*.

ENVIRON (2009). *Independent Review of Cumulative Dust Impacts – Camberwell Village*. September 2009

Lilley W. B., 1996, Quantification and Dispersion Modelling of Diesel Locomotive Emissions, Thesis.

NEPC (1998). National Environmental Protection Measure for Ambient Air Quality. National Environmental Protection Council.

NEPC (2003). National Environmental Protection Measure (Ambient Air Quality) Measure, as amended, made under the National Environment Protection Act 1994. National Environmental Protection Council, 7 July 2003.

NEPC (2015). Variation to the National Environment Protection (Ambient Air Quality) Measure. National Environment Protection Act 1994. National Environmental Protection Council, 15 December 2015.

NPI EETM (2012). National Pollutant Inventory, Emission Estimation Technique Manual for Mining, Version 3, Environment Australia.

NSW DEC (2005), Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales.

Roads and Traffic Authority (2007). Coffs Harbour Highway Planning – Sapphire to Woolgoolga section. Environmental Assessment – Working Paper 8.

Scire, J, Strimaitis, D and Yamartino, R. 2006. *A User's Guide for the CALPUFF Dispersion Model (Version 6)*

TRC Environmental Corporation (2011). *Generic Guidance and Optimum Model Settings for the Calpuff Modeling System for Inclusion into the 'Approved Methods for the Modeling and Assessment of Air Pollutants in NSW, Australia'*, Prepared for NSW Office of Environment and Heritage, Sydney Australia, March 2011.

US-EPA (2006a). AP42 Emission Factor Database, Chapter 11.12 Concrete Batching, United States Environmental Protection Agency, 2006.

US-EPA (2006b). AP42 Emission Factor Database, Chapter 13.2.4 Aggregate Handling and Storage Piles, United States Environmental Protection Agency, 2006.

US-EPA, (2009). Emission factor for Locomotives – Technical Highlights.

US-EPA (2011). AP42 Emission Factor Database, Chapter 13.2.1 Paved Roads, United States Environmental Protection Agency, 2011.

11. GLOSSARY OF ACRONYMS AND SYMBOLS

AAQ NEPM	National Environment Protection (Ambient Air Quality) Measure
Approved Methods for Modelling of Air Pollutants in NSW	Approved Methods for the Modelling and Assessment
AHD	Australian Height Datum
AQIA	Air Quality Impact Assessment
AETC	Australian Rail Track Corporation
BoM	Bureau of Meteorology
Boral	Boral Cement Limited
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EMM	EMM Consulting Pty Limited
EPA	Environment Protection Authority
EPL	Environment Protection Licence
Mt	Million tonnes
NEPC	National Environmental Protection Council
NPI	National Pollutant Inventory
NSW	New South Wales
OEH	NSW Office of Environment and Heritage
PM_{10}	Particulate matter less than 10 microns in aerodynamic diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in aerodynamic diameter
Ramboll Environ	Ramboll Environ Australia Pty Ltd
t	Tonnes
TAPM	"The Air Pollution Model"
The Depot	Wauchope Bulk Cement Depot
tpa	Tonnes per annum
TSP	Total Suspended Particulate
US-EPA	United States Environmental Protection Agency
VKT	Vehicle Kilometres Travelled
µg	Microgram ($g \times 10^{-6}$)
µm	Micrometre or micron ($metre \times 10^{-6}$)
m^3	Cubic metre

APPENDIX 1
WIND ROSES

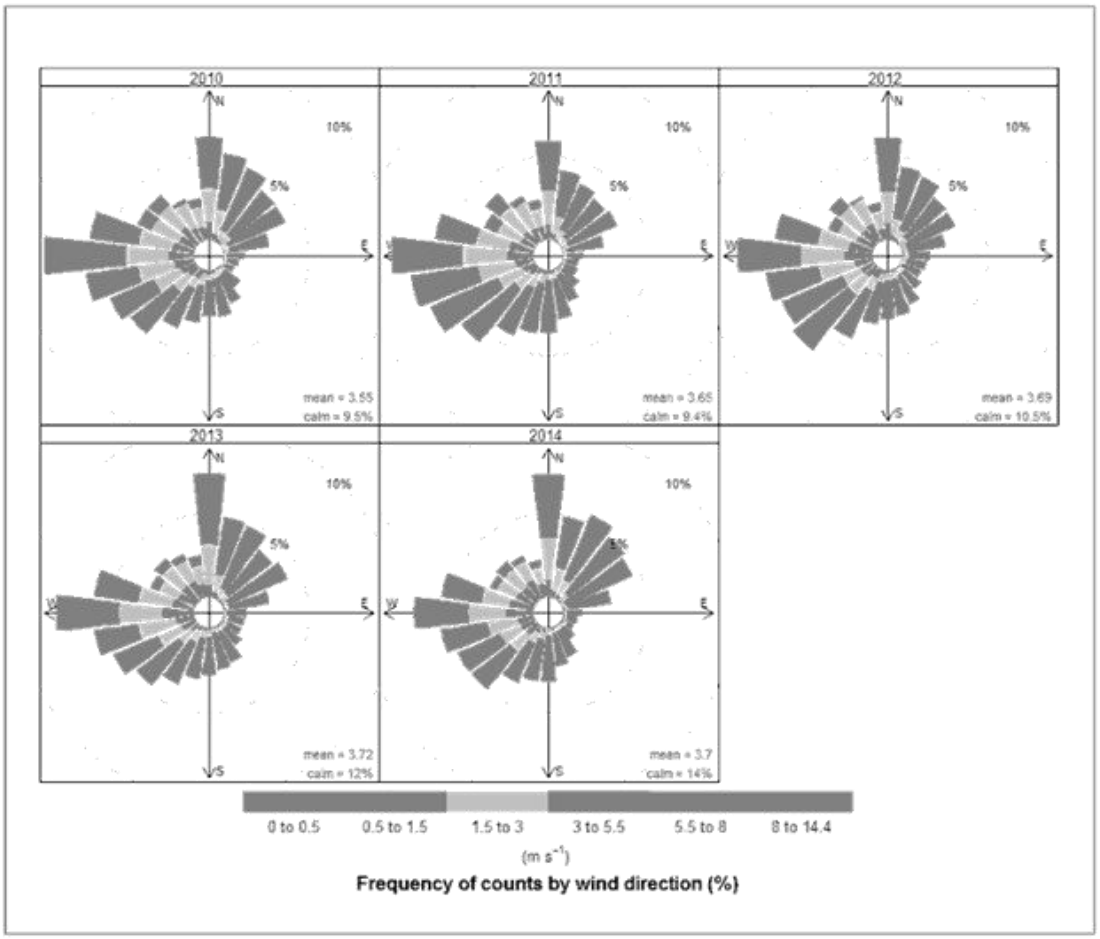

Figure A1-1: Annual wind roses – BoM Port Macquarie Airport AWS – 2010 to 2014

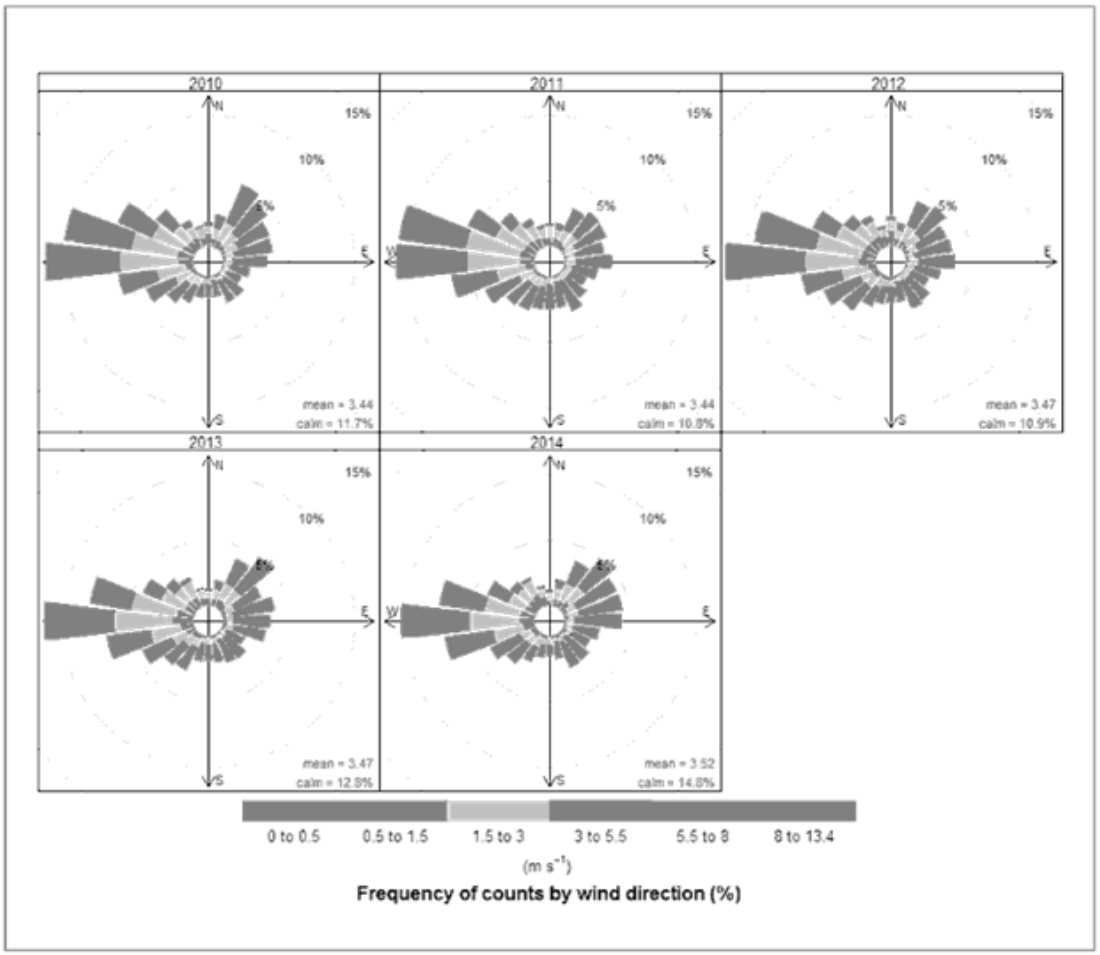

Figure A1-2: Annual wind roses – BoM Taree Airpotr AWS – 2010 to 2014

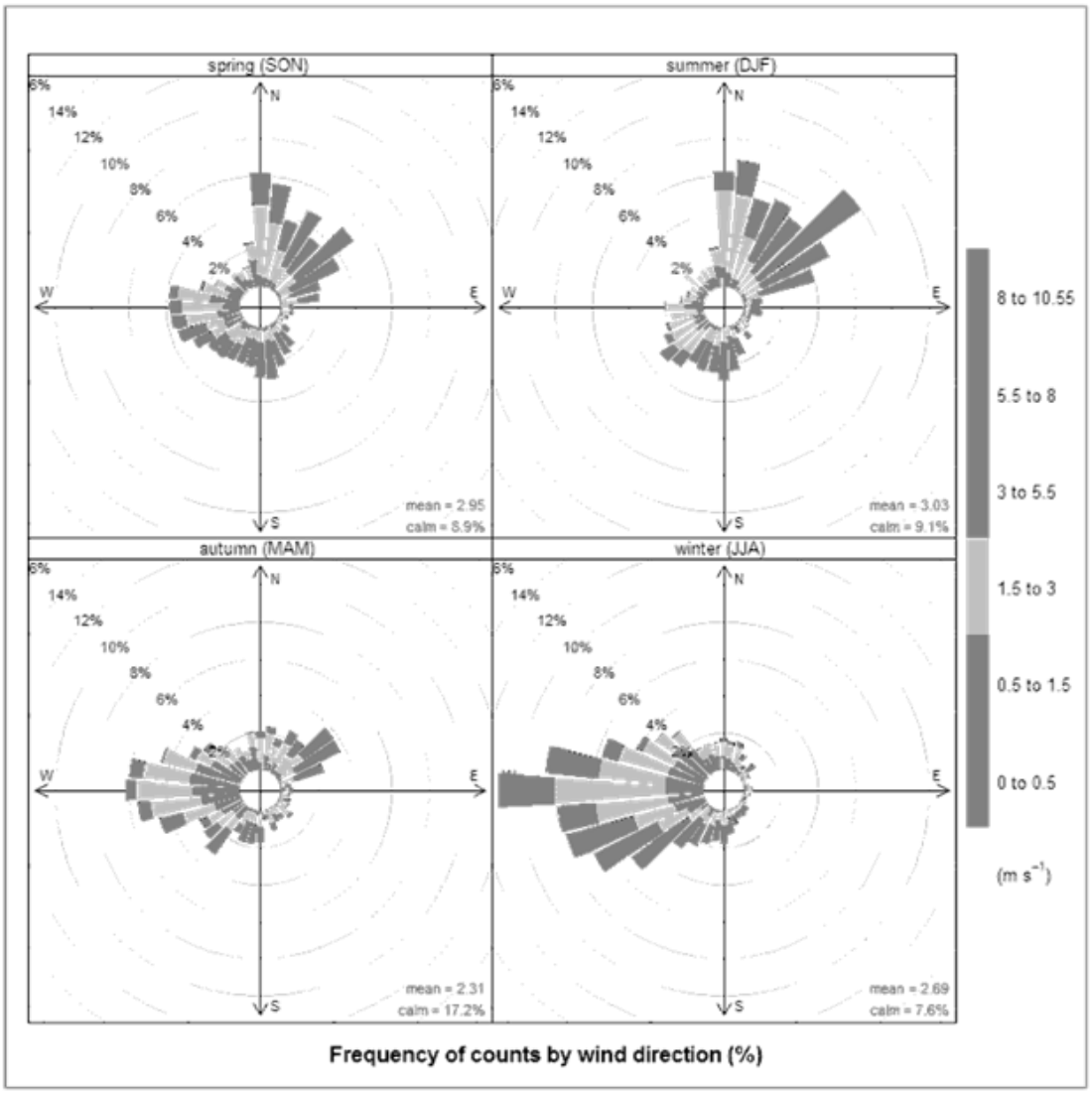

Figure A1-3: CALMET-predicted seasonal wind roses – Depot Site - 2014

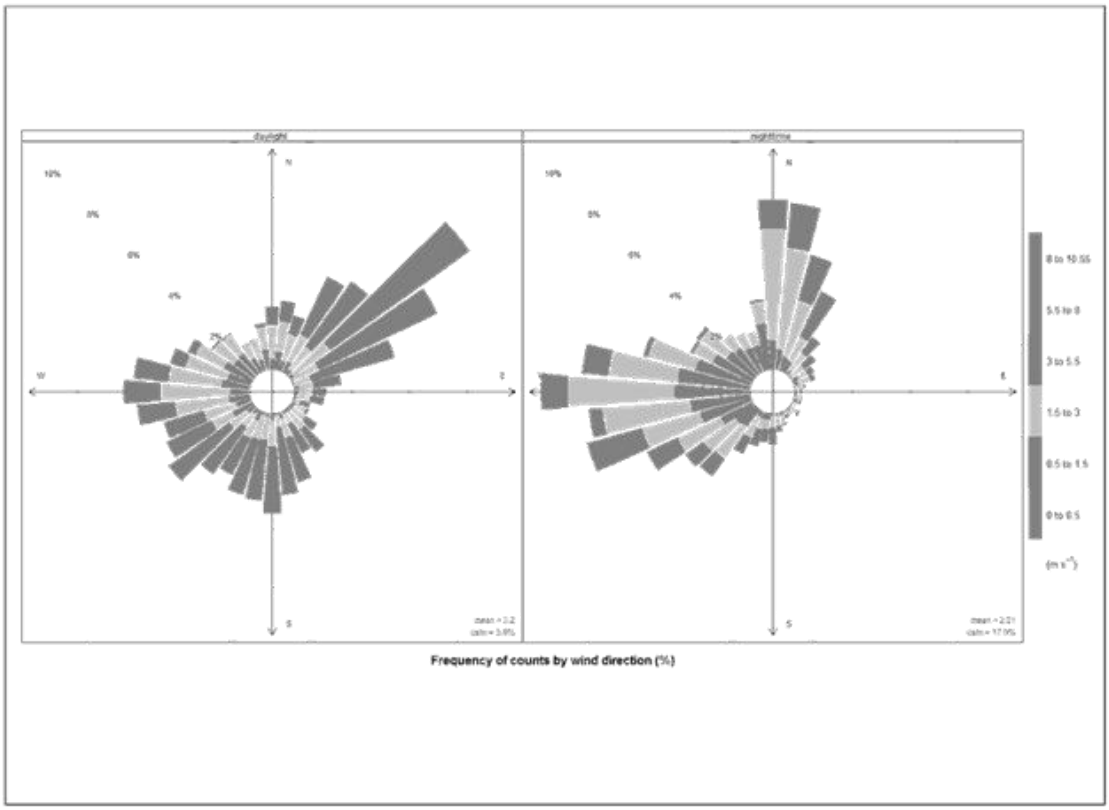

Figure A1-4: CALMET-predicted diurnal wind roses – Depot Site - 2014

APPENDIX 2
EMISSIONS INVENTORY BACKGROUND

Sources of Particulate Matter Emissions

Particulate matter emissions associated with the Depot comprise of a mixture of fugitive and combustion engine sources. Potential sources of emission were identified as follows:

- Loading of cement from rail wagons to elevated silos;
- Transfer of cement from silos to trucks for dispatch;
- Wheel-generated dust from vehicle movements across paved surfaces; and
- Combustion of diesel fuel by dispatch trucks, locomotives and shunting engines.

It is noted that emissions from the combustion of diesel fuel by dispatch trucks have been excluded from this assessment due to the short amount of time that trucks are moving onsite and the policy for engine shut off during loading operations.

Particulate Matter Emission Factors Applied

The emission factor equations applied within the assessment are documented in this subsection. **Table A2.1** lists the uncontrolled emission factors that were applied, references the source of the listed factors and whether the factor is derived from a specific equation or a published default emission factor.

Table A2.1 Emission Estimation Factors Applied

Emission Source	TSP Emission Factor	PM_{10} Emission Factor	$PM_{2.5}$ Emission Factor	Emission Factor Unit	Source of Factor
Cement unloading to silos	0.0005	0.00017	0.000017	kg/tonne	US-EPA (2006a) AP42 11.12 - Cement unloading to elevated storage silos (controlled)
Cement dispatch truck loading	0.00366	0.00173	0.00026	kg/tonne	US-EPA (2006b) AP-42 13.2.4 - Materials Handling Equation / NPI Mining Equation 10
Cement dispatch truck movements	0.03928	0.00754	0.00182	kg/Vehicle KM Travelled	US-EPA (2011) AP-42 13.2.1 - Paved Road Equation
Shunter Engine	1.767	1.767	1.71399	g/L diesel fuel	US-EPA (2009) Emission Factors for Locomotives - Tier 0 Switch Engine
Locomotive Idling	19	19	18.43	g/hour locomotive engine idling	Quantification and Dispersion Modelling of diesel locomotive Emission, William Lilley, 1996

Details relating to the emission equations referenced in **Table A2.1** are presented in the following sections.

Paved Roads Equation

The emissions factors for paved roads, as documented within AP42 Chapter 13.2.2 -"Paved Roads" (US-EPA 2011), was applied as follows:

$E = k\ (sL)^{0.91}(W)^{1.02}$

Where:

E = Emissions Factor (g/VKT)

sL = road surface silt loading (g/m^2)

W = mean vehicle weight (tonnes)

k = constant of 1.5 for PM_{10}

An average truck weight of 27.6 tonnes and a one-way haul distance of 25 m were adopted. Daily traffic volumes of 8 trucks/day for Scenario 1 and 25 trucks/day were assumed. Material parameters are listed in **Table A2.2**.

Materials Handling

Particulate matter emissions from material transfer operations were calculated through the application of the US-EPA predictive emission factor equation for continuous and batch drop loading and tipping operations (AP42, Section 13.2.4), given as follows:

$$E = k(0.0016) * \left(\frac{\left(\frac{U}{2.2}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \right)$$

where,

E =Emissions (kg/tonne transferred)

U = mean wind speed (m/s)

M = material moisture content (%)

k = 0.74 for TSP, 0.35 for PM_{10} and 0.053 for $PM_{2.5}$

Depot Related Input Data

Material property inputs used in the emission equations presented in **Table A2.1** are detailed in **Table A2.2**. It is noted that minimal details relating to the material properties were available at the time of reporting. To compensate, values were adopted from the literature.

Table A2.2 Material Property Inputs for Emission Estimation Factors Applied for All Scenarios

Material Properties	Units	Value	Source of Information
Silt loading of paved surfaces	g/m^2	0.6	Default baseline loading for roads with traffic <500 vehicles per day - US-EPA AP42 (2011)
Moisture content of cement material	%	1	Assumed for cement product

Key operational details by process used in the emission calculations are listed in **Table A2.3**.

Table A2.3 Emission Estimation Activity Rates Applied for Emission Scenarios

Process	Unit	Activity Rate	
		Scenario 1	Scenario 2
Cement unloading to silos	Tonnes of material	15,000	60,000
Cement dispatch truck loading	Tonnes of material	15,000	60,000
Cement dispatch truck movements	Annual VKT (km)	100	312.5
Shunter Engine	Amount of diesel (l/year)	300	300
Locomotive Idling	Idling hours per year	78	78

APPENDIX 3
INCREMENTAL 24-HOUR AVERAGE PM_{10} ISOPLETH CONTOUR PLOTS

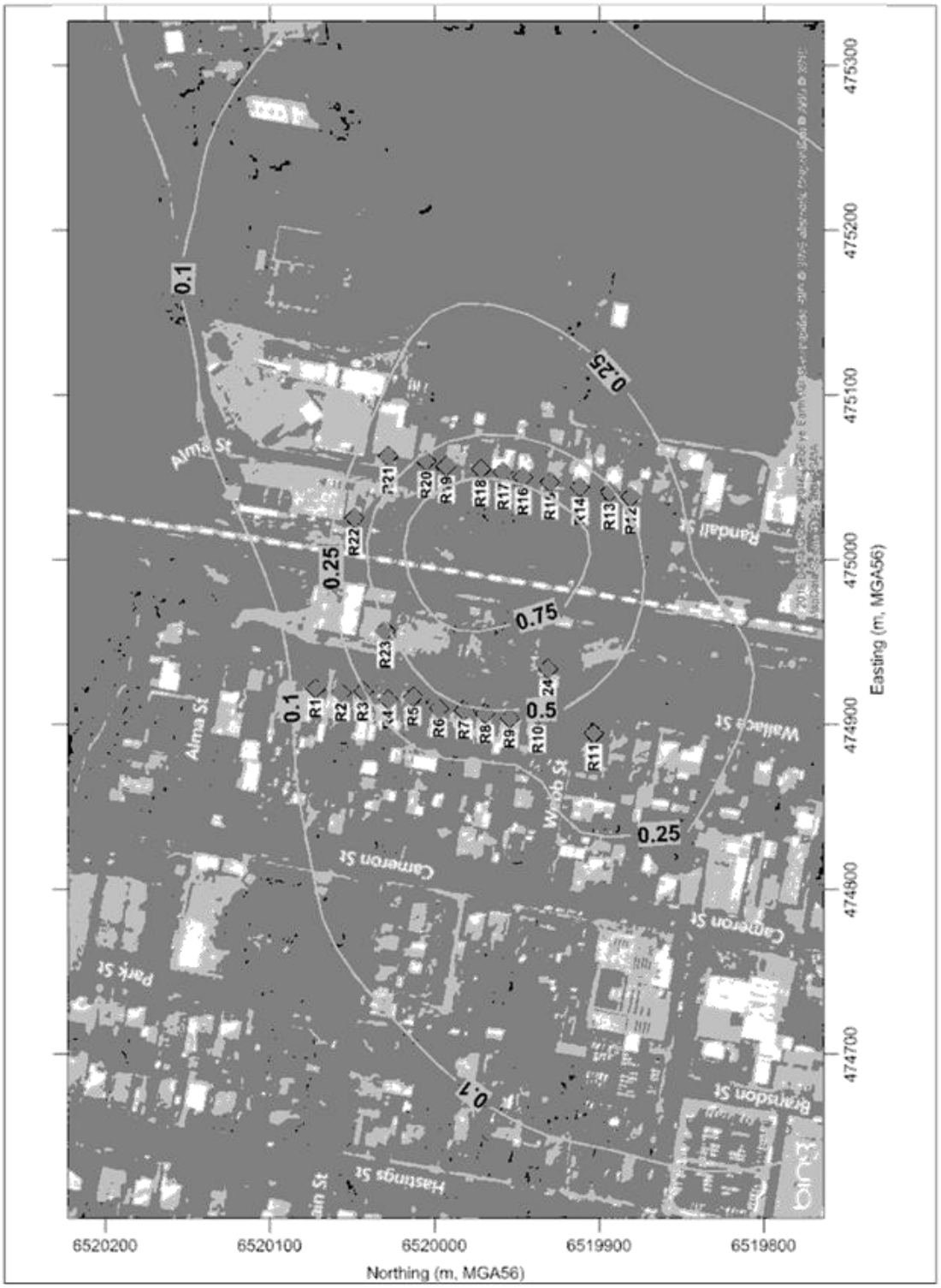

Figure A3-1: Predicted maximum 24-hour average PM_{10} concentrations (µg/m³) – Scenario 1

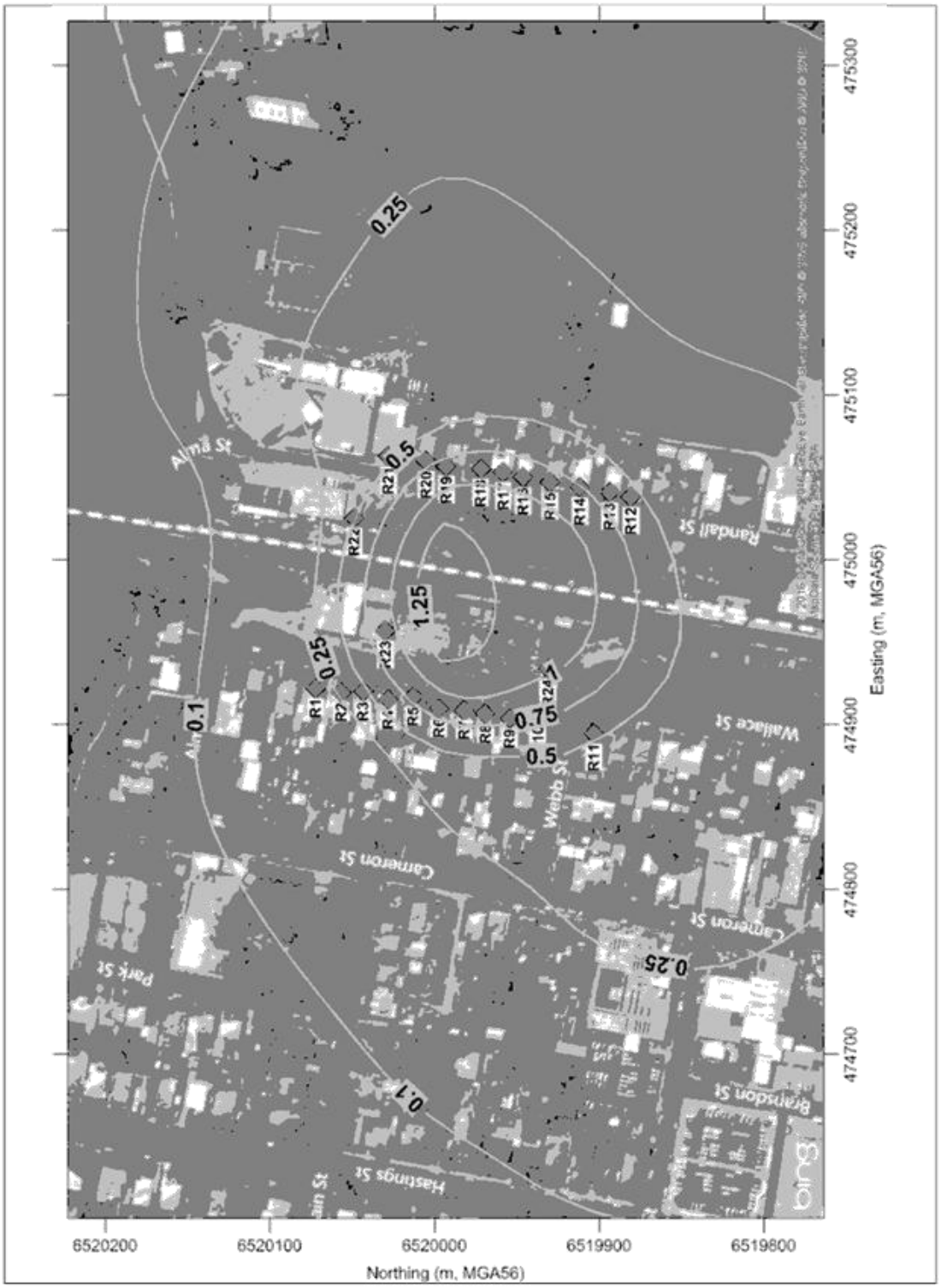

Figure A3-2: Predicted maximum 24-hour average PM_{10} concentrations (µg/m³) – Scenario 2

Appendix D

Email confirming proposal is not deemed designated development

From: Ben Roberts
To: Verity Blair; Patrick Galbraith-Robertson
Cc: "Neely, Ed"; Brett McLennan; Dan Croft
Subject: RE: Wauchope cement depot - proposed increase in throughput
Date: Tuesday, 1 March 2016 8:33:46 AM
Attachments: image005.png

Hi Verity,

Thanks for the technical reports. Following a review of the reports and findings of no significant increase in environmental impacts we are comfortable in processing a standard development application under part 2 of schedule 3 as alts and adds. i.e. not designated development.

Regards,

Ben Roberts
Development Assessment Planner

Port Macquarie-Hastings Council
PO Box 84
PORT MACQUARIE NSW 2444
(02) 6581 8031
(02) 6581 8123 (Fax)
Connect with Council:

From: Verity Blair [mailto:vblair@emmconsulting.com.au]
Sent: Friday, 26 February 2016 3:36 PM
To: Patrick Galbraith-Robertson; Ben Roberts
Cc: 'Neely, Ed'; Brett McLennan
Subject: Wauchope cement depot - proposed increase in throughput

Hi Patrick and Ben,

Further to our meeting in January, please find attached a further briefing letter providing greater detail about the proposal as well as an Air Quality Assessment, a Noise Impact Assessment and a Traffic Assessment detailing the predicted environmental impacts of the proposal.

Given their size, I will email the noise and traffic reports separately.

Please don't hesitate to contact me if you have any queries.

Kind regards,
Verity Blair
Associate Planner

Verity Blair | Associate Planner

(Please note that I only work Tuesdays, Wednesdays and Thursdays)

T 02 9493 9500 | D 02 9493 9515 | M 0418 594 603 | F 02 9493 9599

Ground Floor, Suite 01, 20 Chandos Street, St Leonards NSW 2065

PO Box 21, St Leonards NSW 1590

www.emmconsulting.com.au

planning | environment | acoustics | ecology | heritage | groundwater | soils, closure, rehab | gis

Please note that EMGA Mitchell McLennan Pty Limited has changed its name to EMM Consulting Pty Limited (simply refer to us as EMM). Email and website addresses have been changed to reflect this. All other details including ABN, bank details etc remain unchanged.

Please consider the environment before printing my email.

SYDNEY
Ground floor, Suite 01, 20 Chandos Street
St Leonards, New South Wales, 2065
T 02 9493 9500 F 02 9493 9599

NEWCASTLE
Level 5, 21 Bolton Street
Newcastle, New South Wales, 2300
T 02 4927 0506 F 02 4926 1312

BRISBANE
Level 4, Suite 01, 87 Wickham Terrace
Spring Hill, Queensland, 4000
T 07 3839 1800 F 07 3839 1866

www.emmconsulting.com.au

NSW EPA

DOC16/502982, EF13/2674
DA2016/404

General Manager
Port Macquarie Hastings Council
PO Box 84
PORT MACQUARIE NSW 2444

Attention: **Mr Ben Roberts**

Modification to Boral Wauchope (Cement Depot) – Increase in throughput (DA 2016/404)

Reference is made to the letter from EMM consulting, dated 19 September 2016, that provided a response to the EPA's stop the clock letter dated 24 June 2016. Reference is also made to Port Macquarie Hasting Council's letter, dated 03 June 2016, which included the documentation *Statement of Environmental Effects Wauchope Cement Depot: Proposed increase in annual throughput March 2016.*

The correspondence related to a proposal by Boral to modify their existing development consent to allow increased cement throughput at their Wauchope Depot. The modification included:

- increased cement throughput from its current maximum rate of 15,000 tpa to 60,000 tpa;
- receive, store and distribute both cement and flyash;
- whilst train deliveries will not increase from up to three times a week, the proposal allows for the number of wagons to increase up to a maximum of 14 wagons depending on demand; and
- increase from maximum eight truck loads per day (16 daily truck movements) to a maximum of 27 truckloads per day or 52 daily truck movements (average of eight truckloads per day), which includes the maximum of two weekly deliveries of flyash.

The EPA has reviewed the proposal for environmental matters relating to air, noise and surface water as described in the Statement of Environmental Effects and the related correspondence. The EPA is now able to issue General Terms of Approval for the environmental areas which the EPA regulates. Attachment 'A' sets out the EPA's General Terms of Approval. The EPA has noted that existing conditions of Environment Protection Licence 1503 continue to apply to the proposal. The EPA notes that these conditions may be incorporated by Council into the consent, if the consent authority deems this appropriate

If you wish to discuss any of the above further, please contact Cameron Perry on 4908 6808.

Yours sincerely

10-10-16

64253

PORT MACQUARIE HASTINGS
TRIM No CRM No
17 OCT 2016
Keyword
Activity
Subject
Folder DA - 2016 - 404 1

PETER JAMIESON
Head Regional Operations Unit – Hunter
Environment Protection Authority

Att A – EPA General Terms of Approval

PO Box 488G Newcastle NSW 2300
117 Bull Street, Newcastle West NSW 2302
Tel: (02) 4908 6800 Fax: (02) 4908 6810
ABN 43 692 285 758
www.epa.nsw.gov.au

Attachment
General Terms of Approval

General

1. Except as provided by these conditions of approval below, the works and activities must be undertaken in accordance with the *"Modification to Industry (Cement Depot) – Increase in Throughput Development Application* (2016/404)", dated June 2016.

2. The conditions of Environment Protection Licence 1503 also apply to this proposal.

Surface Water

3. Location of monitoring/discharge points and areas

   The following points referred to in the table below are identified for the purposes of monitoring and/or setting of limits for the emission of pollutants to water from the point.

Water

Identification no.	Type of Monitoring Point	Type of Discharge Point	Description of Location
1	Discharge quality monitoring	Discharge to waters	Discharge from the premises to the rail siding behind the premises as shown on plan titled *<proponent to supply plan with application to vary the Environment Protection Licence>*.

Concentration limits

4. For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant must not exceed the concentration limits specified for that pollutant in the table.

POINT 1

Pollutant	Units of measure	100 percentile limit
pH	pH	6.5-8.5
Oil and grease	visual	None visible

Monitoring requirements

5. For each monitoring/discharge point or utilisation area specified below (by a point number) the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns

POINT 1

Pollutant	Units of measure	Frequency	Sampling Method
pH	pH units	Daily during any discharge	TBA
Oil and grease	visual	Daily during any discharge	Visual observation

Bunding

6. All tanks and storage areas for drums containing material that has potential to cause environmental harm must be bunded or have an alternative spill containment system in-place.

   The bunding and/or spill containment systems must be properly designed, engineered, and constructed to be suitable for the material types and quantities stored therein in accordance with all appropriate standards, including Australian Standards (AS)1940 and AS1596.

7. Bunds must:
   a) have walls and floors constructed of impervious materials;
   b) be of sufficient capacity to contain 110% of the volume of the tank (or 110% volume of the largest tank where a group of tanks are installed);
   c) have floors graded to a collection sump; and
   d) not have a drain valve incorporated in the bund structure,

   or be constructed and operated in a manner that achieves the same environmental outcome.

Noise

8. Hours of operation

Unless otherwise specified by any other condition of this licence, all activities including the unloading of cement from rail wagons into the silos are:

a) restricted to between the hours of 7:00am and 5:00pm Monday to Friday;
b) restricted to between the hours of 7:00am and 3:00pm Saturday; and
c) not to be undertaken on Sundays or Public Holidays.

The hours of operation in this condition may be varied with written consent if the EPA is satisfied that the amenity of the residents in the locality will not be adversely affected.

9. Noise Limits

Noise generated at the premises must not exceed the noise limits shown in the table below.

	NOISE LIMITS dB(A)
Location	Day
	$L_{Aeq\ (15\ minute)}$
All residential noise receivers.	50

10. For the purpose of the noise limits condition above;
    a) Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and Public Holidays.

    b) Evening is defined as the period 6pm to 10pm.

    c) Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and Public Holidays.

11. The noise limits set out in the noise limits condition above apply under all meteorological conditions except for the following:

    a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
    b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
    c) Stability category G temperature inversion conditions.

12. To determine compliance:

a) with the $L_{eq(15\ minute)}$ noise limits above, the noise measurement equipment must be located:
- approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or
- within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable
- within approximately 50 metres of the boundary of a National Park or a Nature Reserve.

b) with the noise limits, the noise measurement equipment must be located:
- at the most affected point at a location where there is no dwelling at the location; or
- at the most affected point within an area at a location prescribed by the Noise Limits condition.

13. For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

14. Noise Management

The premises must implement reasonable and feasible noise management measures, to minimise off site impacts, this must include but not be limited to:
a) Delivery of the trains containing cement by rail, must not occur during the night-time, as much as is practicable.
b) Trucks to be turned off (no idling) whilst being loaded.
c) Alternatives to tonal reversing alarms ("beepers"), such as broadband alarms, reversing cameras, proximity alarms or a combination of these, must be investigated and implemented on all cement and flyash delivery and dispatch trucks frequenting the premises.

15. Nominated Representative

The licensee must nominate to the EPA a representative of the company that is available at all times and is capable of providing immediate assistance or response during emergencies or any other incidents at the premises. The name of the nominated representative and their contact details, including their telephone number, must be current at all times. The nomination and contact details must be provided to the EPA's Regional Manager- Hunter at hunter.region@epa.nsw.gov.au or to PO Box 488G, Newcastle NSW 2300.

16. **Emergency response**

The licensee must maintain, and implement as necessary, a current Pollution Incident Response Management Plan (PIRMP) for the premises. The PIRMP must be developed in accordance with the requirements in Part 5.7A of the *Protection of the Environment Operations* (POEO) Act 1997 and POEO regulations. The licensee must keep the incident response plan on the premises at all times. The incident response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment. The PIRMP must be tested at least annually or following a pollution incident.

FOR USE BY PLANNERS/SURVEYORS TO PREPARE LIST OF PROPOSED CONDITIONS - 2011

NOTE: THESE ARE DRAFT ONLY

DA NO: 2016/404 **DATE: 17/11/2016**

PRESCRIBED CONDITIONS

The development is to be undertaken in accordance with the prescribed conditions of Part 6 - Division 8A of the *Environmental Planning & Assessment Regulations* 2000.

A – GENERAL MATTERS

(1) (A001) The development is to be carried out in accordance with the plans and supporting documents set out in the following table, as stamped and returned with this consent, except where modified by any conditions of this consent.

Plan / Supporting Document	Reference	Prepared by	Date
Statement of Environmental Effects	J15147RP1	EMM Consulting	31 March 2016

In the event of any inconsistency between conditions of this development consent and the plans/supporting documents referred to above, the conditions of this development consent prevail.

(2) (A013) The general terms of approval from the following authorities, as referred to in section 93 of the Environmental Planning and Assessment Act 1979, and referenced below, are attached and form part of the consent conditions for this approval.

- **NSW Environment Protection Authority** - The General Terms of Approval, Reference EF13/2674 and dated 10 October 2016, are attached and form part of this consent.

(3) No trucks associated with the use shall be permitted to use Bago Road, with the alternative permitted route being via the Oxley Highway to or from the Pacific Highway. The person(s) having benefit of the consent shall ensure all truck drivers (including contractors) comply with this requirement. Use of Bago Road is however permitted in the following cases:

a) Trucks going to or from a business premises located near Bago Road (if a bulk carrier, the truck shall not be loaded),

b) Local deliveries to or from the King Creek or Bago localities.

B – PRIOR TO ISSUE OF A CONSTRUCTION CERTIFICATE

nil

C – PRIOR TO ANY WORK COMMENCING ON SITE

nil

D – DURING WORK

nil

E – PRIOR TO OCCUPATION OR THE ISSUE OF OCCUPATION CERTIFICATE

nil

F – OCCUPATION OF THE SITE

(1) (F003) All loading and unloading operations associated with servicing the site must be carried out within the confines of the site, at all times and must not obstruct other properties/units or the public way.

(2) (F017) Materials stockpiles and handling areas shall be maintained in a condition that prevents wind blown or traffic generated dust.

(3) (F024) Offensive noise as defined under the Protection of the Environment Operations Act 1997, shall not be generated as a result of the operation of the development.

(4) (F025) Hours of operation of the development are restricted to the following hours:

- 7 am to 5 pm – Mondays to Fridays
- 7 am to 3 pm – Saturdays
- No work is to be carried out on Sundays and Public Holidays

From: Martin [redacted]
Sent: Monday, 6 June 2016 8:41 PM
To: Council
Subject: Enquiry for application (10.2016.404.1)

Regarding Application No. 2016/404 by Boral Cement Limited
I have no objection to them expanding their throughput in general.
I am concerned about the extra damage they will do to the road surface that is already rough in that immediate area. Maybe council should get Boral to redo this section of road as they are the ones ripping it up, instead of us ratepayers paying for it (user pays I think its called) Also whilst we have had times in the past to complain to this business about their trucks speeding & driving up the street well before 7am they have made major efforts to put an end to these practices. As for their report where they made enquiries into previous complaints of this happening, they found it was neighbouring businesses is actual bulldust. So as long as they play ball I have no objection, and as long as they know all eyes are watching, we should all get along swell.
Martin Holmes
35 Wallace Street
Wauchope, 2446
[redacted]