1. AS SUBMITTED TO DoP 12/10/12.
(SEE E-MAIL: J. BALL 12/10/12 (6:24).
2. REPLACED VERSION SUBMITTED 26/9/12.
(SEE: E-MAIL J. BALL 26/9/12 (3:53).

New Botany Paper Mill

OPERATIONAL NOISE MANAGEMENT PLAN

- Version 3
- October 2012

New Paper Mill

OPERATIONAL NOISE MANAGEMENT PLAN

- Version 3
- October 2012

Sinclair Knight Merz
ABN 37 001 024 095
100 Christie Street
PO Box 164
St Leonards NSW
Australia 1590
Tel: +61 2 9928 2100
Fax: +61 2 9928 2500
Web: www.skmconsulting.com

SKM

Contents

1. Introduction

1.1. Overview

AMCOR Packaging (Australia) Pty Ltd ("AMCOR") has approval to construct and operate a New Paper Mill at its site in Matraville, NSW. Project approval for the New Paper Mill (the "B9 Project") was granted by the Minister for Planning on 20 July 2007 (Application No. 05_120). This approval covered the construction and operation of a new paper making facility, including the replacement of two existing paper machines. A modification to the original project approval, granted on the 12 July 2010, included subdivision of the site, changes in operational noise limits, changes in operational traffic movements and an upgrade of McCauley Street.

The New Paper Mill has been designed to minimise environmental impacts such as noise, odour and water discharges. The redesign of the site includes relocating the manufacturing activities to new buildings at the southern boundary of the site providing a substantial noise buffer for existing residences. Other activities such as product handling, engineering work shops and chemical storage have also been relocated to new buildings effectively centralising operations away from the residential areas.

1.2. Aim of the ONMP

As part of the Minister's Conditions of Approval (MCoA) for operation of the New Paper Mill, an Operational Noise Management Plan (ONMP) is required. Also an Environmental Protection Licence (EPL) issued under the Protection of Environment Operations Act is required for operation of the New Paper Mill. This ONMP has been developed to address the requirements of the specific MCoA and the EPL.

In addition to the presentation of management, administrative and mitigation measures, this document also outlines the procedure for community interaction and an operational noise monitoring procedure to satisfy the requirements of the MCoA and EPL.

This ONMP does not address health and safety impacts of operational noise on mill employees.

The structure of this ONMP is as follows.

Section 2	Outlines legislative and approval obligations that the B9 Project is required to fulfil
Section 3	Identifies nearby sensitive receivers and describes the general locality of the B9 Project
Section 4	Provides a description of the activities to be undertaken on site during operation of the facility
Section 5	Outlines administrative and engineered noise controls
Section 6	Describes the noise monitoring and reporting procedures
Section 7	Outlines complaints handling procedures

2. Statutory requirements

2.1. Project Approval

The construction and operation of the New Paper Mill was approved under Part 3A of the *Environmental Planning and Assessment Act* in 2007. The original project approval contained MCoA relating to operational noise limits and other operational noise requirements. In 2010 a modification to the approved project was obtained which included changes to operational noise limits and other operational noise requirements.

The MCoA which defines the requirements that must be addressed in this ONMP is presented in Table 1. There are a number of other MCoA's which are directly relevant to operational noise and these are presented in Table 2.

- **Table 1: MCoA for Operational Noise Management Plan**

Condition of Approval	Where Addressed in this Document
Schedule 3 - MCoA 13A- Operational Noise Management Plan The proponent shall prepare and implement an Operational Noise Management Plan for the project to the satisfaction of the Director-General. The plan shall be submitted to the Director-General prior to the commencement of operations, and must;	
a) Identify all potentially affected sensitive receivers;	Section 3
b) Specify the relevant noise criteria;	Section 4
c) Describe management methods and procedures and specific noise mitigation treatments that will be implemented to control noise emissions;	Section 5
d) Detail a noise monitoring programme to be prepared by a qualified acoustic consultant and implemented to monitor the affects of the project on the acoustic environment during operation, the effectiveness of all noise control devices and the noise barrier, and monitoring of road traffic noise, with details of procedures to be undertaken if any non-compliance is detected; and	Section 6
e) Detail procedures to receive, record and respond to complaints.	Section 7

- **Table 2: Other MCoA directly relevant to operational noise**

<table>
<tr><th>Condition</th><th>Relevance to Operational Noise Management Plan</th></tr>
<tr><td>
Schedule 3 - MCoA 10 Noise limits

The Proponent shall ensure that noise from operation of the project does not exceed the noise limits presented in Table 1.

Table 1: Project Noise Limits (dB(A))
<table>
<tr><th>ID</th><th>Location</th><th>Day
$L_{Aeq,15min}$</th><th>Evening
$L_{Aeq,15min}$</th><th>Night
$L_{Aeq,15min}$</th><th>Night
L_{Amax}</th></tr>
<tr><td>R1</td><td>Corner McCauley Street & Australia Avenue</td><td>46</td><td>45</td><td>43</td><td>55</td></tr>
<tr><td>R2</td><td>Australia Avenue</td><td>45</td><td>45</td><td>43</td><td>55</td></tr>
<tr><td>R3</td><td>Murrabin Avenue</td><td>46</td><td>45</td><td>43</td><td>55</td></tr>
<tr><td>R4</td><td>Partanna Avenue</td><td>42</td><td>41</td><td>41</td><td>55</td></tr>
<tr><td>R5</td><td>Corner Partanna Avenue and Moorina Avenue</td><td>42</td><td>42</td><td>39</td><td>55</td></tr>
<tr><td>R6</td><td>Moorina Avenue</td><td>43</td><td>43</td><td>39</td><td>55</td></tr>
</table>
Notes:
- Noise from the premises is to be measured at any point within 1 metre of any residential boundary or other noise sensitive areas in the vicinity of the premises to determine compliance with the $L_{Aeq(15minute)}$ noise limits in the above table.
- L_{Amax} noise limits apply at one (1) metre from the residential building facade
- Where it can be demonstrated that direct measurement of noise from the development is impractical, the Department and the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy)
- The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- The noise limits identified in Table 1 apply under the following meteorological conditions:
o Wind speeds up to 3m/s at 10 metres above ground level; or
o Temperature inversion conditions up to 3°C/100m and wind speeds up to 2m/s at 10 metres above ground level.
</td><td>These are the operational noise limits that are presented in the ONMP.</td></tr>
<tr><td>
Schedule 3 - MCoA 10A Noise Mitigation

Prior to the commencement of operations of the project, the proponent shall prepare and implement a detailed Noise Barrier Design Plan. The Plan shall:

a) Be prepared in consultation with Council;

b) Be prepared and implemented to the satisfaction of the Director-General;

c) Demonstrate that the proposed noise barriers are designed
</td><td>This is one of the operational noise mitigation measures detailed in the ONMP</td></tr>
</table>

Condition	Relevance to Operational Noise Management Plan
with a material density of no less than 15kg/m^2, unless otherwise approved by the Director-General; d) Include a detailed plan of the layout indicating how the noise barriers would traverse along the north-eastern perimeter of the AMCOR Site and around the waste paper storage yard; and e) Include a detailed design of the barrier, outlining how it would be visually treated to reduce and mitigate any visual impacts, such as the provision of landscaping on its northern side.	
Schedule 3 - MCoA 13B Prior to the commencement of operations, the Proponent shall ensure that all of the following noise mitigation controls are implemented: a) Retention and redesign of the B7 Product Store to provide acoustic shielding; b) Placement of ventilation fans on the decks on the south side of the paper machine building; c) Engineering controls on fans and blowers to achieve 85dB(A) at 1m from the outlets; d) Ground floor level wall of the paper machine building facing residential areas to be constructed of concrete and a double clad metal system; e) Machine floor level wall of the paper machine building facing residential areas to be constructed of a double steel cladding system; f) Design of the internal road system and traffic flow to prevent sleep disturbance criteria being exceeded; and g) Design of the finished product store to allow trucks to be loaded inside the building and to exit the site via a separate access on McCauley Street further from residential areas.	These are operational noise mitigation measures detailed in the ONMP
Schedule 3 - MCoA 14 - Noise Validation Within 3 months of the commencement of operations, the Proponent shall submit a Noise Verification Study to the satisfaction of the Director-General to demonstrate compliance with the noise limits in Table 1. This study shall: a) Be undertaken by a suitably qualified acoustical expert and in accordance with the NSW Industrial Noise Policy b) Validate the predictions made in the EA; c) Demonstrate compliance with the noise limits in Table 1; and d) Describe the contingencies that would be implemented, and the timing for implementation, should non compliance be detected.	This is one of the operational noise monitoring requirements detailed in the ONMP

This noise management plan will seek to address the requirements of MCoA 13A and make reference to Conditions 10 and 13B. The remaining conditions will be addressed through the commissioning and validation process.

2.2. Environmental Protection Licence

In addition to planning requirements, the existing EPL (Environmental Protection Licence), Licence No. 1594 has been varied to better reflect the operating conditions of the B9 Project. The EPL conditions identified for inclusion within this management plan are detailed in **Table 3**.

- **Table 3: Relevant noise conditions from the EPL**

Condition	Relevance to ONMP
L4.1 Noise emissions from the premises must not exceed the noise limits prescribed in the table below. *(To avoid repetition this table is identical to Condition 10, Table 1 of the MCoA conditions, above in **Section 2.1**)* L4.2 For the purposes of Condition L4.1: a) 'Day' is defined as the period between 7:00am and 6:00pm Monday to Saturday and between 8:00am and 6:00pm Sundays and Public Holidays b) 'Evening' is defined as the period between 6:00pm and 10:00pm. c) 'Night' is defined as the period between 10:00pm Sunday to Friday and 07:00am the following day, between 10:00pm Saturdays and 8:00am Sundays, and between 10:00pm the day preceding a Public Holiday and 8:00am on the Public Holiday. L4.3 Noise from the premises must be measured at any point within 1 metre of any residential boundary to determine compliance with the $L_{Aeq(15min)}$ licence noise limits L4.4 Noise from the premises must be measured at any point within 1 metre of any residential building facade to determine compliance with the L_{Amax} licence noise limits L4.5 The noise limits specified in Condition L4.1 apply under the following meteorological conditions: a) Wind speeds up to 3 metres/sec at 10 metres above ground level; and b) Temperature inversion conditions of up to 3°C	These are the operational noise limits that are presented in the ONMP.
L5.1 Vehicle, mobile plant and fork truck maintenance that has the potential to generate offensive noise at any residential premises must not be undertaken prior to 7:00 am on any day	This is one of the operational noise mitigation measures detailed in the ONMP

Condition	Relevance to ONMP
M6.1 The licensee must undertake noise monitoring at least once every three months to check compliance with the noise limits specified in Condition L4.1 M6.2 All noise monitoring required by this licence must be undertaken in accordance with Australian Standard AS 2659.1-1998:Guide to the use of sound measuring equipment – Portable sound level meters, or any revisions of that standard which may be made by Standards Australia, and the compliance monitoring guidance provided in the NSW Industrial Noise Policy.	This is one of the operational noise monitoring requirements detailed in the ONMP
Noise Monitoring Report R4.1 The licensee must submit to EPA a report detailing the results of the noise monitoring required under Condition M6.1 R4.2 The noise monitoring report referred to in Condition R4.1 must be submitted to EPA within three weeks of the completion of noise monitoring required by Condition M6.1 R4.3 The noise monitoring report referred to in Condition R4.1 must include: a) Details of any exceedances of the noise limits prescribed in Condition L4.1; b) Details of the cause of the reported exceedance of noise limit; and c) Details of any action undertaken or proposed to be undertaken by the licensee to prevent or mitigate against a recurrence of the exceedance.	This is one of the operational noise monitoring requirements detailed in the ONMP

3. Locality and sensitive receivers

The B9 Project is located on a 15.5 ha site within the Matraville industrial area as shown in **Figure 3-1**.The sensitive receivers are identified in **Table 4**and the receiver locations are shown in **Figure 3-1**. **Figure 3-2** shows a detailed site layout. The site is bounded to the south by Botany Road, to the north by Australia Avenue, to the west by McCauley Street, and extends east to the end of Partanna Avenue. Surrounding land uses include residential uses to the north and east, and commercial and industrial uses to the west and south.

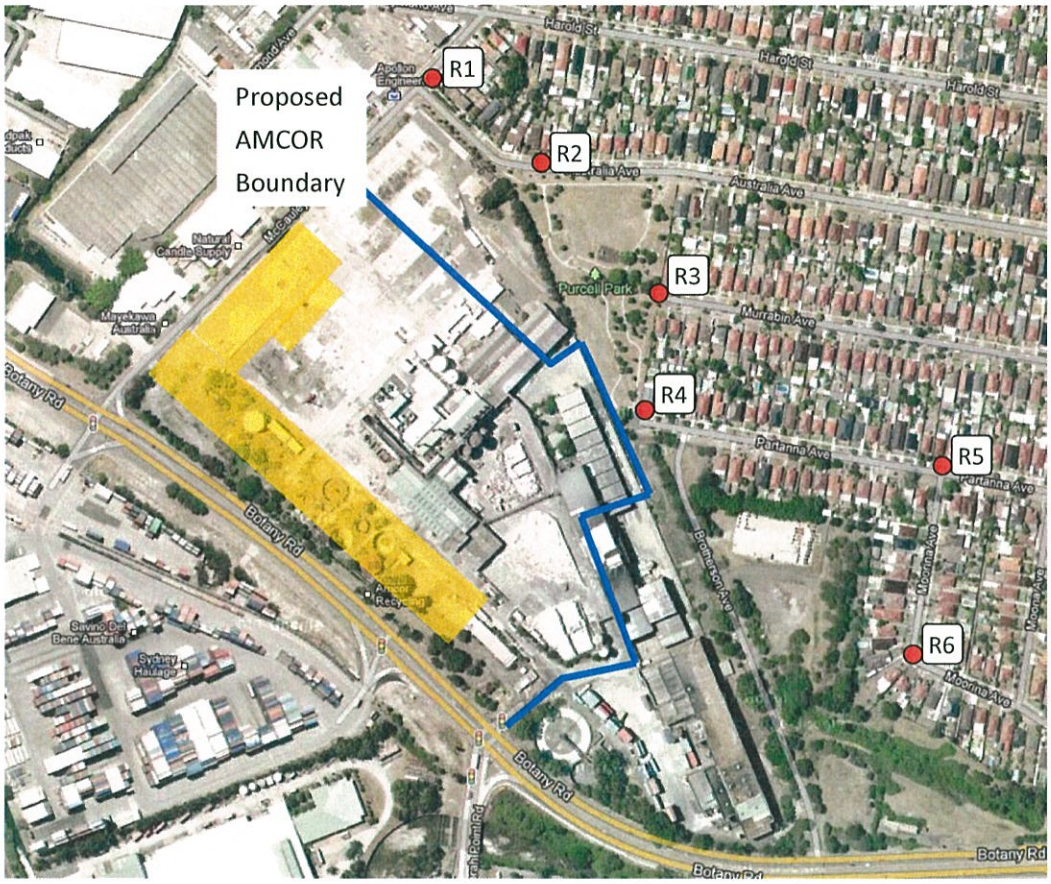
For the purposes of this ONMP, noise sensitive receivers are limited to those identified within the MCoA and the EPL. However, these receivers are representative of the nearest receiver groups.

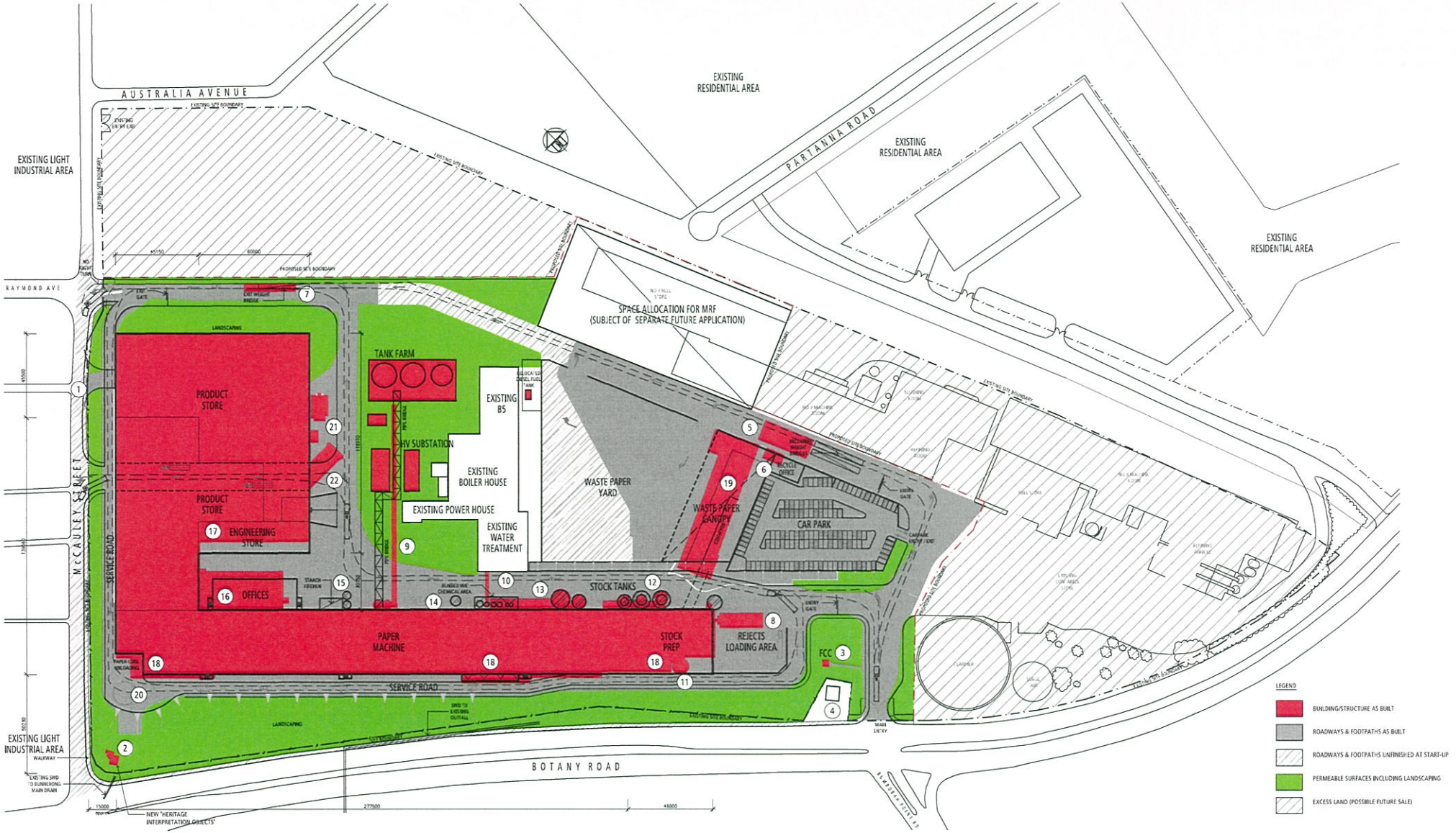
- **Table 4 Sensitive receiver identification**

Reference (from MCoA)	Location	Receiver type	Distance and direction from AMCOR boundary (After subdivision and not including MRF site)
R1	Corner McCauley Street & Australia Avenue	Residential	100 m north
R2	Australia Avenue	Residential	100 m north
R3	Murrabin Avenue	Residential	120 m north
R4	Partanna Avenue	Residential	90 m north
R5	Corner Partanna Avenue and Moorina Avenue	Residential	220 m north
R6	Moorina Avenue	Residential	170 m north east

Taken from Table 1: Project Noise Limits, Schedule 3, MCoA 10 Notice of Modification 12 July 2010

Figure 3-1 AMCOR Paper Mill – Location





AMCOR PROJECT B9 - "AS EXECUTED" SITE LAYOUT (OVERLAYED ON APPROVED DA LAYOUT)

JOB NO 09117 TP01h

CNR BOTANY ROAD & McCAULEY STREET, MATRAVILLE NSW

DATE AUGUST 2012
DRAWN BY BE
SCALE @ A1 1:1000
SCALE @ A3 1:2000

amcor

NOTE:
DIMENSIONS APPROXIMATE ONLY,
INCLUDING 10,000m² PRODUCT STORE LAYOUT

NO	DATE	REVISION	BY	CHK
D	23-11-09	REVISIONS TO SUIT CLIENT	GP	AY
E	29-03-12	As Executed - above NGP	GP	AY
F	12-07-12	LEGEND & COMMENTS ADDED	BE	AY
A	13-08-12	REFERENCE NUMBERS ADDED	BE	AY

WATSONYOUNG
ARCHITECTS//INTERIORS
8 grattan street prahran victoria 3181 australia abn 111 298 700
t: 03 9516 6555 f: 03 9516 6500 w: www.watsonyoung.com.au

4. Operational noise sources

4.1. Noise sources

Noise emissions associated with the B9 Project have been assessed as part of the EIS *(Benbow Environmental 2010)*, which identified noise sources across the site and predicts how the noise from these sources propagates in the surrounding area. Mitigation measures were recommended for incorporation into the B9 Project design to reduce noise to acceptable levels.

Assessed noise sources included a combination of mobile and stationary sources at various locations throughout the site, as follows:

- Paper machine building including stock preparation area
- Paper machine
- Winder
- Ventilation plant area
- Finished Product store
- Rejects handling area
- Waste paper yard
- Wastewater treatment plant
- Boiler house
- Product trucks
- Delivery trucks
- Waste removal trucks

The majority of operations associated with the B9 Project will be undertaken with newly built plant and buildings. However items such as the wastewater treatment plant and boiler house have been kept from the existing mill and will be utilised in the B9 Project.

The source areas are discussed in the following sections.

4.2. Buildings and Stationary Plant

4.2.1. Paper machine building (B9)

The newly constructed, two-floor, B9 paper machine building incorporates the B9 paper machine and associated infrastructure including a stock preparation area, vacuum blower plant and winder.

Although the B9 building accommodates a large number of internal plant and noise sources, these are all enclosed within the one building envelope so, for the purpose of this management plan, the B9 building itself will be considered as the main noise source. Since the building facade is constructed of a 2.7m concrete dado wall and double skinned metal cladding, which provides significant noise reduction from inside to outside, only where there is a gap in the facade, such as with air inlets and outlets, will these be addressed individually. Therefore, noise breakout sources include the following:

- B9 paper machine building walls
- B9 paper machine building roof
- Vehicle and pedestrian access points
- Waste paper conveyor entry
- Process ventilation fan and/blower inlets/outlets
- Building ventilation fan inlets/outlets

4.2.2. Ventilation Plant Area

The process and building ventilation plant represent a potential noise source..

The movement of large volumes of air is an integral part of the papermaking process. This is required to remove the water vapour generated during the paper drying process and to control mist generated by the high speed paper machine. The need for tight control of the paper machine and building environment means that there are a relatively large number of air duct inlets and outlets required.

The majority of the process fans and associated ducting are located on an external mezzanine floor on the southern side of the building, the opposite side to the closest sensitive receivers.

A large building ventilation system is also required to maintain an environment that is conducive to efficient paper machine operation and operator comfort. The mechanical air intake units are located in the north wall of the building and the extraction fans on the external mezzanine on the south side of the building.

4.2.3. Finished Product Store

The newly constructed, single floor, Product Store Building is located along McCauley Street towards Australia Avenue. The Product Store will, as the name suggests, be the storage and dispatch point for paper products manufactured by the B9 Project. It is attached to the north side of the B9 paper machine building but separated by an internal concrete block wall, with an opening to allow the transfer of product.

The potential noise emissions from the Product Store will be significantly lower than those associated with the B9 building due to the small amount of plant located within the building. Plant operating within the Product Store will be limited to large diesel powered forklift trucks fitted with reel grabs and product delivery trucks which will enter the building prior to being loading. Following internal loading, these product trucks will exit the Product Store Building directly onto McCauley Street to the west.

4.2.4. Waste water treatment plant

The existing waste water treatment plant has been incorporated into the design of the B9 Project and will be utilised by the new plant. The location and operation of this plant will remain unchanged from the old mill layout.

The waste water treatment plant is located toward the centre of the site, north of the B9 paper machine building. The plant will operate 24 hours a day, 7 days a week.

4.2.5. Boiler house

The existing boiler house has been incorporated into the design of the New Paper Mill and will supply steam to the new plant. The location and operation of this plant will remain unchanged from the old mill layout. The boiler house is located toward the centre of the site, north of the B9 paper machine building and will operate 24 hours a day, 7 days a week.

4.3. Traffic

The traffic types listed in Table 5 are anticipated to generate some noise as they travel through the site on the internal road system.

Table 5 On-site traffic types

Mobile source	Description
Employee vehicles	Limited mainly to the start and end of shifts and concentrated toward the south of the site. Noise should blend with existing Botany Rd traffic noise.
Waste paper delivery trucks	24 hour, 7 day operation, with entry via Botany Rd and exit via McCauley St southbound. General engine noise, braking, unloading (compactors,walking floors) and reversing alarms.
Starch/chemical delivery trucks	Day period only, accessing site via Botany Rd and exiting via McCauley St. Trucks will deliver to the central tank storage area generating noise through engines, braking and reversing alarms and pump and blower operations.
Waste removal trucks	Day and evening period only, accessing site via Botany Rd and exiting via McCauley St southbound. Trucks will collect waste from storage compound at south east of site generating noise through engines, braking and reversing alarms.

Mobile source	Description
Finished product trucks	24 hour, 7 day operation. The majority of trucks collecting finished product will enter at Botany Rd, be loaded inside the Finished Product store and egress onto McCauley St southbound. Trucks collecting export product in shipping containers will be loaded at sunken docks on the east side of the store. Engine, braking and reverse alarm noise possible, but loading noise will be indoors.

4.4. Waste paper yard

The waste paper yard is located toward the centre of the site and is used to store waste paper until it is required as raw material for the papermaking process. The waste paper is delivered to site by trucks which are either self unloading (mainly compactors, walking floors or tippers) or are unloaded by mobile clamp trucks. The waste paper will be transferred from the yard to the Stock preparation area in the paper machine building by a continuously operating enclosed conveyor system. The conveyor system will be fed by a front end loader. The conveyor loading area is covered by a canopy which is a partially enclosed building (open sides to the west and south west).

The main sources of noise will be from waste paper delivery trucks (see above), front end loaders, clamp trucks and the waste paper conveyor. The front end loaders and clamp trucks will operate throughout daytime and night time periods to process deliveries and to keep the paper machine supplied with waste paper. Noise sources will include engine revving, reverse alarms, mechanical noise from loader scoop and mechanical noise from the waste paper conveyor.

5. Noise mitigation

There are two types of noise mitigation measures for the project, namely:

- Engineering design measures and;
- Management measures to be implemented during operation.

These are described in greater detail below.

5.1. Engineering measures (incorporated into plant design)

Noise control measures recommended as part of the 2010 project approval modification (Benbow 2010) have been incorporated into the design of the New Paper Mill and will be part of the operational facility. These measures include building and mobile plant as discussed in the following sections.

5.1.1. B9 paper machine building

The paper machine building has been designed and constructed to achieve compliance with the MCoA and EPL site noise criteria. This includes consideration of all parts of the paper machine building including the stock preparation area located in the eastern end of the building, the paper machine located in the central area, and the winder area located in the western end of the building.

The paper machine building envelope is designed and constructed to mitigate the transmission of noise from inside to outside of the building as follows;

- A 2.7m high precast concrete panel dado wall from ground level on all facing facades
- Double skinned metal cladding to the remaining wall space (0.7mm BMT aluminium inside; 0.48mm BMT steel outside)
- 200mm air gap between the inner and outer sheeting
- 0.48mm BMT steel cladding to the roof
- 50mm thermal insulation within the wall air gap and beneath the roof cladding.

Details of additional specific design measures for each area of the building are presented below.

5.1.1.1. Stock preparation

Additional measures implemented to control noise from the stock preparation area include the following:

- Installation of acoustic insulation (10 kg wavebar) in the 200mm air gap of the eastern and northern walls of the building between the first floor level and the roof
- Enclosure of the pumps and agitators associated with the large pulp and water tanks located external to northern wall of the building in an annexe to the main building. The wall and roof cladding is the same as for the main building.

5.1.1.2. Paper machine

Additional measures implemented to control noise from the main section of the paper machine building include the following:

- An environmental enclosure surrounds the paper machine dryer section to maintain humidity and temperature control. Although not specifically designed for acoustic performance, it acts as a partial acoustic enclosure around the paper machine, reducing reverberant noise levels within this area of the mill building
- The high speed centrifugal blowers used to supply vacuum for the paper machine are enclosed in an internal room constructed of concrete panels.

5.1.1.3. Winder Area

Additional measures implemented to control noise from the winder area include the following:

The western extent of the B9 paper machine building is the winder. The winder splits the large paper rolls into several smaller reels of paper. This area of the building is constructed to the same standard as the area surrounding the paper machine with a combination of concrete, double and single skin walls. The northern facade is attached directly to the Product Store/Finished Product Building to allow undercover access between the two buildings.

5.1.2. Ventilation Fans and discharge vents

The following mitigation measures have been designed into the layout and construction of the ventilation plant area.

- The fans are positioned on the mezzanine level on the south side of the B9 paper machine building which is the furthest extent from residential receivers and takes advantage of the mill building itself as a barrier.
- Fans have been designed to provide a reasonable amount of isolation from the B9 paper machine building to avoid vibration propagating into the structure and producing structural borne sound. This includes mounting the fan bodies on vibration pads.

- Duct outlet noise designed to be limited to 85 dB(A) at 1 metre from outlet. Silencers have been installed in discharge ducts where needed to achieve this noise level.

5.1.3. Finished Product Store building noise control measures

The Finished Product Store building is constructed from 0.48mm (BMT) single skin steel (roof and walls). The walls sit atop a 2.7 m high concrete dado wall. Considering the small number and low magnitude noise emissions within the Product Store Building, the 0.48mm (BMT) will control noise from this area.

The truck entry and exit points to this building, for accepting product delivery trucks will have automated doors to control noise break out from internal activities.

5.1.4. Waste Paper Yard

Noise from the waste paper yard will be controlled through management measures implemented to waste delivery trucks (see **Section 5.3**), to mobile plant such as front end loaders (see **Section 5.2**) and the installation of a noise wall (see **Section 5.1.5**)

5.1.5. Noise barriers

The location and design of noise barriers were identified by the Modification #2 Environment Assessment Report (Benbow Environmental, January 2010). This report looked at the requirements and design of noise barriers within the New Paper Mill. The noise barriers identified and included within the assessment seek to control noise from new operations in the absence of the existing B7 and B8 paper machine buildings. The location of these two buildings are such that they provide a significant barrier affect to receivers situated to the north and east of the waste paper yard and the eastern extent of the B9 paper machine building. The demolition of these two buildings will be staged and unlikely to occur in the near future and as such the requirement for the total noise barrier design at start up is deemed unnecessary. The exact location and design of barriers proposed for the site will be detailed in the *Noise Barrier Design Plan*, as required by Condition 10A of Condition Approval Schedule 2 - No:6 of the Project Approval: 05_120.

AMCOR propose to implement the noise barrier design recommendations through a staged process, this is presented below:

- **Stage 1** – Temporary Noise Barrier – AMCOR is proposing to construct a temporary noise barrier consisting of stacked shipping containers (each 2.3 m in height). The temporary noise barrier would extend from the McCauley Street boundary to the B7 product store. Further details of the barrier would be provided in the Stage 1 – Noise Barrier Design Plan. However

the temporary barrier would provide equivalent or better noise mitigation than the proposed by the permanent barrier design detailed in the Modification #2 Environment Assessment Report (Benbow Environmental, January 2010).

- **Stage 2** – Permanent Noise Barrier from the McCauley Street boundary to B7 product store. Once the design and location of the noise wall is agreed with Randwick City Council, AMCOR would construct the section of the wall between McCauley Street to B7 paper machine product store. In this stage the existing B7 product store and B7 & B8 Paper Machine Buildings would still be in place – and would provide noise mitigation in excess of the proposed noise wall in these locations.
- **Stage 3** – Permanent Noise Barrier from B7 Product Store to Botany Road Shared Access. Once the sale of the excess land occupied by the B7 and B8 paper machine buildings is completed and/or before the demolition of these buildings, the remaining section of the wall would be completed. As the end use of the excess land may affect the location, height and characteristics of the noise wall in this location, it is prudent to delay its construction until further information about the development of this land is known.

5.2. Mobile Plant

Mobile equipment such as front end loaders and clamp trucks operate in three main areas of the site:

- Waste paper yard
- Rejects loading area
- In the Finished Product Store building

The use of AMCOR operated mobile plant on the site has been designed to reduce noise emissions as far as possible, taking account of the feasible and reasonable guidance provided in the *NSW Industrial Noise Policy*. Measures include the following:

- 6 metre high noise barrier to be installed along the northern site boundary abutting Australia Avenue. (For more details on noise barriers see Section **5.1.5**). This will protect receivers on Australia particularly from noise generated by trucks travelling in the vicinity of the Finished Product Store.
- Following the demolition of B7 & B8 mill buildings, the 6 m wall will be extended within the site and along the boundary to take account of the loss of noise protection provided by these buildings (for more details on noise barriers see Section **5.1.5**). This will protect receivers to the north and noth east of the site from potential mobile plant noise generated around the waste paper yard.

- Product dispatch trucks will be loaded within the Finished Product Store building, with mobile plant such as fork lift trucks remaining within the confines of the building.
- Vehicle, mobile plant and fork truck maintenance that has the potential to generate offensive noise at any residential premises must not be undertaken prior to 7:00 am on any day.
- Where reversing alarms would be used, their acoustic range would be limited to the immediate danger area.

5.3. Traffic noise mitigation

The management of noise associated with traffic movements related to the operation of the New Paper Mill will be in line with the *AMCOR Traffic Management Plan (May 2012)*. The measures outlined within this plan to control noise are summarised below:

- ***Implementation of driver Code of Conduct Training*** – The Driver Code of Conduct will be issued to all drivers of vehicles that require access the site. It will be issued and explained as part of the site induction procedure which must be completed before drivers are permitted to enter the site. Upon successful completion of the induction procedure drivers will be issued with an electronic security pass which is necessary to activate the entry and exit security gates.
- ***Minimising the use of reversing alarms*** – The new Finished Product Store has been designed to allow trucks to enter, be loaded and exit the store without having to reverse. Most of the product will be dispatched in this manner. A small amount of product will be end loaded into shipping containers for export. The trucks transporting the containers will need to reverse into recessed loading docks, however these are located about 180m from the nearest sensitive receivers. All clamp truck operations required to load product reels for delivery including export reels will take place inside the store. This will provide significant noise mitigation for their reversing alarms.
- ***Movement scheduling*** – The movement of heavy vehicles to and throughout the site is scheduled to avoid the most sensitive periods of time where possible. Heavy vehicle numbers during night time and weekend periods are fewer than during weekday daytime periods.
- ***Monitoring and recording*** – All heavy vehicles entering and exiting the site will be recorded and monitored. A pass system would be used where all heavy vehicles would be electronically registered at the incoming weighbridges and then again recorded at the outgoing weighbridge. CCTV would be installed at the exit on McCauley Street and any heavy vehicles turning right into residential areas would able to be identified and appropriate disciplinary action implemented.
- ***Traffic management measures*** – Physical traffic management measures (eg. traffic islands) have been included in the design of the McCauley Street exit (in consultation with RCC) to impede right turns for heavy vehicles.

- ***Signage*** – Appropriate signage would be installed within the site to inform drivers of noise sensitive areas and to limit noise generating activities (such as reversing). Appropriate signage would be installed at the McCauley Street exit informing them that only left turns would be permitted
- ***Complaints procedure*** – Any complaints regarding traffic noise or other traffic related matters would be investigated and appropriate remedial measures implemented. As noted above due to the electronic monitoring of heavy vehicles, culprits would be able to be easily identified.
- ***Noise barrier*** – *See* ***Section 5.1.4***

5.4. Other administrative measures

Other measures in order to control noise on site and to meet the requirements of the MCoA and the EPL will be adopted as follows:

- Plant will be regularly maintained to reduce the risk of excess noise being emitted from poorly functioning plant. In addition where plant maintenance is required, this will be undertaken in non-sensitive hours.
- Scheduled maintenance of mobile plant will be undertaken within weekday, daytime hours (07:00 – 18:00). The location of maintenance works will be undertaken within buildings where practical, or alternatively to the south of the AMCOR site. Where emergency mobile plant maintenance is required, this will, where possible, be restricted to daytime hours and confined to the southern extent of the AMCOR site.

6. Noise monitoring and reporting

6.1. Compliance commissioning noise monitoring procedure

In accordance with Condition 14 of the MCoA, there is a requirement to undertake a noise verification study to demonstrate compliance with the project noise limits. The verification study will be used to meet the requirements of Condition 14 but also to determine the long-term monitoring locations and methodology adopted to satisfy regular monitoring.

Due to the influence of non-AMCOR noise sources on the existing noise environment at receivers identified within the ONMP direct measurement at sensitive receivers to demonstrate compliance is unlikely to be suitable. For this reason a monitoring and modelling methodology will be produced during the verification study to ascertain the contribution of AMCOR noise at identified receivers. Presented in **Table 6** and **Table 7** below are the proposed monitoring locations and monitoring types for the verification study. Initially a combination of monitoring noise sources and noise impacts at sensitive receiver locations would be undertaken. Once the verification study has been completed and analysed a representative subset of these monitoring points would be identified and a methodology and procedure for the longer term monitoring program would be developed. This ONMP would be updated to reflect the revised monitoring program.

- **Table 6 Operational noise monitoring locations**

Activity	Noise sources	Types of measurement
B9 Paper Machine Building (at each level)	Northern Facade	▪ Sound Intensity measurements to determine sound power level of individual sources ▪ Sound pressure validation measurements
	Western facade/	
	Eastern facade/stock preparation plant	
	Southern facade	
	Entry and egress points (both vehicle and employee)	
	Fans, blowers and vacuum pump outlets.	▪ Sound Intensity measurements to determine sound power level of individual sources
	Internal Plant	
Finished Product Store	Northern facade	▪ Sound Intensity measurements to determine sound power level of individual sources ▪ Sound pressure validation measurements
	Eastern facade	
	Western facade	
	Entry and egress points (both vehicle and employee)	
Rejects handling Area	Mobile plant	Sound Intensity measurements to determine sound power level of individual sources
Waste paper yard	Mobile plant	▪ Sound Intensity measurements to determine sound power level of individual sources
	Waste paper conveyor	▪ Sound pressure validation measurements
	Truck unloading	
Wastewater treatment plant (existing)	Pumps/agitators etc.	▪ Sound Intensity measurements to determine sound power level of individual sources

Activity	Noise sources	Types of measurement
		▪ Sound pressure validation measurements
Boiler house (existing)	Pumps, fans etc.	▪ Sound Intensity measurements to determine sound power level of individual sources ▪ Sound pressure validation measurements
Trucks	Waste paper delivery trucks	▪ Sound Intensity measurements to determine sound power level of individual sources
	Starch and Chemicals delivery trucks (including starch unloading)	▪ Sound pressure validation measurements
	Finished Product trucks Waste Removal trucks	

- **Table 7 Sensitive receiver location monitoring – verification study**

Location	Location type	Period
Corner of Australia Avenue/McCauley Street	Residential receiver	Daytime/Night
Murrabin Avenue (Western end)	Residential receiver	Daytime/Night
Partanna Avenue (Western end)	Residential receiver	Daytime/Night
Moorina Avenue (no. 22 or 24)	Residential receiver	Daytime/Night
Australia Avenue (no. 64 or 65)	Residential receiver	Daytime/Night
Purcell Park	Validation/passive recreational	Daytime/Night
McCauley Street (no. 40 or 42)	Validation/commercial	Daytime/Night
Botany Road/Amcor Boundary (various points)	Validation	Daytime/Night
Bumborah Point Road/Botany Road	Validation	Daytime/Night
Brothers Avenue (various locations)	Validation	Daytime/Night
15-30 Points around Amcor Boundary (tbc)	Validation	Daytime/Night
5-10 Internal Site Measurements (tbc)	Validation	Daytime/Night

6.2. Standard noise monitoring procedure

Condition M6.1 of the EPL requires the monitoring at noise sensitive receivers surrounding the New Paper Mill, once in every 3 month period. The objective of the 3-monthly monitoring is to show that AMCOR continues to operate the Botany site in accordance with noise criteria, and where non-compliances are shown that they are managed accordingly.

6.3. Compliance reporting

In line with Condition R4 of the EPL, following each 3-monthly monitoring exercise, a noise report detailing the findings will be produced. This will be produced by or on behalf of AMCOR and will include the following:

- Details of methodology
- Tabulated results table of monitoring data/predictions

- Details of any exceedances
- Reasons for any exceedances
- Details of any action required or proposed to be undertaken to prevent reoccurrence of exceedances.

The report will be submitted to EPA within 3 weeks of undertaking the onsite monitoring.

6.4. Corrective actions

If a non-compliance with noise limits is found or if there is a noise complaint the following process would be undertaken to identify and implement corrective actions.

1) The monitoring results or complaint would be reviewed in detail to determine whether the noise exceedance was a result of AMCOR's operations or potentially from another source. Previous experience from AMCOR's existing mill is that many noise complaints or exceedances are not a result of AMCOR's operations, rather they are from other industrial, commercial or port activities. If the noise exceedance is not from AMCOR's operations, no further action would be undertaken apart from informing the complainant of the result of the investigation.
2) If the noise exceedance was a result of AMCOR's operations the actual cause/source of the exceedance or complaint would be identified.
3) If the actual cause/source of the noise, is a one-off or uncommon event, management measures to eliminate a repeat occurrence of the source of the noise will be developed and implemented. The type of management measures that could be implemented include:
   - Cease undertaking the noise generating activity.
   - Undertaking the activity at a less sensitive time (ie in daytime rather than night)
   - Undertaking the activity at a less sensitive location (ie further away from sensitive receivers)
   - Developing lower noise generating alternative to the activity.
4) If the actual cause/source of the noise is a common event, management measures to eliminate a repeat occurrence of the source of the noise will be initially investigated. The same alternatives as above would first be investigated. If these do not result in sufficient noise mitigation, physical measures to reduce noise impacts would be investigated including:
   - Replacement of noise generating equipment with equipment that generates lower levels of noise (eg. replacing noisy pumps).
   - Additional noise screening around noisy equipment (eg. silencers on fans, screening around pumps).
   - Installation of noise absorpative material on reflective walls to reduce noise emissions.

- Installation of additional noise walls.
- Architectural treatment of properties impacted by high noise levels.

7. Complaints handling & community consultation

AMCOR has established an environmental complaints procedure which applies to the handling of all (internal and external) environmental complaints from relevant interested parties. The purpose of the procedure is to establish and maintain a documented system for receiving and processing environmental complaints.

Environmental complaints are generated either from an external or internal person to Botany Mill. They are initiated from an observation or objection to activities taking place on site, and can be raised following an incident or in anticipation of an incident that may cause environmental harm. Environmental complaints include disturbances to the residents surrounding the Botany Mill site.

Environmental complaints are recorded on AMCOR's ESS HSE Incident Reporting system (historically known as Amcare). The Environment Hotline (1800 072 734) can be used by interested parties to report disturbances 24 hours, 7 days a week. The hotline is monitored by a communications services provider (currently Welldone International Pty. Ltd). A copy of the *AMCOR Environmental Complaints Document (Ref. Ewp-432, July 2010)* is presented in Appendix A.

Complaints of a contentious nature will be reported to the DP&I and managed in accordance with the *AMCOR Community Liaison Plan*.

Appendix A *AMCOR Environmental Complaints Document*

amcor	Environmental Complaints	Reference: Ewp-432
		Edition : 012
Approved By: Environmental Engineer		Date of issue: 1st February 2012

1 PURPOSE

1.1 To establish and maintain a documented system for handling environmental complaints, and for ensuring that the requirements to do so in the Mill EPA Licence under the Protection of the Environment Operations Act 1997 are met.

2 SCOPE

2.1 This Environmental Work Procedure applies to the handling of all (internal and external) Environmental complaints from relevant interested parties. Both internal & external complaints are reported in the same way.

3 RESPONSIBILITY

All personnel can receive and document Environmental complaints. Specific responsibilities are documented within the procedure for the Environment Engineer, General Manager Production, Duty Officer and Shift managers.

4 PROCEDURE

4.1 Environmental complaints are generated either from an external or internal person to Botany Mill. They are initiated from an observation or objection to the way the mill is operating, and can be raised following an incident or in anticipation of an incident that may cause environmental harm. Environmental complaints include disturbances to the residents surrounding the Botany Mill site.

4.2 Environmental Complaints are recorded on the ESS HSE Incident Reporting System.

4.3 The Environment Hotline – 1800 072 734 can be used by interested parties to report disturbances 24 hours, 7 days. The hotline is handled by a group called Welldone International. See Section 6.

4.4 During normal office hours, most complaints are received by the Environment Engineer or nominee.

4.5 Those dealing with external complaints are to keep in mind the following;

a) If one resident is disturbed, so are others.
b) The Mill is difficult to contact at night, and many people give up. Most timid people do not even try.
c) If disturbances are not fixed quickly by the Mill, residents contact other authorities i.e. EWP, Council, Police, Member of Parliament etc.

4.6 Anyone receiving an external communication is responsible and has the authority for politely obtaining, accurately and legibly recording details of the communication and informing the appropriate Mill people of such communication.

5 Receiving Complaints

5.1 Complaints may be in writing, by phone or in person and come from a variety of sources.

a) People external to the Mill, such as neighbours.
b) People working at Botany Mill. Employees living close to the Mill or passing by the Mill who notice any disturbances likely to cause neighbours to complain or create an environmental incident
c) Made direct to the Mill or Hotline or made through a third party such as the EPA, Randwick Council, Member of Parliament or the Police.

The person receiving the complaint should indicate if the complainant was internal or external to the Mill.

5.2 The person receiving the complaint requests from the complainant, relevant details of the incident including

a) name
b) address
c) phone number (home and/or work)
d) when feedback is required

If the complainant refuses to give their name or contact details, this fact is recorded and the complainant is reminded that no progress reports can be provided.

5.3 If the complaint was received through the Amcor Environmental Hotline then a person from Welldone International would record the details listed above in Section 5.2. The compliant would then be handled as per Section 6.

6 Immediate Action

6.1 Immediate action **must** be taken to stop a non-compliance with mill policies, legislation, regulations and licences from continuing.

6.2 The person who received the complaint immediately informs the Shift Manager (or the Environment Engineer if during normal office hours) of the details of the complaint.

6.3 The person receiving the complaint should log onto the ESS HSE incident reporting system and document the complaint through the ESS HSE Incident management System.

6.4 If necessary, the Shift Manager (or Environment Engineer) goes to the complainants' house and/or speaks directly with the complainant to assist in the identification of the cause of the disturbance. (If this is done, the Shift Manager or Environment Engineer records relevant details of this contact).

6.5 The Shift manager takes action to stop the disturbance immediately, and has the authority to shut a plant area if necessary to fix the problem.

6.6 If appropriate, the Shift manager or Environment Engineer contacts the resident to check that the problem has indeed been fixed, apologises for the disturbance and thanks the resident for the call. If this is done, the Shift Manager or Environment Engineer records relevant details of this contact.

6.7 If the Shift Manager is unable to find the cause of the problem, or is unable to immediately fix the problem, the Duty Officer or Environment Engineer is contacted as early as possible. The Duty Officer or Environment Engineer then deals with the disturbance as appropriate.

6.8 All Environmental complaints require an investigation to be conducted and tracked through the ESS HSE system. The Environment Engineer considers whether the remedial action taken to stop the disturbance is sufficient or whether ongoing Corrective Action is necessary to prevent the incident from recurring. In this case the Environment Engineer or nominee then raises a Corrective/ Preventative Action Request (CAR).

6.9 The Environment Engineer may keep the complainant informed about efforts to find, stop and/or correct the problem

6.10 If a Corrective/Preventative corrective action request is raised the ESS HSE incident number should be included on the form.

6.11 The General Manager Production and/or Environment Engineer determine if the complaint should be reported to the EPA in accordance with BOT-EWP-430 'Communications Environmental Incident Reporting and Investigation'.

6.12 The Environment Engineer or nominee follows up the complaint by contacting the complainant and explaining what was done to correct the situation and if appropriate, what was or is going to be done to prevent recurrence of the incident. The Environment Engineer thanks the Complainant and invites them to contact the Mill again if they ever have the need. This and any other follow up action is recorded in the ESS HSE Incident Reporting System.

6.13 Once the complaint has been resolved or a Corrective/Preventative Action Request (CAR) has been raised, the completed ESS HSE Report is closed out by the Environment Engineer or nominee.

6.14 Close out complaints when:

a) the issue has been resolved; or
b) for longer term issues there has been sufficient recorded follow up with complainant; or
c) a similar complaint from the same individual has been raised.

7 Records

7.1 All written or printed material received in relation to a complaint is filed. Environmental Complaints are retained for at least 4 years after the complaint was received, as required by the Mill EPA Licence conditions.

7.2 The General Manager Production, Environment Engineer or nominee shows the Environmental Complaint Report records to any officer of the EPA who asks to see them, as required by the Mill EPA Licence conditions.

7.3 If an officer of the EPA is shown Environmental Complaint records, the General Manager Production, Environment Engineer or nominee notes on each Environmental Complaint shown, the name of the EPA officer, the date of showing and the reason for showing the EPA officer the Records.

8 RELATED DOCUMENTS

BOT-MSP-8500 Corrective and Preventive Action
BOT-FM-1101 Corrective/Preventative Action request

9 ENVIRONMENTAL HOTLINE COMPLAINTS FLOW CHART