

## 4.1 Introduction

The purpose of this Chapter is to present a description of the proposed Alternative Waste Technology (AWT) and Composting Facility at the Woy Woy Waste Management Facility (WMF), including elements of the site infrastructure and the construction activities required for implementation of the proposal. This incorporates the description of the preferred option selected through the process described in **Chapter 3**. It is noted that based on the outcomes of the environmental assessment and technology selection tender process the final technology selected may vary from that described below. Following selection of the final technology provider, Council may re-assess the impacts and proposed mitigation measures, if required.

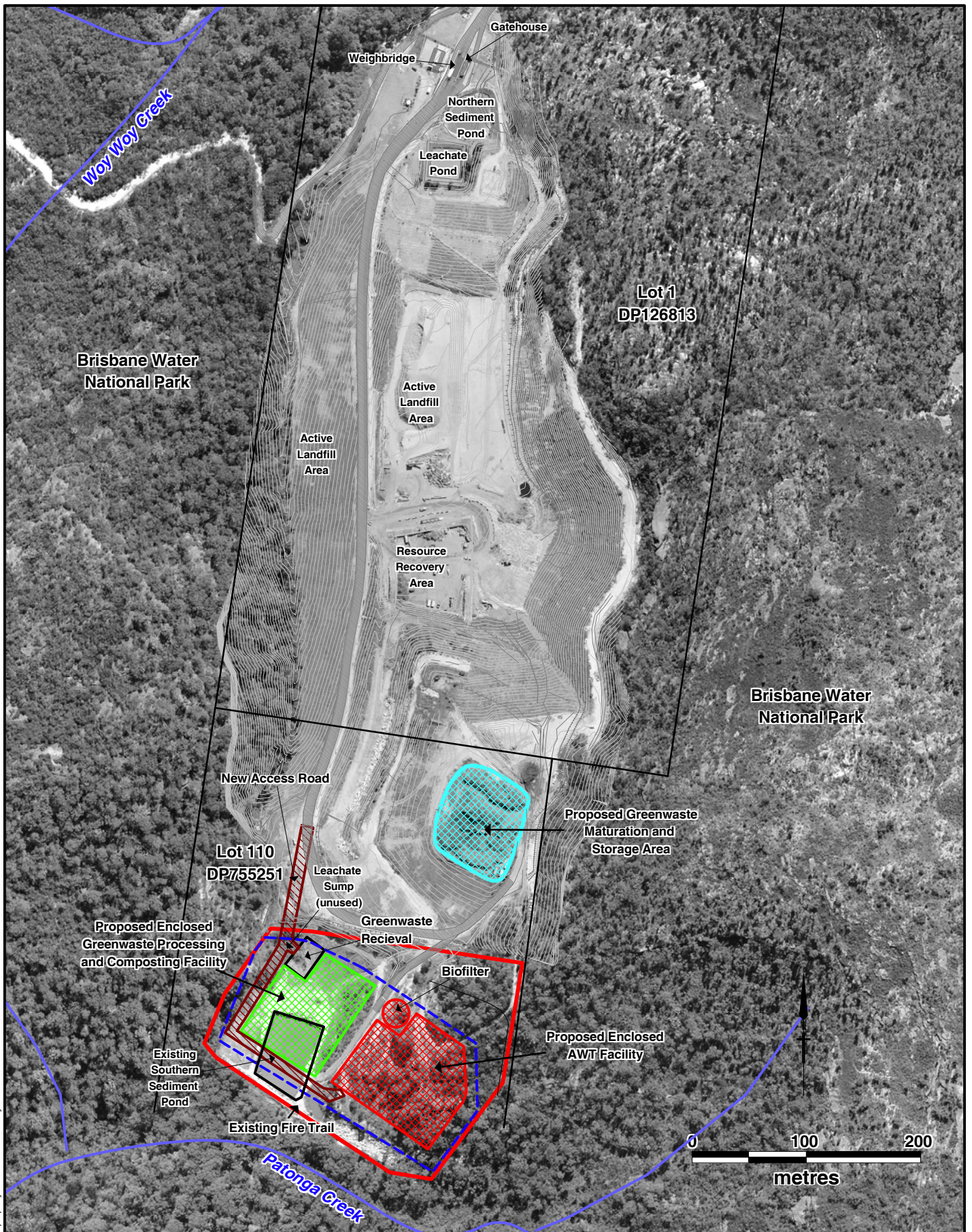
## 4.2 Description of the proposed facilities

Council is proposing an AWT for processing of 70,000 tonnes per annum of municipal solid waste (MSW) and a Composting Facility for managing 30,000 tonnes per annum of source separated greenwaste and 15,000 tonnes per annum of biosolids. It is proposed that both the AWT and Composting Facility would be established within a 3 to 4 hectare area located towards the southern end of the Woy Woy WMF (refer to **Figure 4.1** for site layout). Descriptions of the key infrastructure components to be established on site, as shown on **Figure 4.1** are provided in the following sections.

### 4.2.1 Platform and Access Road

The proposal would involve construction of an engineered platform for the proposed processing facilities as shown in **Figure 4.1**. The platform would be established at an elevation of approximately RL 115m Australian Height Datum (AHD) and would be constructed by excavating a section of the eastern corner of the site and filling the western area of the site, using the excavated material. The excavated material would be placed and compacted to appropriate engineering specifications. Engineered batters would be constructed on the southern side of the platform at approximately 2.5 horizontal to 1 vertical, and on the north and eastern sides at 1 horizontal to 1 vertical. Construction of the platform would require the clearing of approximately 1.5 hectares of intact vegetation primarily belonging to the Coastal Apple-Peppermint Sheltered Forest and Exposed Hawkesbury Woodland vegetation communities. The flora and fauna impacts associated with development of the site are described in **Chapter 18**. The existing dam would be filled to accommodate the platform. As described in **Chapter 9** the pond currently only receives clean stormwater from a small catchment area, primarily consisting of rainfall falling directly on the pond and is not required for the operation of the WMF. The existing leachate collection sump located north of the dam would be relocated next to the proposed access road as shown in **Figure 4.1**. This leachate collection sump is not used for any existing WMF operations and would be available for disposal of leachate from the proposed facilities as described in Section 4.7.2.

A sealed access road onto the platform, coming off the existing entrance road, would permit trucks and other vehicles to drop of MSW and greenwaste, and removal of inert waste materials, compost and recyclables.



 Project Boundary

 Proposed Platform

Client  
GOSFORD CITY COUNCIL

Project  
Environmental Assessment of Proposed  
Alternative Waste Technology and Composting  
Facilities at Woy Woy WMF

Title  
**SITE LAYOUT**



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Figure: 4.1

### 4.2.2 Greenwaste Receival and Sorting area

A concrete paved area for initial receival, sorting and shredding of greenwaste would be provided at the entrance to the composting building as shown in **Figure 4-1**. This area would be enclosed on the southern and eastern sides to minimise the occurrence of windblown greenwaste.

### 4.2.3 AWT and Composting Facility Buildings

Two enclosed buildings would be constructed on the platform, one containing the greenwaste processing equipment, the other containing the MSW waste receival, sorting and processing facilities. The buildings would be steel framed structures with coated steel sheet cladding for the walls and roof, and reinforced concrete floor. The buildings would be approximately 10m in height, well below the surrounding topography to the east and west of the site and therefore would not be visible from the residences located to the east of the site.

The shredded greenwaste / biosolids would be collected from the receival area using a front end loader and placed in the enclosed Composting Facility through roller doors. These doors would be automatically activated to open only when a vehicle is approaching and leaving the building, thereby minimising the opportunity for any odour or dust to leave the building. A similar roller door would be fitted to the MSW building, automatically opening to allow garbage trucks to reverse into the building, unload the putrescible waste onto a designated receival area of the building, and leave in a forward direction. Both buildings would be operated under a negative pressure to capture all odour generated from the processing facilities. Collected air would be deodorised using a biofilter, prior to release to the environment.

### 4.2.4 Biofilter

A biofilter would be established for treatment and release of air collected from the AWT and Composting Facility buildings. The biofilter structure would consist of a sub-ground concrete floor and perimeter walls, a grate floor at ground level with a layer of filter medium on top. The filter medium is likely to comprise of a layer of bark or other mature organic matter. The biofilter would be equipped with a sprinkler system. Pre-treatment of emissions from the proposed facilities may be required prior to the air entering the biofilter, to reduce the concentration of compounds which may significantly affect the performance of the biofilter. If an anaerobic process is chosen for the AWT facility, the biogas produced would be sent to the existing Woy Woy landfill gas extraction and treatment facility, adjoining the proposed development as described in Section 4.4.2. Further details on the air quality impacts and proposed mitigation measures are provided in **Chapter 12**.

### 4.2.5 Greenwaste Maturation Area

The greenwaste and biosolids product maturation area would be located within the existing greenwaste processing area as shown on **Figure 4-1**. Final refinement of the product and storage prior to transport to markets for sale would be carried out in this area.

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### 4.3 Operation of the Facilities

#### 4.3.1 Access to facility

All vehicles accessing the proposed facilities would enter the WMF from the existing entrance located off Nagari Road, to the north of the site. From the entrance the vehicles would be weighed at the existing weighbridge, and would proceed along the sealed road towards the south of the site, to the proposed AWT and Composting Facility, as shown in **Figure 4-1**. As the proposed AWT and Composting Facility would receive waste that would otherwise have gone to the landfill, the proposed development would only generate a minor increase in truck movement to the site.

#### 4.3.2 Hours of Operation

The proposed facilities would be open during the current WMF operating hours for acceptance of waste and removal of the final products off site. The WMF is currently open from 7 am to 5pm Monday to Friday and 8am to 4pm Saturday and Sunday, except on Christmas day, Good Friday and New Years day.

The technology chosen for processing the MSW and greenwaste would be a 24 hour mechanical and biological treatment process.

#### 4.3.3 Municipal Solid Waste Processing

Council's MSW design throughput for the proposed AWT is approximately 70,000 tonnes per annum. Based on the options analysis carried out as described in **Chapter 3**, the preferred treatment system is likely to consist of a mechanical and biological treatment (aerobic or anaerobic) technology. As the final technology selected would be determined through a tender process, for the purpose of the environmental assessment a concept design was selected which would result in a conservative assessment of the likely environmental impacts. The key stages of the proposed process are described below.

Waste trucks would enter the enclosed MSW processing building and dump the putrescible waste onto the floor. Sorting of the waste to remove any unacceptable large inorganic and non-recyclable items would take place in this area. These residual waste items would be placed in a skip for removal to the adjoining landfill. Any hazardous waste material would be removed and stored separately for disposal in accordance with the DEC Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes (DEC, 1999). The waste would then move through a sorting area, consisting of a combination of manual and automated sorting processes, designed to separate dry inorganic recyclable material such as plastic, glass and metal containers from the organic waste. These recyclable materials would be placed in separate skips for removal to an offsite processing facility. The organic waste would then pass through a biological treatment process (aerobic or anaerobic) which would convert the biodegradable putrescible waste into primarily gas and stabilised sludge. If an anaerobic process is chosen, the biogas would be provided to the existing Woy Woy landfill gas extraction and treatment system, following pre-treatment to remove potential compounds which may impact on the performance of the gas extraction and treatment system.

If an aerobic process is chosen the gas produced would be primarily carbon dioxide, which would be treated using the biofilter and then discharged to the atmosphere. The stabilised sludge material would be dewatered and can be used as an additive to the compost material obtained from the greenwaste Composting Facility or separately as a soil conditioner. Any wastewater generated from the dewatering activities would be recycled back into the treatment process, or disposed to the existing Woy Woy WMF leachate management system. The stabilised sludge would be stored within the enclosed MSW processing building until it is ready to be sent offsite.

Several technologies are currently available for this size of operation. The following five technologies were identified to match Councils requirements, however it is noted that other new technologies may emerge as suitable through the tender process.

- Tunnel Composting;
- Continuous Dano<sup>®</sup> Composting Drum;
- Dry Separation & Hybrid Biological System;
- Wet Separation & Anaerobic Digestion; and
- Autoclaving, Resource Recovery &/or Enclosed Composting.

#### ***AWT facility mass balance***

Based on the MSW waste stream composition as described in **Chapter 3**, it is estimated that more than 50% (conservative assumption) of the total incoming MSW would be recovered and diverted from landfill using the proposed AWT. Based on this recovery rate, approximately 35,000 tonnes per annum of recyclable and stabilised sludge type product would be produced, together with water, carbon dioxide and methane (if anaerobic process). The remaining residual material (approximately 35,000 tonnes per annum) would be disposed to the existing Woy Woy WMF Class 1 landfill. If classified as hazardous according to the waste guidelines (DEC, 1999), these hazardous materials would be removed offsite for further treatment and disposal.

#### ***AWT facility water balance***

The amount of water generated or used at the AWT facility would depend on the type of process chosen in particular if it is an aerobic or anaerobic biological treatment system. If an aerobic process is chosen the moisture content of the material would need to be maintained at approximately 50 to 60 percent. Under these aerobic conditions some water would be subsequently released as a result of the conversion of the organic fraction of the MSW into stabilised organic matter, carbon dioxide and water. Where possible this water would be recycled back into the process to maintain the optimum moisture content. If an anaerobic process is chosen water may also need to be added to the process to achieve the optimum moisture content, however moisture would be subsequently released during dewatering of the stabilised sludge. The water produced during the dewatering process would be stored in a tank and reused in the anaerobic treatment process. The aim, however, would be to minimise any additional water required in the selected process, where possible.

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As a conservative scenario the quantity of water added released from the proposed treatment process, likely to require disposal, was estimated as shown below:

### Inputs:

Quantity of waste treated per day:	250 tonnes/day
Moisture content of input waste:	40%
Quantity of water within waste:	102m <sup>3</sup> /day
Desired moisture content for optimal biological treatment:	50-60%
Therefore additional water required to meet desired moisture content:	25m <sup>3</sup> /day
Therefore total water within treatment process:	127m <sup>3</sup> /day

### Outputs:

Quantity of stabilised sludge produced:	45 tonnes day
Moisture content of sludge:	50%
Moisture retained within sludge:	23m <sup>3</sup> /day
Quantity of residuals waste produced:	125 tonnes/day
Moisture retained within residual waste:	25m <sup>3</sup> /day
Therefore moisture retained within outputs of process:	48m <sup>3</sup> /day
Therefore surplus water requiring disposal:	79m <sup>3</sup> /day (0.079 ML)

This is considered a conservative estimate of the maximum amount of water likely to be produced from the proposed AWT facility, as it has been assumed there would be a surplus and there would be no moisture loss due to evaporation or from the biogas production (if an anaerobic process is chosen). If excess water is generated from the proposed facilities, this would be discharged to the existing Woy Woy landfill leachate collection system prior to final treatment at the existing Woy Woy Sewerage Treatment Works which are owned and operated by Gosford City Council. The Woy Woy Sewerage Treatment Works currently have an average total daily flow of approximately 12 Mega litres (ML) per day with a capacity of 40 ML per day. The Woy Woy WMF currently sends approximately 100 ML per year of leachate to the treatment works. Therefore, the Woy Woy Sewerage Treatment Works could handle the additional flow of approximately 79 m<sup>3</sup>/day (0.079 ML) from the proposed AWT facility, if this is required.

### 4.3.4 Greenwaste and Biosolids Processing

The proposal includes the development of a Composting Facility to process up to 30,000 tonnes per annum of source separated greenwaste, and up to 15,000 tonnes per annum of biosolids and other organic materials such as agri-wastes and potentially food/restaurant wastes. The composting process is briefly described below.

Vehicles would deliver the source separated greenwaste and other organic solid waste material to the greenwaste receipt and sorting area located outside the composting building. Mechanical pre-treatment of the greenwaste would occur in this location consisting of removal of large contaminants, mixing, and shredding. The greenwaste material would then be delivered using a front-end loader to

the enclosed Composting Facility building, where the combination with the biosolids and composting process would take place. All biosolids would be delivered to the site within enclosed vehicles and stored next to the Composting Facility building within an enclosed vessel, thereby mitigating any potential adverse odour impacts or leachate generation from the receipt and storage of biosolids.

The greenwaste and biosolids composting process would be designed to produce a product that complies with Australian Standard AS 4454-1999 and Biosolid Guidelines Grade A for unrestricted (contamination, pathogen level, vector attraction). An Options Report (URS, 2006b) has been prepared, which identified the following preferred enclosed composting types:

- Aerated Static Pile Composting;
- Forced Aerated Static Piles;
- In Vessel Composting; and
- Vermicomposting.

It is noted that other new technologies may emerge as suitable for greenwaste/biosolids composting through the tender process. Following the enclosed composting process the material is sanitised and mature with low odour emission. This product would be temporarily stockpiled on an area within the composting building. On a daily basis this material would be loaded onto a truck, and delivered to the maturation area located in the current greenwaste processing area as shown on **Figure 4.1**. The product would go through a final screening process to remove most contaminants such as plastic film, prior to being stored in windrows, awaiting collection for transport to various markets in the region.

#### ***Greenwaste and Biosolids Composting Facility mass balance***

Approximately 60 % (conservative assumption) of the incoming organics (greenwaste, biosolids) would be converted into compost. Therefore of the 30,000 tonnes per annum of greenwaste and 15,000 tonnes per annum of biosolids approximately 27,000 tonnes per annum of compost would be produced. The remaining products would consist of approximately 16,000 tonnes per annum of water (lost through evaporation during maturation phase) and 2,000 tonnes per annum of contaminants which would be disposed in the adjoining landfill. If any hazardous type waste is identified and removed from the greenwaste stream it would be stored separately and removed offsite for disposal in accordance with the waste guidelines (DEC, 1999).

## **4.4 MSW AWT Facility Product Composition**

The proposed AWT facility would produce several products including stabilised sludge, recyclable materials, water and biogas (if an anaerobic process is chosen). The precise composition of these products is likely to vary, based on the particular characteristics of the MSW being treated. Based on typical data available the likely composition of key products to be produced from the AWT process is described below.

### **4.4.1 Stabilised Sludge**

Stabilised sludge derived from mixed solid waste may be beneficially reused, however contamination of the sludge with heavy metals and organic contaminants may pose a significant risk for final end use of the product. The typical heavy metal and organic contaminant concentrations measured in compost derived from municipal solid waste AWT's currently operating in Australia are presented in **Table 4-1**

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along with forecast values for the SITA Advanced Waste Treatment (SAWT) process. This information is presented to provide guidance on the likely composition of the stabilised sludge to be produced from the proposed AWT Facility. Based on the typical results presented in **Table 4-1**, the proposed AWT facility would produce a stabilised sludge, which would meet the Contaminant Grade B criteria from the NSW Biosolids Guidelines (NSW EPA, 1997). Based on the preferred treatment technologies as described in Section 4.3.3 the selected process would meet the Stabilisation Grade B criteria of the Guidelines (NSW EPA, 1997). Given the Grade B Contaminant and Stabilisation grading, the stabilised sludge would be classified as Restricted Use 1 (public contact sites, urban landscaping, agriculture, forestry, soil and site rehabilitation, landfill disposal) from the Guidelines (NSW EPA, 1997).

These Guidelines (NSW EPA, 1997) are currently used for assessing the suitability of applying biosolids to land. Guidelines for the use of organics specifically derived from MSW are not currently available within NSW, and therefore the biosolids guidelines provide some guidance for the beneficial reuse of such material. If the NSW Department of Environment and Climate Change (DECC) produces new guidelines for the use of organic material derived from MSW, prior to the tender documents for procurement of the AWT being finalised, these guidelines would apply to the use of the stabilised sludge produced from the proposed AWT facility.

Table 4-1 Typical MSW Compost Contaminant Concentration Data

Parameter	Bedminster Compost (mg/kg) (Actual) <sup>1</sup> Source: Maunsell-AECOM, 2007	SAWT Forecast (mg/kg) <sup>2</sup> Source: SITA, August 2007	Biosolids Guidelines Grade A <sup>3</sup> (mg/kg)	Biosolids Guidelines Grade B <sup>3</sup> (mg/kg)	Biosolids Guidelines Grade C <sup>3</sup> (mg/kg)
<b>Heavy Metals</b>					
Arsenic	3.6	<15	20	20	20
Cadmium	1	<3	3	5	20
Chromium	21.3	<100	100	250	500
Copper	85.8	<300	100	375	2000
Lead	132	<150	150	150	420
Mercury	0.5	<3	1	4	15
Nickel	19.8	<125	60	125	270
Selenium	2.7	<8	5	8	50
Zinc	346.5	<600	200	700	2500

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Table 4.1 Continued Typical MSW Compost Contaminant Concentration Data

Parameter	Bedminster Compost (mg/kg) (Actual) <sup>1</sup> Source: Maunsell-AECOM, 2007	SAWT Forecast (mg/kg) <sup>2</sup> Source: SITA, August 2007	Biosolids Guidelines Grade A <sup>3</sup> (mg/kg)	Biosolids Guidelines Grade B <sup>3</sup> (mg/kg)	Biosolids Guidelines Grade C <sup>3</sup> (mg/kg)
<b>Contaminants</b>					
DDT/DDD/DDE	<0.02	<0.5	0.5	0.5	1.0
Aldrin	<0.02	<0.2	0.02	0.2	0.5
Dieldrin	<0.02	<0.2	0.02	0.2	0.5
Chlordane	<0.02	<0.2	0.02	0.2	0.5
Heptachlor	<0.02	<0.2	0.02	0.2	0.5
HCB	<0.02	<0.2	0.02	0.2	0.5
Lindane	<0.02	<0.2	0.02	0.2	0.5
BHC	<0.02	<0.2	0.02	0.2	0.5
PCB	<0.15	<0.3	0.3	0.3	1.0

Note: 1 Figures provided (Q values) are, from samples of compost derived from municipal solid waste from the Port Stephens LGA treated using the Bedminster process (Maunsell-AECOM, 2007)

2 Figure provided (average values) are forecast estimates for compost derived from Municipal solid waste treated using the SAWT process provided by email to URS from SITA on 14 August 2007.

3 Contamination Acceptance Concentration Thresholds from the NSW EPA Biosolids Guidelines (NSW EPA, 1997)

#### 4.4.2 Biogas

Biogas would be produced if an anaerobic treatment technology is chosen to process the MSW. The particular composition of the gas produced would be based on the characteristics of the input waste, and the treatment process. However, based on the waste characteristics as described in **Chapter 2**, the composition of the biogas would consist primarily of methane (approximately 80%), and carbon dioxide (approximately 15%). Other trace elements are likely to include Hydrogen Sulphide and Ammonia. It is proposed to connect the biogas from the AWT facility to the adjoining Woy Woy landfill gas extraction and disposal system. The Woy Woy landfill gas extraction system was commissioned in January 2007, with flaring of landfill gas being the current gas disposal method. The biogas from the AWT would initially be pre-treated to remove potential compounds which may impact on the performance of the landfill gas extraction and treatment system. Based on gas generation rates, it may be feasible in the future to generate electricity from the landfill gas and the biogas from the proposed AWT. If an aerobic process is chosen the primary output in the gas produced would be carbon dioxide. The gas would be cleaned and discharged to the atmosphere using the proposed biofilter.

#### 4.4.3 Recyclables

The front-end of the AWT process would consist of a material sorting facility designed to remove dry in-organic recyclable material and contaminants from the MSW stream. The recyclable products would include plastic, glass and metal containers. These materials would be placed in a skip for transport off-site to a material recycling facility for further processing.

### 4.5 Greenwaste and Biosolids Composting Facility final products

As outlined above, the Composting Facility would process source-separated greenwaste and biosolids along with smaller amounts of other organic matter such as agri-wastes and potentially food/restaurant wastes. The composting process would be designed to produce a product that complies with Australian Standard for Compost Product AS 4454-1999 (Standards Australia, 2003) and Biosolids Guidelines (NSW EPA, 1997) Grade A for unrestricted (contamination, pathogen level, vector attraction). The compost is likely to have high nutrient and organic matter content and therefore would be of beneficial use to the local agricultural industry. Any residual materials removed during the composting and subsequent refining process would be disposed into the adjoining landfill.

As shown in Table 4-2 actual results obtained from the BioWise (SITA) facility in Perth, that processes greenwaste and biosolids, achieving the Grade A contaminant criteria (NSW EPA, 1997) is feasible for the proposed Composting Facility. It is noted that in the example provided in Table 4-2 copper and lindane are slightly higher than the Grade A criteria, however it is envisaged that the proposed facility would be able to meet the Grade A requirement for all heavy metal and organic contaminants.

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Table 4-2 Typical Greenwaste/BioSolids Compost Contaminant Concentration Data

Contaminant	BioWise Actual (mg/kg) Source: SITA, August 2007 <sup>1</sup>	Biosolids Guidelines Grade A (EPA,1997) (mg/kg)
<b>Heavy Metals</b>		
Arsenic	<5	20
Cadmium	0.3	3
Chromium	17	100
Copper	121	100
Lead	15	150
Mercury	0.31	1
Nickel	4	60
Selenium	<2	5
Zinc	91	200
<b>Organic Contaminants</b>		
DDT/DDD/DDE	<0.01	0.5
Aldrin	<0.01	0.02
Dieldrin	<0.01	0.02
Chlordane	<0.01	0.02
Heptachlor	<0.01	0.02
HCB	<0.01	0.02
Lindane	0.05	0.02
BHC	<0.01	0.02
PCB	0.2	0.3

Note 1: Figures provided (Q values) are from samples of compost from BioWise (SITA) facility in Perth that processes greenwaste, biosolids and grease trap waste, provided by email to URS from SITA on 14 August 2007.

## 4.6 Final use of Recycled Organics

### 4.6.1 Compost from Composting Facility

The compost from the proposed Composting Facility, which would meet Australian Standard for Compost Product AS 4454-1999 and Biosolids Guidelines (NSW EPA, 1997) Grade A Unrestricted (contamination, pathogen level, vector attraction), would be potentially suitable for the following beneficial uses:

- Home Lawns and Gardens;
- Public contact sites including Council owned parks and gardens, which cover an area of approximately 300ha;
- Urban landscaping;
- Agriculture;
- Forestry; and
- Soil and Site rehabilitation (in particular mine site rehabilitation);

### 4.6.2 Stabilised Sludge from AWT Facility

The stabilised sludge from the AWT, which would meet Restricted Use 1 of the Guidelines (NSW EPA, 1997) would be potentially suitable for the following beneficial uses:

- Public contact sites including Council owned parks and gardens;
- Urban landscaping;
- Agriculture;
- Forestry; and
- Soil and site rehabilitation (in particular mine site rehabilitation);

In the event that the application of the waste derived organic outputs to land requires a licence, and the DEC does not grant that licence material from the facilities would go to the adjoining Woy Woy landfill, and potentially used as an alternate daily cover. As stated in Section 2.2 of the EA, the landfill has approximately 40 years life remaining based on 2005 waste generation figures and can therefore accommodate the output from the proposed facilities over their expected design life.

## 4.7 Residuals Management

Residual waste material removed from the AWT facility and Composting Facility would be stored in temporary skips, before being removed to the adjoining landfill for disposal. As outlined in the mass balance above (Section 4.3.3), approximately 35,000 tonnes per annum of residual material from the AWT facility would be generated along with approximately 2,000 tonnes per annum from the Composting Facility. The Woy Woy WMF currently receives approximately 36,000 tonnes per annum of putrescible waste, and has approximately 40 years landfill space remaining based on 2005 waste generation figures. When the AWT and Composting Facility are at their peak capacity approximately 37,000 tonnes per annum of residual material would be removed from the proposed AWT and Composting Facilities. The remaining capacity of the Woy Woy WMF landfill would therefore accommodate the residual material, over the design life of the proposed facilities.

## 4.8 Water Management System

The water management system for the proposed AWT and Composting Facilities would be linked to the existing water management system at the WMF. A description of the key features of the existing water management system, and how it would be augmented to accommodate the requirements for the proposed development is described below. The key features of the existing water management system are illustrated in **Figure 4-1**.

### 4.8.1 Water Supply

The WMF site has two sedimentation ponds which collect clean stormwater located at the north and south of the site. The southern pond would be filled as part of the development of the platform for the proposed facilities as described in Section 4.2.1. The water from this pond is currently not used for any operations on the site, and therefore filling of the pond would not affect the water supply to the site. The northern pond is currently used for filling of trucks for dust suppression and, if required for filling of trucks used for fire fighting. A connection to the town water supply for filling of fire fighting trucks is also provided at the entrance to the Woy Woy WMF off Nagari Road. Potable water is supplied to the site using a tanker, which fills a 10 kilolitre tank located on the northern section of the site.

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As described in Section 4.3.3 process water may be required for the proposed AWT and Composting Facilities to obtain the optimum moisture content in the waste. This water would be provided from the following alternative sources:

- collected excess water generated during the treatment process;
- rainwater runoff collected from the roofs of the AWT and Composting Facility buildings;
- the existing northern sedimentation pond; and
- townwater supplied by tanker.

Potable water for use by personal working at the AWT and Composting Facilities would be provided by a new collection tank filled using a tanker from the town water supply.

### 4.8.2 Leachate and Process Water Management

Leachate generated from the landfill is currently collected and transported to the leachate pond located on the northern section of the site as shown in **Figure 4.1**. The leachate is tested and discharged in accordance with the Woy Woy WMF site Environment Protection Licence (Licence No 6053) to the existing Woy Woy Sewerage Treatment Works located immediately north of the WMF. As shown on **Figure 4.2** an existing leachate collection sump is located on the southern area of the site, next to existing dam. This sump is connected to the leachate collection pond via a pipeline running adjacent to the existing entrance road. This sump would be relocated next to the proposed access road. Any surplus water generated from the enclosed AWT and Composting Facilities, is likely to contain ammonia and sulphur compounds, and would be collected and stored for reuse in the respective treatment processes. If excess water is generated from the proposed facilities, this would be discharged to the leachate collection sump and delivered to the northern leachate collection pond, prior to final treatment and disposal at the Woy Woy Sewerage Treatment Works as described in Section 4.3.3. Any runoff from the Greenwaste maturation area would be collected and discharged to the existing landfill leachate collection system.

### 4.8.3 Sewerage

Sewage collected from the workers amenities areas (i.e. sinks, showers and toilets) of the proposed AWT and Composting Facilities would be discharged to an onsite treatment system. If suitable the septic tank effluent would be irrigated on landscaped areas around the landfill area, or discharged to the leachate collection sump described above. Based on approximately 10 employees at both the AWT and Composting Facilities, the wastewater generated would be approximately the same as the potable water demand which is estimated at 1 kilolitre per day.