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Cooma-Monaro Shire Council

Landfill Environmental Management Plan

November 2011



INFRASTRUCTURE | MINING & INDUSTRY | DEFENCE | PROPERTY & BUILDINGS | ENVIRONMENT



Contents

1.	Intro	oduction	1
	1.1	General	1
	1.2	Scope of the Plan	1
	1.3	Revisions and Updates	3
2.	Purp	oose of LEMP	4
	2.1	Compliance with Environment Protection Licence	4
	2.2	Compliance with Landfill Guidelines	6
3.	Site	Overview	8
	3.1	Site Location	8
	3.2	Site History	8
	3.3	Land Use	8
	3.4	Land Ownership	9
	3.5	Approvals and Licensing	9
	3.6	Topography and Vegetation	9
	3.7	Geology and Site Soils	10
	3.8	Groundwater Hydrology	11
	3.9	Surface Water	11
	3.10	Climate	11
4.	Was	te Types and Quantities	14
	4.1	General	14
	4.2	Waste Types & Quantities	14
5.	Faci	lity Design	16
	5.1	Access and Layout	16
	5.2	Site Facilities	17
	5.3	Final Landform and Life of Site	19
	5.4	Staging of Landfilling	19
	5.5	Stormwater Drainage Works	20
	5.6	Leachate Management System	21
6.	Faci	lity Operation	23
	6.1	General	23
	6.2	Planning	23



	6.3	Management, Supervision and Staffing	23
	6.4	Hours of Operation	25
	6.5	Waste Acceptance & Screening Program	25
	6.6	Waste Handling, Deposition, and Compaction	28
	6.7	Filling Plan	28
	6.8	Asbestos Waste Handling Procedures	29
	6.9	Final Capping Layer	33
	6.10	Equipment	34
	6.11	Security	35
	6.12	Health and Safety Procedures	35
	6.13	Wet Weather Operation	35
	6.14	Access Road Maintenance	36
	6.15	Fire Control	36
	6.16	Waste Recording and Reporting	37
	6.17	Quality Assurance	37
7.	Recy	cling and Resource Recovery	39
8.	Envi	ronmental Management Measures	42
	8.1	Water	42
	8.2	Air	45
	8.3	Litter	45
	8.4	Vermin	46
	8.5	Noise	46
9.	Envi	ronmental Monitoring	47
	9.1	General	47
	9.2	Groundwater	47
	9.3	Leachate	49
	9.4	Stormwater	49
	9.5	Landfill Gas	50
	9.6	Monitoring Program Review	50
	9.7	Complaints	50
	9.8	Record Keeping	51
10.	Site	Closure and Rehabilitation	52
	10.1	Final Landuse and Site Rehabilitation	52
	10.2	Closure Plan	52
	10.3	Post Closure Management	52



11.	Rep	orting	54
	11.1	Annual Reporting	54
	11.2	Incident Reporting	54
12.	Refe	erences	56

Table Index

Table 1 List of Drawings	2
Table 2 Licence Requirements	4
Table 3 Environmental Goals	6
Table 4 Climate Statistics	12
Table 5 Waste Types and Quantities - Cooma Landfill	14
Table 6 Acceptable Wastes	25
Table 7 Monitoring points from EPL	48
Table 8 Monitoring Analytes and Sampling Frequency	48

Figure Index

Figure 1 Site location	8
Figure 3 Arrangement of Site Facilities	16
Figure 4 Small Vehicle Transfer Station	17

Appendices

- A Site Environmental Protection Licence
- B Drawings



1. Introduction

1.1 General

GHD was commissioned by Cooma Monaro Shire Council (CMSC) to update the existing Landfill Environmental Management Plan (LEMP) prepared by Fisher Stewart Pty Ltd for the Cooma Landfill site. This LEMP has been prepared considering the following documents:

- Protection of the Environment Operations Act 1997 (POEO Act 1997);
- The existing site Environment Protection Licence (EPL)(No. 6194);
- NSW Environment Protection Authority's Environmental Guidelines: Solid Waste Landfills (1996);
- NSW Environment Protection Authority's Environmental Guidelines: Composting And Related Organics Processing Facilities (2004);
- NSW Environment Protection Authority's Draft LEMP Preparation Manual (1996);
- NSW Department of Environment and Climate Change's Managing urban stormwater: Soils and construction, Volume 2B – Waste Landfills, June 2008;
- NSW Waste Strategy (currently being revised); and
- Waste Avoidance and Resource Recovery Act 2001.

The LEMP has been prepared on the basis that the CMSC, who hold the site EPL, is responsible for managing and operating the landfill in accordance with site Environment Protection Licence (EPL) and thus the LEMP commits CMSC to undertaking various activities to ensure the landfill is operated in an environmentally responsible manner.

1.2 Scope of the Plan

1.2.1 Background

To provide a consistent and environmentally responsible approach to managing landfills within NSW, the EPA issued guidelines in 1996 for solid waste landfilling titled Environmental Guidelines: Solid Waste Landfills (the Landfill Guidelines). A performance based approach to landfill management has been adopted by the EPA that allows the most appropriate mechanisms to be implemented at each landfill site to achieve specific environmental goals. The goals and the approach to landfill regulation and management are described in the guidelines and include:

- Preventing water pollution;
- Preventing air pollution;
- Promoting responsible land management and conservation; and
- Preventing hazards and loss of amenity.



The mechanism for EPA regulation of landfilling operations is based around licensing those facilities that have the greatest potential to cause environmental impact. All licensed waste facilities are required to have a LEMP and operation of the landfill must then comply with the LEMP, in addition to the site EPL.

A copy of the site EPL is contained in Appendix A for reference.

1.2.2 Contents

This revised and updated LEMP has been developed to facilitate the safe and efficient operation of the landfill and to ensure that the environment and the surrounding community is safeguarded from pollution and off-site effects. It describes the level of performance expected and practices for managing, operating, monitoring and rehabilitating the site.

CMSC shall ensure that all staff and sub-contractors at the site are familiar with the relevant requirements described in this LEMP.

A copy of CMSC's EPL for the site and this LEMP shall be kept on site at all times and shall be made available for inspection to the EPA upon request. Further, CMSC will ensure that the landfill and its associated facilities are operated in accordance with all regulatory requirements.

The LEMP addresses the following:

- Approvals and licensing;
- Compliance with the Site EPL and Landfill Guidelines;
- Site description;
- Waste types and quantities;
- Facility design;
- Landfill operation;
- Environmental management measures;
- Environmental monitoring program;
- Site closure and rehabilitation; and
- Reporting.

1.2.3 Drawings

This LEMP refers to the drawings listed in Table 1, which are included in Appendix B.

Table 1 List of Drawings

Drawing Number	Title
21-20014-C001	Landfill Environmental Management Plan – Existing Site Layout
21-20014-C002	Landfill Environmental Management



Drawing Number	Title
	Plan – Proposed Final Surface levels
21-20014-C003	Landfill Environmental Management Plan – Potential Landfill Mining Areas
21-20014-C004	Landfill Environmental Management Plan – Filling to Final Level (including cap)
21-20014-C005	Landfill Environmental Management Plan – Filling and Staging Plan

1.3 Revisions and Updates

CMSC will review and update the LEMP (as necessary) after every review of the site EPL or at least every 3 years to ensure that it reflects the facilities and operations at the Cooma Landfill and any changes in regulatory requirements. This shall include undertaking revisions and updates due to changes in the site's EPL or due to changes in operations or directives from CMSC or the EPA.



2. Purpose of LEMP

2.1 Compliance with Environment Protection Licence

The Cooma Landfill is a scheduled activity and is required to hold an Environmental Protection Licence (EPL) under the Protection of the Environment Operations Act (1997). A copy of the EPL is provided in Appendix A. Compliance with the licence is addressed by the LEMP in the sections as outlined in Table 2:

	Licence Condition	Addressed in Section of LEMP
	Administrative conditions	
A1	What the licence authorises and regulates	3.5.2
A2	Premises to which this licence applies	3.4
A3	Other activities	N/A
A4	Information supplied to the EPA	Refer to Licence Application
	Discharges to air and water and applications to land	
P1	Location of monitoring/discharge points and areas	
	Limit conditions	
L1	Pollution of waters	9.4, 9.2.3
L2	Load limits	N/A
L3	Concentration limits	N/A
L4	Volume and mass limits	N/A
L5	Waste.	Table 6
L6	Noise Limits	8.5
L7	Hours of Operation	6.4
	Operating conditions	
01	Activities must be carried out in a competent manner	6.3
02	Maintenance of plant and equipment	6.10
O3	Dust Control	8.2.3
04	Closure plan	10.2

Table 2 Licence Requirements



	Licence Condition	Addressed in Section of LEMP
O5	Leachate management	5.6
O6	Fire risk reduction works	6.15
07	Burning of garden waste	6.15
O8	Controlled burning	6.15
O9	Screening of waste	6.5
O10	Waste compaction	6.6
O11	Filling Plan	6.7
O12	Completion of landfill cells	6.9
O13	Unauthorised entry	6.11
O14	Degradation of local amenity (litter)	8.3
O15	Covering of waste	
O16	Control of pests, vermin and weeds	8.4
017	Potentially offensive odour	8.2.2
O18	Fire extinguishment	6.15
O19	Fire fighting capability	6.15
O20	Staff training	6.3
O21	The licensee must ensure that adequately trained staff are available at the premises	6.3
O22	Tyre Storage	6.5.2
	Monitoring and recording conditions	
M1	Monitoring records	9.8
M2	Requirement to monitor concentration of pollutants discharged	9
М3	Testing methods - concentration limits	9
M4	Recording of pollution complaints	9.7
M5	Telephone complaints line	9.7
M6	Requirement to monitor volume or mass	N/A
	Reporting conditions	
R1	Annual return documents	11.1
R2	Notification of environmental harm	11.2



	Licence Condition	Addressed in Section of LEMP
R3	Written report	11.2
R4	Recording of fires	11.2
	General conditions	
G1	Copy of licence kept at the premises	6.16.1
G2	Contact number for incidents and responsible employees	9.7, 6.15
	Pollution studies and reduction programs	N/A
	Special conditions	N/A

2.2 Compliance with Landfill Guidelines

To provide a consistent and environmentally responsible approach to managing landfills within NSW, the EPA issued guidelines in 1996 for solid waste landfilling titled Environmental Guidelines: Solid Waste Landfills ("the Landfill Guidelines"). A performance-based approach to landfill management has been adopted by the EPA that allows the most appropriate mechanisms to be implemented at each landfill site to achieve specific environmental goals.

A summary of the environmental goals identified in the Landfill Guidelines, together with location of the measures proposed to achieve the goals in this LEMP, is provided in Table 3.

Environmental Goals	Addressed in Section of LEMP
Water Pollution	
Preventing pollution of water by leachate	5.6, 8.1
Detecting water pollution	9.2, 9.3, 9.4
Remediating water pollution	9.2, 9.4
Air Pollution	
Preventing landfill gas emissions	□, 8.2
Detecting landfill gas emissions	9.5
Remediating landfill gas emissions	9.5
Land Management and Conservation	

Table 3 Environmental Goals



Environmental Goals	Addressed in Section of LEMP
Assuring quality of design, construction and operation	6.17
Assuring quality of incoming waste	6.5
Recording of wastes received	6.16
Minimising landfill space used	6.6
Maximisation of recycling	7
Remediating landfill after closure	5.3, □, 6.9, 10
Hazards and Loss of Amenity	
Preventing unauthorised entry	6.11
Preventing degradation of local amenity	8
Preventing noise pollution	8.5
Adequate fire fighting capacity	6.15
Adequate staffing and training	6.3



3. Site Overview

3.1 Site Location

The Cooma Landfill site is located approximately 3.2km south-east of the centre of Cooma, with access from the Monaro Highway located approximately 400m south west of the site. The location of the site is shown in Figure 1.



Figure 1 Site location

3.2 Site History

It is understood that prior to 1975, the site was used for nightsoil disposal. From 1975 to the present, the site has been used for solid waste disposal (Fisher Stewart 2001).

3.3 Land Use

Before 1975 the site was used for grazing and nightsoil disposal. The site has been used for solid waste landfilling since 1975 (Fisher Stewart 2001).

3.3.1 Adjoining Land

The site is set in an open rural landscape comprising mainly undulating grassland and grazing activities.

To the north of the site are rural allotments and the Polo Flat industrial area. To the east of the site is vacant land proposed for future extension of the landfill, along with



the Kuma Nature Reserve. To the south of the site is open farmland and the Monaro Highway. West of the site is the town of Cooma.

There are residential houses approximately 650 m to the south-west of the site ("Rocky Terrain"), and 635m to the north of the site ("The Willows" and "Briony Downs").

3.4 Land Ownership

The site is Crown Land leased by Council and is described in the EPL as Reserve 130021 for rubbish depot GB80R173.

The site occupies four allotments:

- Lot 7002 DP1023884;
- Lot 7003 DP1033078;
- Lot 7301 DP1133948; and
- Lot 1 DP1075191.

3.5 Approvals and Licensing

3.5.1 Development Consent

The property has been used as a waste disposal facility since 1975, and is described as an 'existing use' within the Environmental Protection - Scenic Zone No. 7(d) zoning gazetted in October 1993 (Fisher Stewart 2001).

3.5.2 Environment Protection Licence

The Cooma Landfill is currently licensed under the *Protection of the Environment Operations Act 1997* (POEO Act) (Licence No, 6194)

Scheduled Activity: Waste disposal (application to land)

Fee Based Activity Scale; Waste disposal (application to land) Scale 0 - All

A copy of the current licence is shown in Appendix A.

3.6 Topography and Vegetation

The landfill is situated in a broad, gully formed between low hills to the west, south and southeast of the site. The gully falls to the north/north-east and crosses the northern boundary of the site at approximately its mid-point. To the south and east of the site, the topography is undulating. Immediately to the north of the site, the topography is virtually flat.

The elevation of the site varies from maximum heights of approximately 860m AHD in the south east corner of the site, and 855m AHD at the western boundary of the site, to a low point of approximately 835m AHD at the mid point of the northern boundary, with natural slopes varying between 2% and 10%.



Within the site, a complex arrangement exists of landfill mounds, batters and hollows, with the landfill generally fanning out from the site access in the south western corner to the north and east as shown in drawing 21-20014-C001 in Appendix A.

The site is highly disturbed and has been partially revegetated using a variety of grasses with varying degrees of success. Conifer trees have been planted around the perimeter of the site to assist in screening as shown in Figure 2.



Figure 2 Landfill Vegetation (looking east from transfer station)

The site is understood to have been extensively trenched, and very little natural ground remains with the possible exception of small areas in the south-east corner and near the northern boundary (currently used for asbestos disposal trenches). Consequently the landfill activity is now carried out above ground, with creation of a number of distinct mounds.

3.7 Geology and Site Soils

The natural stratigraphy of the site is sandy clay and clayey gravels overlying moderately to highly weathered basalt bedrock, which is typically within 3m of the surface.



3.8 Groundwater Hydrology

3.8.1 Groundwater

Groundwater is believed to flow from south to north in the weathered basalt beneath the site.

Groundwater at the landfill has been encountered during previous operations at the landfill when in May 1989, officers of the SPCC (now EPA) reported that a rise in groundwater may have inundated open burial branches. In 1989 a single groundwater monitoring station (90mm ID: slotted PVC piezometer with locked cap) was established below the landfill, encountering water at 3.2m depth.

During a geotechnical investigation in September 1997 (after a long dry season) groundwater was also encountered at the lowest points of the adjoining lots at depths of about 5m. Monitoring piezometers have been installed for future baseline studies (Fisher Stewart 2001). It is likely that groundwater is present across the entire site and that it would be found at shallower depths in wetter seasons (Fisher Stewart 2001).

3.8.2 Groundwater Use

Shallow groundwater exists at the landfill site and groundwater is extracted for various purposes from sites down gradient from the landfill. Groundwater bores in the vicinity supply water used for agricultural purposes with known water bores at properties known as Norton, Carinya and The Willows. Groundwater is extracted for industrial purposes from water bores at both the Railway and Abattoirs (Fisher Stewart 2001).

3.9 Surface Water

Due to the site topography and the arrangement of filled areas on site, surface water tends to concentrate near the centre of the site, and is then drained via constructed drainage features, including bunds, channels, culverts and table drains, around the southern and eastern perimeter of the filled areas eventually discharging to a sediment pond near the north eastern corner of the site. This is shown in drawing 21-20014-C001 in Appendix A.

Surface drainage from the completed landfill batters to the north of the site is drained via a cutoff drain at the toe of the batter to the sediment dam. Cutoff drains have been constructed upslope of the site, adjacent to the southern and western boundaries to prevent overland flow into the landfill site. The cut-off drains discharge into two small collection dams located near the site entrance. Overflow from these dams enters the surface water drainage system within the site,

3.10 Climate

Climate data has been collected by the Bureau of Meteorology from the weather station at the Cooma Visitors Centre close to the Cooma Landfill. The average monthly climatic data has been summarised in Table 4. On average, 529.7 mm of rain falls in



the area of the site per year. Average evaporation is approximately 1,600 mm per annum.

Table 4 Climate Statistics

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Νον	Dec	Annual
Temperature													
<u>Mean</u> maximum temperature (°C)	27.2	26.4	23.8	19.5	15.6	12	11.4	13.3	16.2	19.4	22.4	25.1	19.4
<u>Mean</u> <u>minimum</u> <u>temperature</u> (°C)	10.7	10.5	8	4	0.9	-1.4	-2.8	-1.9	1.2	3.7	7	9	4.1
Rainfall													
<u>Mean rainfall</u> <u>(mm)</u>	56.5	53.2	56	40.1	31.7	36.8	29.1	27.2	36	45.7	64.8	53.4	529.7
<u>Decile 5</u> (median) rainfall (mm)	45.6	41.8	47.2	26.6	22.8	18.4	21.4	23.4	32.7	37.8	63.6	50.4	527.4
<u>Mean number</u> <u>of days of rain</u> <u>≥ 1 mm</u>	5.9	5.2	5.6	5.2	4.5	5	4.8	5.1	6.6	6.9	7.8	6.4	69
Other daily eler	nents												
<u>Mean number</u> <u>of clear days</u>	9.2	7.1	7.5	7.1	6.1	5.9	8.2	8.8	7.7	8	6.5	7.9	90
Mean number of cloudy days	9.2	9.1	9	9.8	11.3	10.5	8.5	7.9	8.9	9.5	10.5	9.2	113.4
9 am conditions	5												
<u>Mean 9am</u> <u>temperature</u> (°C)	17.2	16	14	10.7	6.6	3.5	2.7	4.9	9	12.6	14.1	16.3	10.6
<u>Mean 9am</u> <u>relative</u> humidity (%)	68	77	77	78	82	85	81	72	68	63	67	66	74
<u>Mean 9am</u> wind speed (km/h)	6	4.5	4.7	4.7	4.1	4.5	4.7	7.1	9	9.3	7.5	6.6	6.1



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Νον	Dec	Annual
3 pm condition	s												
<u>Mean 3pm</u> <u>temperature</u> (°C)	25.4	24.9	22.2	18.1	14.2	10.7	10.2	11.9	14.7	17.7	20.6	23.3	17.8
<u>Mean 3pm</u> relative humidity (%)	40	44	45	49	54	59	54	48	45	44	43	41	47
<u>Mean 3pm</u> wind speed (km/h)	11	9.6	9	8.6	8.7	9.7	10.3	13.2	13.5	13.1	11.5	11.4	10.8



4. Waste Types and Quantities

4.1 General

Cooma Monaro Shire Council has a population of approximately 9,719, and manages an estimated solid waste stream of approximately 10,000 -15,000 tonnes per annum via kerbside collection services and disposal facilities at Cooma Landfill and transfer stations at Nimmitabel, Bredbo, Michelago, Numeralla and Smiths Rd.

4.2 Waste Types & Quantities

The waste categories and corresponding quantities received for landfill disposal or resource recovery are summarised below in Table 5. This information was provided by CMSC.

Landfilled Waste - Cooma Landfill	07-08	08-09	09-10
Municipal Solid Waste	3,533	2,847	3,752
Commercial & Industrial Waste	1,664	1,420	1,538
Construction & Demolition Waste	732	543	617
Transferred Waste	442	392	439
Asbestos Waste	81	51	53
Contaminated Soil	218	112	2
VENM & Fill	1,643	1,043	5,960
Total Waste to Landfill	8,312	6,408	12,362
Resource Recovery - Cooma Landfill	07-08	08-09	09-10
Garden Waste	584	487	586
Scrap Metal	26	126	219
Biosolids	176	613	470
Brick & Concrete	694	583	1182
Cardboard	181	119	134
Mattresses	18	16	14
Co-mingled Recycling	935	846	551
Other			17
Total Resource Recovery	2,614	2,792	3,173

Table 5 Waste Types and Quantities - Cooma Landfill





5. Facility Design

5.1 Access and Layout

Access to the Cooma landfill is off the Monaro Highway, where an access road extends into the site.

The current layout of the Cooma Landfill is shown in and on drawing 21-20014-C001 in Appendix B.



Figure 3 Arrangement of Site Facilities

The main features of the existing landfill site include the following:

- Weighbridge & site office;
- Small vehicle transfer station;
- Resale facility / re-usable goods storage sheds;
- Machinery shed;
- Stockpile areas for garden waste, scrap metal, concrete, tyres, mattresses;
- Asbestos pit;
- Two landfilling areas for general solid waste; and
- Stormwater and leachate ponds.

The existing features of the landfill are described in more detail in the following sections.



5.2 Site Facilities

5.2.1 Site Office and Weighbridge

The site office & weighbridge comprises a single 12m deck weighbridge plus a small demountable site office. All vehicles except those accessing the resale facility only enter the site via the site office & weighbridge.

5.2.2 Small Vehicle Transfer Station

The small vehicle transfer station is located a short distance from the site office. It comprises a split level, sawtooth transfer station arrangement including two large hooklift bins. One bin is provided for small quantities of general solid waste, the other is exclusively for segregated cardboard. The small vehicle transfer station also contains collection bins for separated recyclables, as described in Section 5.2.4.



Figure 4 Small Vehicle Transfer Station

5.2.3 Machinery Shed

A machinery shed and plant maintenance area is located north of the transfer station. A bunded fuel storage tank is provided adjacent to the shed. Plant is stored outside the machinery shed when not in use.



5.2.4 Recycling Area

A public recycling drop off area is provided at the transfer station with several collection bins for the separation of selected recyclables. Separated recyclables accepted include:

- Glass bottes with bins for separated colours;
- E-waste;
- Plastic bottles; and
- Segregated cardboard.

5.2.5 Garden Waste Stockpile and Processing Area

The garden waste area is located to the north of the existing landfilling area and comprises an open area upon which garden waste is stockpiled. This waste is subsequently shredded by a contractor and composted in windrows and used on site, mainly as alternative daily cover material. Council is also undertaking trials involving the blending of processed garden waste with biosolids to achieve a product suitable for off-site use.

5.2.6 Scrap Metal Storage Area

The scrap metal recycling area to the north east of the site and consolidates metal items for subsequent collection by recycling contractors. The stockpile is periodically pushed up to reduce the stockpile footprint. Due to safety concerns, members of the public are not permitted to scavenge items from the scrap metal stockpile.

5.2.7 Concrete Stockpile and Processing Area

Concrete is stockpiled in an area at the east of the site. This waste is subsequently crushed by a contractor and used on site as sub base material in road works or hardstanding.

5.2.8 Tyre & Mattress Stockpile Area

Tyres are stockpiled to the south east of the site for subsequent collection by recycling contractors.

5.2.9 Drum Muster Compound

A wire cage is provided near the resale shed for collection of triple rinsed Drum Muster containers which are periodically removed from site for recycling.

5.2.10 Resale shed

Two sheds are provided for undercover storage of items recovered from the waste stream for resale to the general public.



5.3 Final Landform and Life of Site

The proposed final landform for the site is shown on Drawing 21-20014-C002 in Appendix B. The estimated landfilling capacity (from the existing landform to the proposal final landform) is approximately 70,000 m³, less the volume of material required for final capping and revegetation. The contours of the final landform will have a maximum slope of 1V to 3H, and includes benching at regular intervals to ensure that surface water infiltration into the landfill capping layer, and erosion potential of runoff is minimised.

As the landfill reaches the level of the final landform, areas of suitable size and gradient will be identified and capped. The profile of the capping layer will comprise a layer of synthetic capping material such as GCL, overlying a seal bearing layer to prevent damage to the cap from waste beneath it. A layer of revegetation soil of thicknes 0.5m will be placed over the cap. This cap and revegetation layer will be constructed in accordance with a specification approved by the EPA. The performance of the proposed cap is described and discussed in Section 5.6.

Assuming the target waste compaction rate is achieved and with an average annual waste landfilling rate of 8,000 t/year, the proposed final landform will provide between 5-10 years of landfill airspace.

5.4 Staging of Landfilling

Currently, the landfilling operation is occurring in the central and north eastern parts of the site. A staging and filling plan is shown in drawing 21-20014-C005,(included in Appendix B). The plan identifies nine stages which would provide up to 70,000 m³ of future airspace. A general overview of the works required to support ongoing landfilling activities is as follows:

- Existing leachate pond to be adapted for use as a sediment retention pond;
- A new, lined leachate dam to be designed and constructed either on adjoining site (subject to approval) or at an alternative on-site location;
- Construction of a cut off drain to intercept potential sub surface migration of leachate (see drawing 21-20014-C002);
- Close off and compact an intermediate cover layer of 300mm thickness over the existing commercial waste/wet weather tipping area;
- Surface drainage diverted generally as shown. All temporary drainage works to conform with NSW Landcom, Managing Urban Stormwater: Soils and Construction, Volume 2B – Waste Landfills, 2008 and NSW Landcom, Managing Urban Stormwater: Soils and Construction, Volume 1, 2004;
- Filling to proceed under twice yearly survey control to achieve the desired levels and gradients, including progressive construction of benches/access tracks as shown in the drawings;



- Detailed contour and volumetric survey to occur prior to commencement of each stage, and at achievement of final levels. The location of any special waste burials (such as asbestos) shall be recorded in the survey;
- Alternative daily cover system to be adopted for use on site;
- All landfilling activities shall be conducted within temporary earthen bunds, and/or on a gradient such that leachate generated can not enter the surface water diversion drains; and
- A final cap shall be constructed upon achievement of the final levels for each stage. The cap shall be of composite construction and meet the performance requirements of the NSW EPA Environmental Guidelines: Solid Waste Landfills.

5.5 Stormwater Drainage Works

5.5.1 Stormwater Drainage

Currently, there are two small stormwater ponds located near the site entrance in the south west corner of the site. There is also a small leachate/stormwater dam located near the north eastern corner of the site. The site stormwater management system will be upgraded, encompassing the following:

- Constructing new temporary stormwater collection drains within the landfill footprint, generally as shown on drawing 21-20014-C002 in Appendix B;
- Adapting and if necessary enlarging (subject to design) the existing stormwater/leachate dam for the purposes of sediment retention.

5.5.2 Stormwater Management

CMSC's approach to stormwater management at the site will be:

- Control erosion and discharge of sediment off-site;
- Divert stormwater run-on away from the landfill and waste processing areas;
- Prevent run-off from active waste disposal areas contaminating clean stormwater run-off; and
- Capture and treat stormwater run-off from disturbed areas of the site in the sediment retention dams.

The active landfill area shall be bunded and contoured to prevent the run-on or run-off of surface waters onto/from areas where waste has been landfilled. Areas not being actively landfilled will be covered with intermediate cover and the runoff directed to suitable stormwater drainage systems.

CMSC shall progressively design and construct both temporary and permanent stormwater drainage works (as required) to achieve the above goals. All drainage works shall be designed and constructed in accordance with the requirements of the EPA, including the requirements specified in the NSW Department of Housing – *Managing Urban Stormwater – Soils and Construction Guidebook* (2004) and its recent



"Waste Landfills" update (2008), otherwise known as the "Blue Book". All stormwater diversion and collection drains shall be sized to convey run-off from the 10 year ARI rainfall event where possible. Where necessary the drains shall be stabilised or lined to prevent erosion.

Final capping shall occur immediately once each stage has achieved its final levels. Once final capping and revegetation has occurred at this site, stormwater management will become a less significant issue, as re-vegetation of the site's surface will considerably reduce the rate of erosion of the site and will help to trap sediment entrained in stormwater run-off. Temporary measures such as silt fencing shall be installed as required around the site where necessary until site soils have been effectively stabilised by revegetation.

5.6 Leachate Management System

5.6.1 Leachate generation

Leachate generation has not been evaluated for the site. However, except during significant rainfall events, leachate generation is expected to be relatively low due to the dry climate. Given the absence of an engineered cap, the expansive nature of the existing landfill operation and minimal intermediate and daily cover, a range of practical measures are identified in the following sections to minimise the potential for leachate generation.

5.6.2 Management strategy and measures

The strategy for managing leachate at this site is to minimise leachate generation by undertaking the following:

- Directing stormwater run-on away from the active landfill area;
- Regular compaction and covering of the landfilled waste;
- Keeping any leachate generated within the active tipping area separate from stormwater run-off;
- Grading the active landfill and directing clean stormwater runoff to a collection point;
- Only operating one active landfill face;
- Intermediate covering of landfilled areas that will be inactive for a period of 90 days or more;
- Progressively constructing the final capping across the site as the final landform is reached;
- Collecting leachate from the proposed cut off trench, and store the leachate in the proposed new leachate pond. If required, excess leachate could also be tankered off site for disposal at the nearest sewage treatment plant. The pond would incorporate a 300 mm freeboard to accommodate a 1 in 25 year, 24 hr rain event (82 mm). The leachate storage pond would also be lined;



- Disposing of leachate via evaporation from the leachate storage pond. Use will be made of the high evaporation relative to precipitation that occurs at the site to dispose of leachate; and
- Continuing to operate and maintain the leachate management system as required post-restoration.



6. Facility Operation

6.1 General

The Cooma Landfill shall be operated by CMSC in accordance with the site's EPL, this LEMP, and other relevant regulatory requirements.

CMSC shall implement a comprehensive range of measures to minimise the potential for environmental impact from the current and future waste management operations conducted at this site. This will include:

- Appropriate site management and staffing to ensure effective and efficient operation of waste management processes;
- A waste screening and inspection program;
- Recycling and resource recovery activities;
- Landfilling techniques that minimise nuisance eg. litter, vermin, odour, dust and noise;
- Appropriate leachate minimisation and management measures;
- Appropriate stormwater management measures which aim to minimise the generation of contaminated water and prevent detrimental impact on adjacent waterways;
- A comprehensive environmental monitoring and reporting program;
- Inspection and maintenance of inactive landfill areas; and
- Reporting, as per the site EPL.

6.2 Planning

CMSC shall review this LEMP after each review of the site EPL, or at least every 5 years. The purpose of the review is to:

- Evaluate the rate of landfilling and revise the staging/filling plans as required;
- Review site operations and identify areas where site operations/performance can be improved;
- Modify the LEMP to better reflect site operations;
- Make any changes arising out of legislative changes or changes in CMSC's waste management plan; and
- Update the LEMP incorporating all changes arising from the review process.

6.3 Management, Supervision and Staffing

CMSC shall provide suitably trained and experienced personnel as necessary to manage, supervise, operate and maintain the Cooma Landfill in accordance with the



site's EPL, this LEMP, and other relevant regulatory requirements. This shall include provision of staff to undertake the following activities:

- Provision of safe public access and work areas;
- Planning of the staging of the landfilling operation;
- Overall management, supervision, operation and maintenance of the site and its waste management operations. This shall include personnel experienced in the operation of a solid waste management facility/landfilling operation;
- Design, construction and maintenance of all site roads;
- Supervision of the active tipping face of any waste disposal area;
- Managing cover material at the site, including separation from incoming waste materials, stockpiling, and transporting on-site using appropriate landfilling/earthworks equipment;
- Spreading, compaction and covering of the deposited waste using appropriate landfilling equipment/earthmoving equipment;
- Management, supervision, operation and maintenance of the recycling area/facilities;
- Management, supervision operation and maintenance of the garden waste area;
- Management, operation and maintenance of all environmental management measures/controls at the site;
- Management, operation and maintenance of all other facilities and structures at the site including monitoring boreholes, fencing, gatehouse etc.
- Recording of incoming vehicles including waste quantity, type, and source;
- Securing the site so that unauthorised persons do not enter;
- Reporting, as required under the site EPL; and
- When the landfill site is open, the gatehouse will be manned, and the active tipping area and recycling storage areas will be supervised.

CMSC shall ensure the effective control of traffic at this site, and in particular at any waste disposal active tipping face. CMSC shall ensure that the equipment engaged in the movement, spreading, compaction and covering of deposited waste in the vicinity of any active tipping face is not operated in such a way as to constitute a risk to persons disposing of waste. CMSC shall supply and place barricades and/or signs as required to achieve this.

CMSC shall keep an operator's daily log book for recording activities and incidents that occur during the operation of the site.

CMSC shall provide a minimum of two personnel at the site at all operational times. CMSC shall ensure that all staff employed at the site are appropriately trained, qualified and experienced.



Training shall be undertaken to ensure that site staff operate the site in accordance with this LEMP, the site EPL, and other relevant guidelines and legislation, and will include training to ensure the following:

- All operators of compaction or earthworks equipment are skilled at undertaking all tasks required of them; and
- All those inspecting incoming wastes are skilled at accurate data recording and identifying wastes that are unacceptable.

CMSC shall also provide regular training to all operative and managerial staff on topics including:

- Waste categories recognition;
- Waste management / landfill practices;
- Waste management / landfilling regulations;
- Environmental requirements for landfilling, garden waste processing and recycling operations;
- OH&S regulations and practices;
- Fire control and management; and
- First aid.

6.4 Hours of Operation

The hours of operation of the landfill site and its subsidiary operations shall be as per the requirements of the site's EPL (when issued). Current hours of operation are:

Sunday to Friday: 11.00 am - 5.00 pm

Saturday: 1.00 am – 5.00 pm

The site is closed on public holidays.

6.5 Waste Acceptance & Screening Program

6.5.1 Acceptable Wastes

Cooma Landfill is licensed to accept the following wastes:

Table 6 Acceptable Wastes

EPA Code	Waste	Description	Activity	Other Limits	
N/A	General Solid Waste (non-putrescible)	As defined in Schedule 1 of the POEO Act, in force from time	Waste Disposal (application to land)	The total tonnage of general solid waste (non- putrescible)	
N/A	General Solid Waste (putrescible)	to time.		general solid waste (putrescible), asbestos waste	



EPA Code	Waste	Description	Activity	Other Limits
N220 T140	Asbestos Waste Waste Tyres	-		and waste tyres disposed of at the premises must not exceed 20,000 tonnes per annum.
K110	Grease Trap Waste	Grease interceptor trap waste domestic	Waste Disposal (application to land)	N/A
		Grease interceptor trap waste industrial	Waste Storage	
K130	Sewage Sludge & Residues	Bacterial sludge (septic tank) Night Soil	Waste Disposal (application to land)	N/A
		Sewage sludge & residues	Waste Storage	
N/A		Any waste received on site that is below licensing thresholds in Schedule 1 of the POEO Act, as in force from time to time		N/A

6.5.2 Waste Tyres

Tyres from the Sydney Metropolitan Area must not be received at the premises unless:

(a) They have been shredded into pieces measuring no more than 250mm in any direction; or

(b) They have had their walls removed; or

(c) The facility has the capacity, at the time of receiving the tyres, to recycle or reprocess the tyres into a saleable product (including retreading the tyres); or

(d) The facility has the capacity, at the time of receiving the tyres, to shred the tyres or remove the walls from the tyres; or

(e) The tyres are from a domestic load containing no more than 5 tyres having a diameter of less than 1.2m.



6.5.3 Waste Screening

All materials to be disposed at the landfill or recycled shall be inspected and identified at the gate by CMSC personnel. All staff members that monitor the site entrance shall be trained in the identification and classification of waste. Vehicles with unacceptable loads of waste will be refused entry to the site.

CMSC shall implement a Waste Screening Program to ensure that only permitted wastes are accepted for disposal or processing at the site. The Waste Control Program shall comprise the following:

- Prominent signage at the entrance to the landfill defining acceptable wastes and directing users to contact the gateperson for information regarding disposal of other wastes;
- Random daily inspection of vehicles entering the landfill. All vehicles suspected of containing unacceptable waste are refused permission to deposit waste until the waste is verified as being acceptable. CMSC shall require and collect appropriate evidence from the driver of the vehicle, eg. test certificate, approvals, etc, as appropriate, as verification that the waste is acceptable;
- Directing vehicles with unacceptable wastes to an appropriate disposal facility;
- Random monitoring and inspection of wastes as they are discharged from vehicles at the waste disposal areas by CMSC personnel. All waste suspected of being unacceptable will be segregated and checked as to its acceptability, eg. by detailed inspection and/or testing, as deemed appropriate by CMSC;
- Monitoring of the deposited waste during spreading, compaction and covering at the landfill or stockpiling at the GWA. All waste suspected of being unacceptable will be segregated and checked to determine its acceptability eg. by detailed inspection and/or testing, as deemed appropriate by CMSC; and
- Recording of all incidences of identification of unacceptable wastes in the site's daily log. The record will include:
 - Details of the waste eg. type;
 - Source of the waste eg. vehicle identification, driver identification and generator of the waste;
 - Recommended waste management facility(s);
 - Result(s) of contacting the waste management facility; and
 - Date contacted EPA.

6.5.4 Unacceptable Waste Procedure

In the event that unacceptable waste is identified in an incoming vehicle, the vehicle will be refused entry, re-directed, and details of the incident recorded as described above. CMSC personnel will advise the driver of the vehicle of appropriate waste management facilities, or to contact the EPA for advice on appropriate management of the unacceptable waste.



In the event that unacceptable waste is identified during deposition by a vehicle, CMSC will immediately segregate and contain the waste away from the active tipping face or processing area. CMSC personnel will record the details of the waste, such as type, the source, and the vehicle and driver identification. CMSC personnel will advise the driver of the vehicle that the waste is not acceptable and may load the waste back onto the vehicle where practical and safe to do so. The vehicle will then be escorted from the landfill by CMSC personnel. CMSC personnel will advise the driver of the vehicle to contact the EPA for advice on the appropriate management of the unacceptable waste.

In the event that unacceptable waste is identified during the spreading and compaction of deposited waste or stockpiling at the GWA, CMSC personnel will segregate and contain the waste away from the active waste disposal or processing areas. CMSC personnel will make all practical efforts to identify the source of the waste, including:

- Inspecting the waste for possible identification labels on containers; and
- Identifying the type of waste and consequently the possible sources.

CMSC personnel will contact the EPA to confirm appropriate management options and will document the final disposition of the unacceptable waste in accordance with the EPA's requirements.

6.6 Waste Handling, Deposition, and Compaction

All waste will be deposited in a manner that minimises any nuisance or environmental impact and achieves maximum practical in situ density.

Waste will not be deposited into water. The active waste disposal area will be maintained in a dry condition as far as is possible during the life of the area.

Every layer of waste deposited in the landfill will be evenly placed and compacted by the landfilling equipment to achieve a target <u>effective</u> waste density of >650 kg of waste per m³ of landfill airspace (or a landfill consumption rate of 1.54m³ of landfill airspace for every tonne of waste landfilled). Large bulky wastes such as furniture and tree trunks, if not deposited in the recycling area or GWA, will be broken up before covering. Such wastes will not be deposited in the final lift of a waste disposal area since settlement of the fill may result in these large items piercing the landfill cap.

The landfilling equipment will generally make 3 to 5 passes over the waste and will generally not operate on slopes exceeding 1:3 (V:H) due to reduced compaction and operational safety considerations. Heavy vehicles may also be directed over completed areas to aid in compaction of the waste.

6.7 Filling Plan

A conceptual filling plan has been developed for the site by GHD and are included as drawing 21-20014-C005 in Appendix B.

CMSC will update the filling plan section of the LEMP when each cell is commenced or completed, or when directed by the EPA.



The filling plan will identify the type of waste in each cell and the location of any special burials such as asbestos or decontaminated soil. This survey will be conducted by a registered surveyor as discussed in Section 6.16.3 or by an alternative method agreed to by the EPA, and will ensure that the same grid and standard height datum is used for successive filling plan contour recordings.

6.8 Asbestos Waste Handling Procedures

6.8.1 General

Asbestos material shall be identified at the weighbridge and directed to the landfill. Asbestos material shall be placed directly at the prepared disposal pit. Disposal of asbestos must be in accordance with Clause 42 of the Protection of the Environment Operations (Waste) Regulation 2005.

6.8.2 Asbestos Requirements under POEO (Waste) Regulation

The requirements relating to the transportation of asbestos waste are as follows:

(a) Bonded asbestos material must be securely packaged at all times,

(b) Friable asbestos material must be kept in a sealed container,

(c) Asbestos-contaminated soils must be wetted down,

(d) All asbestos waste must be transported in a covered, leak-proof vehicle.

The requirements relating to the **disposal** of asbestos waste are as follows:

(a) Asbestos waste in any form must be disposed of only at a landfill site that may lawfully receive the waste,

(b) When asbestos waste is delivered to a landfill site, the occupier of the landfill site must be informed by the person delivering the waste that the waste contains asbestos,

(c) When unloading and disposing of asbestos waste at a landfill site, the waste must be unloaded and disposed of in such a manner as to prevent the generation of dust or the stirring up of dust,

(d) Asbestos waste disposed of at a landfill site must be covered with virgin excavated natural material or other material as approved in the facility's environment protection licence:

(i) Initially (at the time of disposal), to a depth of at least 0.15 metre, and

(ii) At the end of each day's operation, to a depth of at least 0.5 metre, and

(iii) Finally, to a depth of at least 1 metre (in the case of bonded asbestos waste or asbestos-contaminated soils) or 3 metres (in the case of friable asbestos material) beneath the final land surface of the landfill site.

A person must not cause or permit asbestos waste in any form to be re-used or recycled.



"Bonded asbestos material" means any material (other than friable asbestos material) that contains asbestos. "Friable asbestos material" means any material that contains asbestos and is in the form of a powder or can be crumbled, pulverised or reduced to powder by hand pressure when dry.

6.8.3 Asbestos Requirements under OH&S Industry Codes of Practice

Practical guidance on safe handling and management of asbestos in the workplace can be found within the following government publications:

- Australian Government National Occupational Health and Safety Commission (2005), Code Of Practice For The Safe Removal Of Asbestos, 2ND Edition [NOHSC:2002(2005)]
- Australian Government National Occupational Health and Safety Commission (2005), Code Of Practice For The Management And Control Of Asbestos In Workplaces, [NOHSC: 2018 (2005)]
- WorkCover NSW (2010) Management of Asbestos in Recycled Construction and Demolition WasteOperational Cover Layers

6.8.4 Daily Cover

To maintain sanitary conditions and minimise the environmental impact of the landfilling operation, at the end of each working day all exposed waste surfaces will be covered by CMSC with a layer of compacted soil or other EPA approved material to a minimum depth of 150 mm. The daily cover layer shall be graded to minimise ponding of water.

Waste may be covered throughout the working day, but must be covered at the end of each day to prevent environmental impacts such as litter or odour.

The material used for the covering of waste will be clean soil and VENM, including material sourced from new landfill cell excavation and suitable incoming waste materials. This may include waste materials such as clean soil, VENM, road base, asphalt and crushed concrete, as approved by the EPA. Other alternative materials may be used as daily cover subject to EPA approval (see following Section).

CMSC will ensure there is, at all times, sufficient cover material on site for daily covering of the deposited waste. Cover material used for daily covering will be stockpiled at a point convenient to the active waste disposal area.

CMSC will not use excessive amounts of cover in operating the landfill. Silt fences and other approved sediment control measures shall be provided for all cover soil stockpiles by CMSC as required.

To minimise the amount of cover material used on site, the following measures are to be adopted where practicable:

 Alternative daily cover (refer Section 6.8.5) is to be used on non trafficable areas including the exposed waste batters (side and front);



- Conventional soil cover of maximum thickness 150mm is to be used for trafficable areas, such as the top of the landfill surface;
- This cover layer is to be thickened to an intermediate cover thickness if the area is not be refilled within 90 days (refer Section 6.8.6);
- This top cover material is to be stripped back to approximately 100-150mm thickness prior to landfilling of the next lift;
- The recovered cover material is to be stockpiled and used as daily cover for the next lift.

6.8.5 Alternative Daily Cover

General

The lack of cover material available at the site is currently a significant constraint to current and future use of the facility as a solid waste landfill. The shallow soil profile on the site, and the extensive filling which has occurred over the majority of the surface of the site has resulted in a situation where there is minimal opportunity to win cover material on site. A lack of major "soil generating" developments in Cooma means that insufficient material is economically sourced from offsite to properly provide for daily cover needs.

The situation is compounded by a number of operational practices. The operation of a single tipping face that is maintained over a minimum area e.g. 10-20m wide, on a daily basis would assist in minimising cover material requirements, and reduce many of the amenity issues associated with large, open tipping faces (including litter, odour and birds).

The viability of ADC will be influenced by a number of factors including:

- Effectiveness in meeting the performance objectives of the Environmental Guidelines: Solid Waste Landfills (EPA 1996);
- Ongoing material costs;
- Ongoing operating costs;
- Availability of conventional cover material;
- Operational control, including minimisation of tipping area; and
- The value of any landfill airspace saved.

CMSC will be investigating the possibility of mining existing areas of the landfill to win cover material, for future use as daily cover. This is because CMSC believes that the use of daily cover in the past may have been excessive in some areas of the site. This would involve excavating waste and cover materials from specific areas, screening the waste to separate the fines and stockpiling the fines separately from the waste. Drawing 21-20014-C003 in Appendix B shows the areas of the site where landfill mining is being considered.

The fines, which would comprise mainly soil type materials, could then be used for daily or intermediate cover in the current or new areas of the landfill. This would also



enable some resources such as metals to be recovered from the waste component, using a magnet. The leftover waste would be disposed of into the excavation. One additional opportunity that would arise from this is that the newly excavated areas, which were previously unlined, could potentially be lined with a synthetic liner, before the waste is re-emplaced. This would reduce potential for future leachate generation in these areas. The increased compaction rate arising from use of the modern Tana compactor, combined with the lower ratio of daily cover to waste, and removal of fines from the waste would also create additional airspace in the existing landfill.

Before landfill mining is implemented, a full feasibility assessment would need to be conducted. This would involve digging test pits in various areas of the site, primarily in the eastern and south eastern sections, where recycling activities are being carried out currently. Since there is a potential for impacts such as odour from excavating and handling old waste, but the odour levels depend upon the age of the waste, the waste composition, and the degree of degradation of the waste, the test pit program would enable the potential for odour generation to be assessed.

As well as this, some trials could be undertaken to assess the amount of soil and fines that could be extracted from each cubic metre of excavated waste in each area, the resources that could be potentially recovered, the likelihood of encountering hazardous wastes such as chemicals and asbestos, and the amount of airspace that would be needed to recompact the waste in the excavation and provide daily cover. This program would also enable the cost and benefits of landfill mining to be assessed for different areas of the site.

EPA Performance Objectives

A number of materials or material blends can be successfully used as ADC. Under the *Environmental Guidelines: Solid Waste Landfills* (EPA 1996), landfill occupiers are free to specify any alternative cover material (foams, mulch, etc.) provided they can demonstrate compliance with the performance goals which include:

- Limiting run-on and infiltration of water;
- Controlling and minimising risk of fire;
- Minimising emission of landfill gas;
- Suppressing site odour ;
- Reducing fly propagation and rodent attraction; and
- Decreasing litter generation.

Due to shortages of VENM available on site for use as cover material, alternative daily cover (ADC) shall be used subject to acceptance by EPA.

ADC Options

A number of ADC options exist, and one or more of the following could be used at Cooma Landfill subject to EPA approval:

Tarpaulin style covers and lid style covers for non trafficable areas;


- Fibre mulch applied by spray (potentially including a seed mix) for non trafficable areas;
- Other spray on cover products for non trafficable areas;
- Composts & mulches blended with 10% VENM for non trafficable areas; and
- Crushed brick /concrete/ asphalt for trafficable and non trafficable areas.

6.8.6 Intermediate Cover

Where a filled area has not reached the final landform level, but due to the staging of the filling will remain inactive for a period greater than 90 days, CMSC shall apply an intermediate covering layer. The intermediate covering layer shall comprise of a 300 mm thick layer of compacted soil or other suitable material approved by the EPA.

As mentioned in Section 6.8.4, this soil cover material be stripped off to a thickness of 100-150mm and stockpiled for re-use as daily cover on future landfill lifts.

6.9 Final Capping Layer

6.9.1 General

The landfill will be progressively capped and rehabilitated as filling reached the proposed final landform. This will involve placing an engineered final cover layer over each landfilled area as it is completed, and revegetating the final cover. The profile of the final capping layer will comprise the following:

- 50-100 mm of fibre mulch with appropriate grass seed mix;
- 500 mm of revegetation soil/mulch;
- GCL barrier layer; and
- Seal bearing surface.

Upon completion, the maximum slope angles on the landfill batters shall not exceed 1 (vertical) to 4 (horizontal) (25%) and level parts of the landfill will be domed or graded to a minimum 5% (to minimise infiltration and consequent leachate generation). The detailed design of the landfill final cover system has not yet been finalised by CMSC.

6.9.2 Revegetation

Revegetation of landfill batters should occur over two stages:

(i) Primary revegetation, which normally does not include native species and is designed to reduce the erosion hazard to an acceptable level rapidly; and

(ii) Secondary revegetation, which might follow to create an aesthetically more pleasing environment through natural or artificial addition of permanent endemic/native species.

Primary revegetation is to be provided by hydro mulching/hydro seeding of completed capped areas. An appropriate mix of perennial & annual grass seed shall be selected for initial fast growing stabilisation.



Secondary revegetation shall be carried out with the intention of rehabilitating the site to a state which resembles native Monaro grassland. Revegetation should be based on local knowledge of effective grassland rehabilitation techniques, and a detailed revegetation plan should be prepared which incorporates native Monaro grassland species.

Advice on revegetation techniques and appropriate species shall be sought from local seed merchants or appropriate government departments (EPA, CMA) and organisations (Greening Australia, Landcare) for listings of species, sowing rates and fertiliser requirements suitable for rehabilitation.

6.9.3 Construction Quality Assurance

Prior to the construction of the landfill final capping layer, a construction quality assurance plan shall be produced by CMSC. This document shall detail requirements of CMSC and their contractors to conduct appropriate tests in line with the requirements of the NSW EPA. Generally, records shall be kept of all testing completed, any failures observed and any remedial actions taken. These records shall indicate the time, date and location of the tests, failures and remedial actions. Observations regarding weather conditions at the time of conducting any test, or in the case of laboratory samples, collecting the sample. Appropriately qualified personnel shall collect all samples, and all tests conducted by a laboratory registered by NATA for the tests conducted.

6.10 Equipment

CMSC will maintain and/or engage sufficient and appropriate machinery, plant and equipment to operate the facility in accordance with the the requirements of the site EPL and this LEMP. This will include, but is not limited to, equipment for:

- Spreading, compaction and covering of deposited waste;
- Managing stockpiles of scrap metal and other selected recyclables;
- Managing stockpiles of garden waste;
- Compacting, trimming, shaping, grading and levelling of cover layers;
- Construction of the final cover system; and
- Any other operation required for the proper and efficient operation of the landfill.

All plant and equipment will conform to the relevant Australian Standards and be operated in a proper and efficient manner.

All machinery, equipment, and plant will be maintained in a proper and efficient working condition, in accordance with the manufacturer's requirements. In the event of equipment or plant failure, CMSC will organise replacement plant or equipment as soon as practical to ensure the requirements of the LEMP are fully complied with at all times.



6.11 Security

Outside operating hours the access gates will be locked by CMSC. Coded locks and keys will be provided by CMSC to contractors as required, and only CMSC provided locks will be used for access gates.

Keys to gates and buildings will only be kept by necessary contractor staff members and CMSC employees. Approval will be required from CMSC for issue of new keys to any party.

6.12 Health and Safety Procedures

CMSC will undertake all necessary precautions to ensure the safety of all personnel, users and visitors to the site. The supervising staff at the landfill will undergo a full induction prior to commencing work at the site. Inductions for operational staff or subcontractors conducting site works may be conducted by the inducted site supervisor.

CMSC shall ensure that all employees are instructed concerning potential hazards at the landfill and that safe working practices are observed by all sub-contractor staff.

CMSC will provide, equip and maintain first aid treatment facilities at the landfill and will have a person trained in first aid on site during all operating times.

It is the CMSC and their sub-contractors responsibility to be familiar with the provisions of the *Occupational Health and Safety Act* 2000 ("the OH&S Act") and regulations. The duties and all other obligations that the Act places on an employer will be properly discharged by CMSC and their sub-contractors, so that all employees are aware of their responsibilities under the OH&S Act.

CMSC will ensure that all necessary protective clothing and safety equipment is available and/or issued to all employees, is maintained in good condition, and is used where necessary.

CMSC will ensure that site infrastructure is adequate to meet the OH&S requirements of CMSC and sub-contractor personnel, as well as the general public. This includes conducting mulching of garden waste away from the general public, and ensuring large drops in ground level are appropriately barricaded.

All contracts and tenders that CMSC makes for the site will ensure that contracting companies comply with applicable insurance and health & safety requirements. These companies include (but are not limited to) waste collection contractors, revegetation & landscaping companies, recycling contractors and environmental consultants.

6.13 Wet Weather Operation

CMSC will ensure that the landfill is able to accept solid waste under all reasonable weather conditions without compromising the environmental management of the site. This will include placing adequate broken rock, bricks or concrete at the filling area to facilitate access. If access issues are encountered during wet weather, waste may be deposited near the front of the waste disposal area and pushed to the back of this area by waste handling equipment.



6.14 Access Road Maintenance

CMSC shall construct all necessary temporary internal access roads within the waste disposal areas to provide safe, effective access, and to minimise the risk of damage to vehicles using the roads. All access roads will be constructed and maintained using suitable bricks, concrete and crushed rock that will be stockpiled on-site for use when required. Access roads will be wide enough to permit safe two-way movement by all vehicles using the site. If insufficient width is available for safe two-way movement, then the roads will be arranged to permit one-way flow of traffic.

Where necessary, site access roads will be constructed to withstand the traffic of waste handling equipment, however the traffic of heavy earth moving machinery on site access roads will be minimised.

6.15 Fire Control

No materials shall be intentionally burned on site. CMSC shall develop and implement a site- specific fire management plan and train all staff in relevant procedures to minimise the risk of fire at the premises including:

- Screening of loads at the weighbridge and tipping area for potentially hot wastes or those wastes with an increased risk of spontaneous combustion.
- Maintenance of adequate security measures.
- Regular compaction and covering of landfilled waste;
- Posted, formal fire management procedures to follow in the event of a fire. These
 procedures include persons responsible, contact numbers and equipment to be
 used;
- Maintenance schedule for all fire fighting equipment and facilities. This will include, at a minimum, weekly checks of equipment and facilities for damage, and test operation every three months;
- Fire fighting equipment at site buildings;
- Clear signposting and access of all fire fighting equipment;
- Construction and maintenance of appropriate firebreaks;
- Staff training in fire fighting techniques;
- Management of the size of garden waste stockpiles; and
- Designation of restricted smoking areas.

In the event of a fire occurring at the site, CMSC will take prompt action to extinguish the fire. The local Fire Brigade will be immediately notified of all fires irrespective of the extent of the fire and whether or not it has been controlled. CMSC will co-operate fully with the Fire Brigade in fighting fires on the site.

CMSC shall take all reasonable measures to prevent water that has been used to extinguish fires from entering the stormwater system.



All fire events will be recorded in detail and reported to the EPA as per the requirements of the site's current EPL.

6.16 Waste Recording and Reporting

6.16.1 Waste Reporting

All vehicles entering the depot will have a receipt completed and issued by the weighbridge operator using the proprietry weighbridge software (currently AWS). The receipt shall include the vehicle registration and waste classification, and amount of money paid, if applicable. The weighbridge at the site will be manned by CMSC at all times during operating hours to ensure that all vehicles are recorded.

Where waste is to enter the site outside of operating hours, arrangements will be made with the site supervisor to ensure that the site is manned during the deposition of the waste.

The following records should be kept and retained at the landfill operations office:

- A copy of this Landfill Environmental Management Plan; and its various attachments and addendums;
- The site's EPL;
- Site Diary;
- Operator procedures manual; and
- Worksite OH&S Field Folder.

6.16.2 Annual Return

CMSC will prepare and submit an Annual Return in accordance with the requirements of the site's EPL. Annual reporting is discussed further in Section 11.1.

6.16.3 Landfill Airspace Surveys

CMSC shall engage a suitably qualified land surveyor to undertake a topographic survey of the landfill every six (6) months to determine the volume of landfill airspace consumed.

6.17 Quality Assurance

6.17.1 Design

All design work for the facility will be undertaken by suitably qualified and experienced personnel / consultants in accordance with quality principles.

6.17.2 Construction

All construction work will be undertaken by suitably qualified and experienced personnel in accordance with quality principles.



Key construction work at the site includes the landfill capping layer. Quality assurance of the construction of these key works and other significant works shall be conducted during their construction. Prior to the commencement of any major construction works on site, CMSC will prepare a construction quality assurance and testing programme (CQATP) for the relevant works in accordance with the requirements of the site's EPL.

6.17.3 Operation

Operation of the landfill and its associated activities will be undertaken in accordance with this LEMP and the site's EPL.



7. Recycling and Resource Recovery

7.1.1 General

State and Federal Governments have adopted significant waste minimisation policies aimed at reducing waste to landfill. CMSC supports waste minimisation initiatives and promotes them wherever possible for both the environmental and practical benefits.

To complement its broad range of community waste minimisation activities, CMSC have developed a range of resource recovery activities at the site including collection facilities for:

- Reusable items and scrap (Scrapmart);
- Drum muster containers;
- Lead acid batteries;
- Cooking oil;
- Separated glass and plastic containers;
- E-waste;
- Concrete/brick;
- Garden waste;
- Mattresses;
- Motor oil;
- Paper & cardboard (P&C);
- Scrap metal;
- Tyres; and
- Soils (for reuse as cover material)

CMSC personnel will take all reasonable efforts to ensure that recyclable and reusable items are diverted from the current and future landfill operations. CMSC may increase the range of recyclable materials collected and alter the form in which they are collected. This infrastructure will be maintained by CMSC.

The recycling area shall be maintained in a presentable condition. CMSC will ensure timely transport of the materials in order to minimise the accumulation of materials on site.

7.1.2 General Recyclable Materials

CMSC will endeavour to recycle as much general recyclable materials as practicable. This may be done by advising customers of where recyclables should be placed, explaining to customers the benefits of separating recyclables from general waste, or recovering recyclables from the general waste stream.



7.1.3 Garden Waste

CMSC will stockpile all suitable garden waste received at the site (mainly bushes, branches and tree waste). The garden waste stockpiles shall not exceed a height of two metres or total basal area of 5000 m². All works required to keep the stockpiles within these size constraints shall be conducted by CMSC.

When the garden waste stockpile reaches a sufficient size, a garden waste shredding contractor will be engaged to shred the stockpile. Tree stumps and trunks will be sheared prior to shredding.

Noxious weeds entering the site will not be placed in the garden waste stockpile. Instead, all noxious weeds will be disposed of in the landfill. No other source separated garden wastes will be disposed of in the landfill.

7.1.4 Scrap Metal

CMSC shall arrange for the separation of scrap metal delivered to the site, including car bodies and parts, white goods, roofing etc. This material must be maintained at all times in a neat and presentable fashion and made readily accessible to the scrap metal recycler. The public must not be permitted to scavenge directly from the scrap metal stockpile.

CMSC shall arrange for the removal of scrap metal from the site on a regular basis. CMSC shall ensure that the stockpile of scrap metal on the site does not have a basal area exceeding 500 m². All works required to keep the stockpile within these size constraints shall be conducted by CMSC.

7.1.5 Waste Oil

Materials that may pose a risk to the environment, such as waste oil containers prior to decanting, shall be stored in bunded areas so that any leaks and spills will be contained. Site staff will be responsible for decanting containers into the waste oil collection tank provided. Customers are not permitted to have access to the oil collection tank for any reason.

7.1.6 Glass and Plastic Containers

CMSC will ensure that glass and plastic containers collected for recycling are stored in a clean and safe location on-site. CMSC will ensure that these materials are maintained in such a way as to not constitute a fire risk. CMSC will ensure that glass and plastic containers are collected for recycling on a regular basis.

7.1.7 Car Batteries

Car batteries, truck batteries and solar lead acid batteries only are segregated from the landfill and placed on a pallet for recycling. CMSC will ensure that, as soon as one pallet fills, arrangements are made for the collection of the batteries. All arrangements for the removal of batteries, as well as all income from the recycling of the batteries, reside with CMSC.



No more than two (2) full pallets of batteries are permitted to be on the site at any given time.

7.1.8 Concrete, Bricks and Tiles

CMSC will not specifically stockpile or separate concrete, brick and tiles. However, where possible, incoming loads containing significant quantities of these materials will be mixed with soil and used as daily cover on the landfill site.

7.1.9 Clean Fill

CMSC will ensure that clean fill delivered to the site is stockpiled in a location where it is able to be easily used for cover material or for rehabilitating the site. Where required, CMSC will also source clean fill for use as landfill cover or other site development works.

As described in Section 6.8.4, measures shall be implemented that minimise the amount of daily cover used for operating the landfill.

7.1.10 Cardboard and Paper

CMSC will ensure that cardboard and paper collected for recycling on-site is placed in the hook lift bin provided. CMSC will ensure that these materials are maintained in such a way as to not constitute a fire risk. CMSC will ensure that cardboard and paper is collected for recycling on a regular basis.



8. Environmental Management Measures

8.1 Water

8.1.1 General

CMSC will undertake all practical measures to prevent contaminated waters leaving the site. Site operations will generate different quality waters, including:

- Run-off from undisturbed areas within and upstream of the landfill site (clean stormwater run-off);
- Run-off from rehabilitated (revegetated) areas of the landfill site (clean stormwater run-off);
- Run-off from disturbed areas of the landfill site (potentially turbid stormwater runoff);
- Run-off from within the active landfilling area (potentially leachate);
- Run-off from the recycling area (potentially contaminated); and
- Leachate from within the landfill.

Management of water at the landfill is aimed at:

- Minimising the generation of contaminated water;
- Preventing deterioration of water quality standards in local surface waterways and groundwater in the vicinity of the site; and
- Ensuring that water is available to meet operational requirements.

Clean stormwater will be diverted around disturbed areas of the site to minimise the generation of leachate and sediment laden water.

The following sections outline the management of clean stormwater, sediment laden water, and leachate.

8.1.2 Stormwater

There are four main types of stormwater generated on the site:

- Clean stormwater run-off from undisturbed and rehabilitated / revegetated areas of the site;
- Potentially sediment laden stormwater run-off from disturbed areas of the site;
- Potentially contaminated stormwater run-off from the recycling & waste transfer area; and
- Potentially leachate contaminated stormwater run-off from the active landfilling area.



The fundamental approach to stormwater management is as follows:

- Maintain undisturbed and rehabilitated / revegetated areas as filters for sediment from disturbed sub-catchments;
- Minimise disturbed areas on the site;
- Maintain all stormwater run-off from disturbed areas as diffuse as possible to minimise sediment loads and maximise the opportunities for the vegetation to strip sediment from the run-off. Any concentration of flow over bare and disturbed areas should be avoided;
- Establish and maintain erosion controls (re-vegetation, silt fencing etc.) on disturbed areas as required;
- Ensure that water falling on the recycling/waste transfer area does not leave the site, by placing a series of bunds around the perimeter of this area (as required) and directing this water to a sediment basin or other collection facility; and,
- Ensure that water falling in the active landfilling area does not leave the site and is managed in an environmentally appropriate way by diverting to leachate collection infrastructure.

CMSC will design, construct and maintain a series of temporary stormwater drains during landfilling operations to prevent stormwater run-off from entering the active waste disposal area or recycling area.

Where the area drained is undisturbed, these drains will discharge from the site. Where the area drained is likely to contribute sediment to the stormwater, the drains will either drain to a sediment basin, or will be constructed to spread turbid water over vegetated areas of the site in order to enable the settlement of sediments from the water. If this is not possible, sediment fencing will be installed and maintained at the site perimeter as a temporary measure.

All temporary drains will be earthen drains constructed at grades no steeper than 3% to minimise scouring. Where drain slopes exceed 3% the drains shall be suitably lined with crushed rock, grassed or otherwise stabilised to prevent erosion.

All drainage structures will be designed in accordance with the relevant design criteria including those specified in the EPA publication *Environmental Guidelines: Solid Waste Landfills*, NSW Department of Environment and Climate Change's *Managing Urban Stormwater: Soils and Construction, Volume 2B – Waste Landfills*, 2008 and *Australian Rainfall and Runoff*. Where required, approvals licences will be obtained for the drainage structures from CMSC, NSW EPA, and/or the Department of Lands.

8.1.3 Recycling Area Run-off

Stormwater run-off from the recycling area is deemed to include all water that has come into contact with stored garden waste and / or stored concrete, and thus may contain organic matter and / or sediment. A range of appropriate measures will be implemented to minimise, contain, collect and dispose of run-off generated during the



operation of the recycling area at the site. This will primarily involve implementing all practicable measures to minimise the volume of stormwater run-off generated such as:

- Diverting upstream stormwater run-off; and
- Minimising the size of the recycling area.

Surface water and groundwater will be monitored to evaluate the effectiveness of these measures. The monitoring network is discussed in more detail in Section 9.

8.1.4 Leachate

Leachate is deemed to include all water that has come into contact with waste. A range of appropriate measures will be implemented to minimise, contain, collect and dispose of leachate generated during landfilling at the site (see Section 5.6). This will primarily involve implementing all practicable measures to minimise the volume of leachate generated such as:

- Diverting upstream stormwater run-off and run-on where practicable;
- Minimising exposed areas at the active landfilling area by daily covering of the landfilled waste;
- Grading filled areas to direct surface water run-off away from the active waste disposal area; and
- Progressive capping and rehabilitation of landfilled areas.

All leachate collected by the leachate collection and storage systems shall be managed by CMSC to prevent adverse impacts on local surface waters and local groundwater. All leachate collected shall be stored, treated and disposed of in accordance with this LEMP, the EPL and the relevant EPA guidelines.

Surface water and groundwater will be monitored to evaluate the effectiveness of these measures. The monitoring network is discussed in more detail in Section 9.

8.1.5 Maintenance

All stormwater drainage, recycling area drainage, and leachate management works will be maintained in proper functioning order so as to:

- Minimise flooding of the landfill and the recycling areas; and
- Prevent contamination of local groundwater and surface water;

Maintenance will include:

- Regular cleaning of drains/pipes/pits and removal of accumulated sediments;
- Removal of flow concentrations from disturbed areas; and
- Stabilisation of eroded drains.



8.2 Air

8.2.1 Landfill Gas

The site is not sufficiently large and does not have sufficient risk associated with landfill gas to warrant specific landfill gas management measures. Landfill gas monitoring is not required under the EPL.

8.2.2 Odour

The landfill will be operated to minimise the generation and effect of odours arising from the waste management operations on adjoining land users. Odours will be significantly reduced by operating the site in accordance with sanitary landfilling methods and good site management. In addition, odours will be minimised by:

- Not depositing waste in standing water;
- Depositing wastes in thin layers to optimise compaction;
- Controlling the deposition of potentially malodorous wastes (immediate covering);
- Covering all exposed waste at the end of each working day with daily cover material; and
- Minimising disturbance of previously filled areas.

A record of complaints regarding odours will be kept by CMSC in accordance with the complaint management system, and reported to the EPA as required in the Annual Return.

8.2.3 Dust

All practicable measures will be taken by CMSC to minimise dust emissions arising from the operations of the landfill and its associated waste management activities. These will include:

- Immediate burial and covering of dusty loads;
- Entrance and site access roads to be well maintained and watered if required;
- Speed limits to be enforced;
- Earthworks to be undertaken on days with little or no wind and/or when the soil to be excavated is moist, where practical; and
- Use of a water cart as required.

8.3 Litter

CMSC shall implement all practicable measures to minimise litter generation and confine litter arising from the operation of the landfill within the boundaries of the site. Where possible, all landfill tipping areas will be established to face a direction which provides the greatest protection against the prevailing winds. Other control measures may include the following:



- Undertaking landfilling within a bunded waste disposal area;
- Maintaining a small active waste disposal (filling) area;
- Regular compaction of landfilled waste throughout the day;
- Covering of all landfilled waste at the end of each day; and
- Use of mobile litter fences around the active tipping area, as required.

All loads entering the landfill will be required to be covered. CMSC personnel will enforce load covering to prevent litter.

8.4 Vermin

The preferred overall method of vermin control for the site includes good compaction and covering of deposited waste, including compaction of the covering layers. When used, care is taken to ensure that pesticides do not enter stormwater, garden waste run-off or leachate, or pose an airborne pollution hazard or nuisance. Vermin control measures to be implemented by CMSC include:

- Daily compaction and covering of landfilled waste;
- More regular compaction and covering of waste throughout the day, if required;
- The use of insecticides and pesticides, as required; and
- The use of scarecrows and bird scares, as required.

8.5 Noise

All practicable measures will be taken by CMSC to minimise noise emissions arising from the operations of the landfill and its associated waste management activities. The impact of noise arising from the landfill operations on all surrounding residential areas will be minimised by implementing the following measures:

- Maintaining all landfill plant and machinery in proper working order;
- Ensuring all vehicles accessing the site use the designated access roadways; and
- Operating plant and equipment within specified working hours.

CMSC will implement such measures as are necessary to satisfy all EPA requirements relating to noise pollution including:

- The level of continuous noise LA10, T emanating from the operation of the premises, must not exceed the background level LA90, T by more than 5dB(A) when measured over a minimum period of 15 minutes at any point within six metres of the nearest effected residence or other noise sensitive areas in the vicinity of the premises, using the "Fast" response on the sound level meter.
- In the case of any noise which is tonal or impulsive in character, the level of continuous noise LA10, T from the premises at any point within six metres of any residence or other noise sensitive area in the vicinity of the premises, is obtained by adding 5dB(A) to the measured level.



9. Environmental Monitoring

9.1 General

CMSC will undertake regular monitoring of landfill gas, groundwater, stormwater and leachate to ensure operation of the Cooma Landfill is not causing a detrimental environmental impact. In addition, at a minimum, every 12 months the operation of the landfill will be reviewed by CMSC to assess the compliance of the landfill operation with regulatory requirements and the site EPL and this LEMP.

All sampling will be carried out by suitably qualified and experienced personnel, in accordance with EPA accepted procedures, including those described in the EPA publication *Environmental Guidelines: Solid Waste Landfills* and the EPA publication *Methods for Sampling and Analysis of Water Pollutants in NSW*. All analyses of samples will be performed by a laboratory accredited by the National Association of Testing Authorities (NATA) to undertake the analyses specified.

A Quality Assurance and Control (QA/QC) Program will be included as part of the Environmental Monitoring Program in accordance with Section 8 of the Australia Standard AS 44821.1. The QA/QC program will include the collection of:

- Field Split Duplicates;
- Blind Duplicates; and
- Rinsate Blanks.

Additionally, the analytical laboratories will complete their own internal QA procedures (as required by NATA registration) during the analysis of the samples.

Details of the monitoring to be performed for individual aspects are provided in the following sections. Locations of all existing monitoring locations are shown on Drawing C26-6.

9.2 Groundwater

9.2.1 Monitoring Locations

The monitoring locations specified in the EPL are identified below in Table 7.



EPA identification no.	Type of monitoring point	Description of location
1	Leachate quality monitoring	DAM Monitoring Location 6, as shown on Drawing No C26-6 dated 30.10.03 provided by Council
2	Groundwater quality monitoring	Monitoring Location 3, as shown on Drawing No C26-6 dated 30.10.03 provided by Council
3	Groundwater quality monitoring	Monitoring Location 4, as shown on Drawing No C26-6 dated 30.10.03 provided by Council
4	Groundwater quality monitoring	Monitoring Location 5, as shown on Drawing No C26-6 dated 30.10.03 provided by Council

Table 7 Monitoring points from EPL

9.2.2 Groundwater Monitoring

Groundwater monitoring will be undertaken at the Cooma Landfill site as per the requirements of the site's EPL as outlined below in Table 8. All sampling and analysis will be conducted by appropriately qualified personnel.

Table 8 Monitoring Analytes and Sampling Frequency

Pollutant	Units of measure	Frequency	Sampling Method
Alkalinity (as calcium carbonate)	micrograms per litre	Quarterly	Grab sample
Ammonia	micrograms per litre	Quarterly	Grab sample
Biochemical oxygen demand	milligrams per litre	Quarterly	Grab sample
Conductivity	microsiemens per centimetre	Quarterly	Grab sample
Nitrate	micrograms per litre	Quarterly	Grab sample
рН	рН	Quarterly	Grab sample



If a borehole is not sampled because it is dry or damaged, or for any other reason, then the person responsible for sampling shall record the reasons for not sampling and report the reason in writing to CMSC.

An appropriate quality control program shall be in place to ensure that results of analyses are reliable and accurate.

9.2.3 Groundwater Pollution Detection

Results of analyses would be compared to ANZECC guidelines for aquatic ecosystems where relevant trigger levels exist. Should monitoring indicate that contamination of the groundwater or sub soil has occurred; the affected monitoring boreholes will be re-sampled as soon as possible. If the contamination is confirmed by the re-sampling, the EPA will be notified in writing within 14 days.

Within 28 days of the written notification, a groundwater assessment program will be prepared, which aims to identify the specific contaminants and extent of pollution of the groundwater. This plan would be submitted to the EPA for approval prior to implementation. Information collected during the groundwater assessment program will be used to prepare a groundwater remediation plan, if required.

Except as may be expressly provided in any other condition of the licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997

9.3 Leachate

9.3.1 Leachate Monitoring Locations

Samples of leachate shall be taken from the leachate dam quarterly or at times when sufficient water is available in the dam to collect a sample.

9.3.2 Leachate Monitoring

Leachate monitoring will be completed at the Cooma Landfill site as per the requirements of the site's EPL as detailed in Table 8.

All sampling and analysis will be conducted by appropriately qualified personnel. An appropriate quality control program shall be in place to ensure that results of analysis are reliable and accurate.

9.4 Stormwater

Stormwater quality is not required to be monitored under the site EPL. However except as may be expressly provided in any other condition of the licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

9.4.1 Stormwater Monitoring

It is proposed that stormwater monitoring periodically occur at the site discharge point on the northern boundary during periods of site runoff.



All sampling and analysis will be conducted by appropriately qualified personnel. An appropriate quality control program shall be in place to ensure that results of analysis are reliable and accurate.

Should monitoring indicate that contamination of any local surface water ways has occurred; the affected sampling locations will be re-sampled as soon as possible. If the contamination is confirmed by re-sampling, the EPA will be notified by CMSC in writing within 14 days. Within 28 days of the written notification a surface water assessment program will be prepared, which aims to identify the specific contaminants, causes and extent of pollution of the surface water.

This plan would be submitted to the EPA for approval prior to implementation. Information collected during the surface water assessment program will be used to determine necessary remedial drainage measures and to prepare a surface water remediation plan, if required.

9.5 Landfill Gas

The site is not sufficiently large and does not have sufficient risk associated with landfill gas to warrant routine monitoring. Landfill gas monitoring is not required under the EPL.

9.6 Monitoring Program Review

The groundwater, leachate, stormwater and landfill gas monitoring program will be reviewed every 12 months to assess trends in the monitoring data, the suitability of the parameters tested for, and recommendations will be made regarding improvements to the program. This review will be organised by CMSC and submitted to the EPA as part of the annual review. It is further recommended that the monitoring location plan is updated every 12 months, or as required.

9.7 Complaints

CMSC will handle any complaints through its existing corporate record management system and the requirements of the site's current EPL. Complaint records will include:

- Date and time of the complaint;
- Complaint method;
- Any personal details of the complainant if provided;
- Nature of the complaint;
- Subsequent action taken by the licensee; and
- If no action was taken, include the reason why no action was taken.

All complaints received over the course of a reporting year will be reported to the EPA in the annual review report referred to in Section 11.1.



9.8 Record Keeping

The results of all monitoring will be recorded and retained as required in the EPL. The records will include the following:

- Sampling dates(s);
- Sampling time(s);
- Sampling point(s);
- Sampling results; and
- The name of the person who collected the sample.

The monitoring records will be kept for at least four (4) years after the monitoring event and will be produced to any authorised officer on request.

All environmental monitoring will be performed by suitably qualified personnel. The requirements of the NSW Landfill Guidelines shall be followed to ensure that all applicable requirements are met.



10. Site Closure and Rehabilitation

10.1 Final Landuse and Site Rehabilitation

At the completion of landfilling the final landform shall be as shown in drawing 23-12680-SK 009 (Appendix B). The filled portions of the site will be vegetated and maintained. The site will be progressively capped and revegetated in a two stage process as described in Section 6.9.2.

Closure and rehabilitation of the site will be as detailed in the Closure Plan.

10.2 Closure Plan

CMSC will prepare and submit a Closure Plan to the NSW EPA six months prior to the last load of waste being landfilled at the site. The Closure Plan will address the following in detail:

- Final land use and landscaping / revegetation;
- Final capping;
- Post closure management and maintenance;
- Post closure environmental management eg. of groundwater, landfill gas, leachate, and stormwater;
- Post closure environmental monitoring and reporting;
- Certificate of completion; and
- Implementation program.

The following sections generally describe some of these activities.

10.3 Post Closure Management

Post closure management of the Cooma Landfill would encompass ongoing environmental management, environmental monitoring, and maintenance of the landfill. These activities are described in the following paragraphs.

10.3.1 Environmental Management

Ongoing environmental management of the site would be undertaken by CMSC following closure of the site for landfilling. This would consist primarily of:

- Ongoing management and maintenance of stormwater measures;
- Ongoing management and maintenance of the leachate management system; and
- Ongoing management and maintenance of any future waste transfer station.

It is anticipated that following site closure and redevelopment, CMSC will continue to monitor the environmental impacts of the site and conduct landscaping and gardening activities.



CMSC will ensure that all leachate collection, stormwater controls and reporting practices are maintained at the same level employed during the operational life of the landfill. These environmental management measures will continue until CMSC can demonstrate that the landfill does not pose a threat to the environment.

CMSC will ensure that waste materials are not received for landfilling at the site after the landfilling operations cease. Any waste materials that are intended for use in the rehabilitation will be documented and reported in the same method used during the operation of the landfill. Any waste materials received for transfer off-site or processing will be directed to the appropriate location on-site.

10.3.2 Environmental Monitoring

CMSC will maintain the same monitoring program and reporting practices for leachate, groundwater, stormwater and landfill gas as used throughout the operation of the site and described in Section 9.

Monitoring will continue until CMSC is able to demonstrate that the landfilled waste no longer have the direct potential to impact on the environment. CMSC will ensure that all neighbouring residents are advised of contact persons to discuss any problems. Any complaints that are received will be recorded in the complaints register.

10.3.3 Maintenance

CMSC will undertake regular inspection and maintenance of the final landform selected and landscaping as required to maintain its integrity. This will include the following:

- Monitoring of surface water drains and structures, and undertaking repairs where necessary;
- Filling of any cracks that may occur in the final cover layer;
- Filling of depressions created by settlement of the landfilled waste (to ensure shedding of surface water runoff);
- Replacement of vegetation affected by landfill gas or erosion if necessary, to maintain the denseness of the vegetation cover;
- Engagement of appropriately qualified consultants to design remedial works if significant areas of vegetation are impacted from landfill gas, leachate or landslips;
- Repairing erosion scours; and
- Ensuring that all monitoring boreholes and locations are maintained and operational as required.



11. Reporting

11.1 Annual Reporting

CMSC will prepare an Annual Return in accordance with the requirements of the current site EPL. The Annual Return will include a certified "Statement of Compliance" and a signed "Monitoring and Complaints Summary".

The Annual Return will be prepared for the required reporting period, and will be submitted to the EPA no later than 60 days after the end of the reporting period. CMSC will retain a copy of the Annual Return for a period of at least 4 years after the Annual Return is supplied to the EPA.

The Monitoring and Complaints Summary will generally include the following information:

- Tabulated results of all monitoring data collected;
- Graphical presentation of data from at least the last three years in order to show variability/and or trends. Any statistically significant variations or anomalies will be highlighted and explained;
- An analysis and interpretation of all monitoring data;
- An analysis of and response to any complaints received;
- Identification of any deficiencies in environmental performance identified by the monitoring data, trends or incidents and of remedial action taken or proposed to be taken to address these deficiencies; and
- Recommendations on improving the environmental performance of the facility.

11.2 Incident Reporting

Any incident that represents a threat to the environment and which may lead to a breach of licence conditions will be communicated by CMSC to the EPA within 24 hours of CMSC first becoming aware of the incident. Initial contact will be via the EPA Client Manager for the site. Written notice will follow within 7 days of the incident. Examples of incidents that require reporting include but are not limited to:

- Identification of non-domestic quantities (>200 g/tonne) of hazardous waste mixed amongst solid waste;
- Fires at the landfill;
- Entry of leachate or waste into the stormwater management system;
- Identification of any failure of an environmental protection system;
- Identification of a significant difference in groundwater or stormwater indicator parameters; and
- Any other incident or observation that could potentially pose an immediate environmental hazard outside normal operating conditions.



The occurrence of any such incident will also be recorded in the site's daily logbook as appropriate.

A written incident report will be provided to the EPA if requested by the authorised officer of the EPA. The report will include, but not be limited to, the following details.

- The cause, time and duration of the event;
- The type, volume and concentration of every pollutant discharged as a result of the event;
- The name, address and business hours telephone number of employees of CMSC or other witnesses;
- Actions taken by the CMSC in relation to the event; and
- Details of any measure taken to proposed to be taken to prevent or mitigate against a recurrence of such an event.



12. References

Australian Government National Occupational Health and Safety Commission (2005), Code Of Practice For The Safe Removal Of Asbestos, 2ND Edition [NOHSC:2002(2005)]

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NSW Landcom, Managing Urban Stormwater: Soils and Construction, Volume 2B – Waste Landfills, 2008

NSW Landcom, Managing Urban Stormwater: Soils and Construction, Volume 1, 2004

WorkCover NSW (2010) Management of Asbestos in Recycled Construction and Demolition Waste



Appendix A Site Environmental Protection Licence

Licence - 6194



Licence Details		
Number:	6194	
Anniversary Date:	10-October	
Review Due Date:	21-Nov-2013	
		_
Licensee		
COOMA-MONARO SHIRI	E COUNCIL	
PO BOX 714		
COOMA NSW 2630		
Licence Type		
Premises		
		-
Premises		
COOMA LANDFILL		
8448 MONARO HIGHWA	Y	
COOMA NSW 2630		_
		_
Scheduled Activity		
waste disposal (application i	0 (810)	_
Fee Based Activity		Scale
Waste disposal (application t	o land)	0 - All
Region		
South - Queanbeyan		
11 Farrer Place		
QUEANBEYAN NSW 262	0	
Phone: 02 6229 7002		
Fax: 02 6229 7006		
PO Box 622 QUEANBEY		
NSW 2620		



Licence - 6194

IN	FOR	MATION ABOUT THIS LICENCE	. 4
	Dict	lionary	4
	Res	ponsibilities of licensee	4
	Vari	iation of licence conditions	4
	Dura	ation of licence	4
	Lice	ence review	4
	Fee	s and annual return to be sent to the EPA	4
	Trar	nsfer of licence	5
	Pub	lic register and access to monitoring data	5
1		ADMINISTRATIVE CONDITIONS	. 5
	A1	What the licence authorises and regulates	5
	A2	Premises to which this licence applies	6
	A3	Other activities	6
	A4	Information supplied to the EPA	7
2		DISCHARGES TO AIR AND WATER AND APPLICATIONS TO LAND	. 7
	P1	Location of monitoring/discharge points and areas	7
3		LIMIT CONDITIONS	. 8
	L1	Pollution of waters	8
	L2	Load limits	8
	L3	Concentration limits	8
	L4	Volume and mass limits	9
	L5	Waste	9
	L6	Noise Limits	10
	L7	Hours of operation	10
	L8	Asbestos	10
4		OPERATING CONDITIONS	10
	01	Activities must be carried out in a competent manner	10
	02	Maintenance of plant and equipment	10
	O3	Dust Control	11
	04	Closure plan	11
	O5	Leachate management	11
	06	Fire risk reduction works	11
	07	Screening of waste	11
	O 8	Waste compaction	11
	O 9	Filling plan	11
	010	Completion of landfill cells	12
	011	1 Unauthorised entry	12
	012	2 Degradation of local amenity	12
	013	3 Covering of waste	12



Licence - 6194

O1-	4 Control of pests, vermin and weeds	.12
01	5 Potentially offensive odour	.12
01	6 Fire extinguishment	.13
01	7 Fire fighting capability	.13
01	8 Staff training	.13
01	9 The licensee must ensure that adequately trained staff are available at the premises in order to	13
02	0 Tyre Storage	.13
O2	1 Processes and Management	.14
5	MONITORING AND RECORDING CONDITIONS	.14
M1	Monitoring records	.14
M2	Requirement to monitor concentration of pollutants discharged	.14
M3	Testing methods - concentration limits	.15
M4	Recording of pollution complaints	.15
M5	Telephone complaints line	.15
M6	Requirement to monitor volume or mass	.16
6	REPORTING CONDITIONS	.16
R1	Annual return documents	.16
R2	Notification of environmental harm	.17
R3	Written report	.18
R4	Recording of fires	.18
GENE	RAL CONDITIONS	.19
G1	Copy of licence kept at the premises	.19
G2	Contact number for incidents and responsible employees	.19
Poll	UTION STUDIES AND REDUCTION PROGRAMS	.19
U1	Not applicable	.19
SPEC	IAL CONDITIONS	.19
E1	Not applicable	.19
DICTI	ONARY	.20
Ge	neral Dictionary	.20

Licence - 6194



Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 132 of the Act); and
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

The EPA publication "A Guide to Licensing" contains information about how to calculate your licence fees.





The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

COOMA-MONARO SHIRE COUNCIL PO BOX 714 COOMA NSW 2630

subject to the conditions which follow.

1 Administrative conditions

A1 What the licence authorises and regulates

- A1.1 Not applicable.
- A1.2 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, feebased activity classification and the scale of the operation.





Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity

Waste disposal (application to land)

Fee Based Activity	Scale
Waste disposal (application to land)	0 - All

A1.3 Not applicable.

A2 Premises to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
COOMA LANDFILL
8448 MONARO HIGHWAY
СООМА
NSW
2630
CROWN LEASES - RESERVE 130021 FOR
RUBBISH DEPOT GB80R173
VOL 15444; FOL 192; PART PORTION 348;
PARISH COOMA

A3 Other activities

A3.1 Not applicable.





A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- (a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- (b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.
- A4.2 The report titled "Cooma-Monaro Shire Council Landfill Environmental Management Plan, prepared by Fisher Stewart Pty Ltd, April 1998" (the LEMP) is not to be taken as part of the documentation in A4.1, other than those parts specifically referenced in this licence.

2 Discharges to air and water and applications to land

P1 Location of monitoring/discharge points and areas

- P1.1 Not applicable.
- P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.
- P1.3 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

Licence - 6194



Water and land

EPA identi-	Type of monitoring point	Type of discharge point	Description of location
neation no.			
1	Leachate quality		DAM Monitoring Location 6, as shown on
	monitoring		Drawing No C26-6 dated 30.10.03 provided
			by Council
2	Groundwater quality		Monitoring Location 3, as shown on Drawing
	monitoring		No C26-6 dated 30.10.03 provided by Council
3	Groundwater quality		Monitoring Location 4, as shown on Drawing
	monitoring		No C26-6 dated 30.10.03 provided by Council
			needs reference to dated map signed by
			council
4	Groundwater quality		Monitoring Location 5, as shown on Drawing
	monitoring		No C26-6 dated 30.10.03 provided by Council

3 Limit conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Load limits

- L2.1 Not applicable.
- L2.2 Not applicable.

L3 Concentration limits

- L3.1 Not applicable.
- L3.2 Not applicable.
- L3.3 Not applicable.

Licence - 6194



L4 Volume and mass limits

L4.1 Not applicable.

L5 Waste

L5.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled "Waste" and meeting the definition, if any, in the column titled "Description" in the table below.

Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled "Activity" in the table below.

Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled "Other Limits" in the table below. Condition L5.1 does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	General Solid Waste (non-putrescible)			The total tonnage of general
NA	General Solid Waste (putrescible)	As defined in Schedule 1 of the POEO Act, in force from	Waste Disposal (application to land)	general solid waste (putrescible), asbestos waste and waste tyres disposed of at the premises must not exceed
N220	Asbestos Waste	time to time.		
T140	Waste Tyres			20,000 tonnes per annum.
K110	Grease Trap Waste	Grease interceptor trap waste- domestic	Waste Disposal (application to land)	NA
		Grease interceptor trap waste- industrial	Waste Storage	
K130	Sewage Sludge & Residues	Bacterial sludge (septic tank)	Waste Disposal (application to land)	
		Night Soil		NA
		Sewage sludge & residues	Waste Storage	
NA		Any waste received on site that is below licensing thresholds in Schedule 1 of the POEO Act, as in force from time to time		NA

- L5.2 Tyres from the Sydney Metropolitan Area must not be received at the premises unless:
 - (a) they have been shredded into pieces measuring no more than 250mm in any direction; or
 - (b) they have had their walls removed; or
 - (c) the facility has the capacity, at the time of receiving the tyres, to recycle or reprocess the tyres into a saleable product (including retreading the tyres); or
 - (d) the facility has the capacity, at the time of receiving the tyres, to shred the tyres or remove the walls from the tyres; or
 - (e) the tyres are from a domestic load containing no more than 5 tyres having a diameter of less than 1.2 metres.



Licence - 6194

Note: Disposal of asbestos must be in accordance with Clause 42 of the Protection of the Environment Operations (Waste) Regulation 2005.

L6 Noise Limits

- L6.1 The level of continuous noise LA10, T emanating from the operation of the premises, must not exceed the background level LA90, T by more than 5dB(A) when measured over a minimum period of 15 minutes at any point within six metres of the nearest effected residence or other noise sensitive areas in the vicinity of the premises, using the "Fast" response on the sound level meter.
- L6.2 In the case of any noise which is tonal or impulsive in character, the level of continuous noise LA10, T from the premises at any point within six metres of any residence or other noise sensitive area in the vicinity of the premises, is obtained by adding 5dB(A) to the measured level.

L7 Hours of operation

L7.1 All work at the premises must be conducted between the following hours: 11:00a.m- 5:00p.m Sunday to Friday 1:00p.m- 5:00p.m Saturday.

L8 Asbestos

Note: The licensee must comply with the conditions as specified in this licence or where no specific conditions are outlined in this licence, the licensee must comply with the Protection of the Environment Operations (Waste) Regulation 1996.

4 **Operating conditions**

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:

- (a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- (b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

- O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
 - (a) must be maintained in a proper and efficient condition; and
 - (b) must be operated in a proper and efficient manner.

Licence - 6194



O3 Dust Control

O3.1 All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.

O4 Closure plan

O4.1 The licensee must submit to the EPA within three months of the completion of a landfill's waste receipt operations, a closure plan in accordance with Section 76 of the Protection of the Environment Operations Act 1997.

O5 Leachate management

- O5.1 A leachate barrier system and leachate collection system must be installed on each surface within the premises to be used for the disposal of waste. This condition does not apply to any surface used for the emplacement of waste before 1 July 1999.
- O5.2 Surface drainage must be diverted away from any area where waste is being or has been landfilled.

O6 Fire risk reduction works

O6.1 The licensee must have in place and implement a site- specific fire management plan and train staff all staff in relevant procedures to minimise the risk of fire at the premises.

O7 Screening of waste

O7.1 The licensee must have in place and implement procedures to identify and prevent the disposal of any waste not permitted by this licence to be disposed of at the premises.

O8 Waste compaction

- O8.1 An average compaction rate of not less than 650 kg per cubic metre must be achieved for all waste disposed of at the premises.
- O8.2 The licensee must ensure that the amount of landfill space used is minimised.

O9 Filling plan

O9.1 The licensee must manage the disposal of waste at the premises in accordance with the progressive filling plan section 8.0 in LEMP.


Licence - 6194

O10 Completion of landfill cells

O10.1 The licensee must ensure that the landfill cells are capped progressively when the level of waste reaches final heights.

O11 Unauthorised entry

O11.1 The licensee must take all practicable steps to control entry to the premises.

O12 Degradation of local amenity

O12.1 The licensee must implement the litter management program specified in section 6.6 of LEMP.

O13 Covering of waste

- O13.1 Cover material must be virgin excavated natural material.
 - (a) <u>Daily cover</u> Cover material must be applied to a minimum depth of 15 centimetres over all exposed landfilled waste prior to ceasing operations at the end of each day.
 - (b) Intermediate cover Cover material must be applied to a depth of 30 centimetres over surfaces of the landfilled waste at the premises which are to be exposed for more than 90 days.
 - (c) <u>Cover material stockpile</u> At least two weeks cover material must be available at the premises under all weather conditions. This material may be won on site, or alternatively a cover stockpile must be maintained adjacent to the tip face.
- O13.2 Where wastes are received at the premises for the purposes of reuse, reprocessing, recovery, recycling or transfer to other premises, then such wastes are not required to be covered on a daily basis provided that:
 - (a) such wastes are stored and managed so as not to cause or be likely to cause any off-site environmental effects; and
 - (b) such wastes are stored in a clearly defined area of the premises away from the tipping face.

O14 Control of pests, vermin and weeds

O14.1 The licensee must control pests, vermin and weeds at the premises.

O15 Potentially offensive odour

- O15.1 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.
- Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee



Licence - 6194

must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

O16 Fire extinguishment

O16.1 The licensee must extinguish fires at the premises as soon as possible.

O17 Fire fighting capability

O17.1 The licensee must implement fire prevention measures at the premises in accordance with section 6.9 of the report titled "Cooma-Monaro Shire Council Landfill Environmental Management Plan, April 1998".

O18 Staff training

- O18.1 The licensee must train staff in accordance with section 6.9 of the report titled "Cooma-Monaro Shire Council Landfill Environmental Management Plan, April 1998".
- O19 The licensee must ensure that adequately trained staff are available at the premises in order to administer the requirements of this licence.

O20 Tyre Storage

- O20.1 The total quantity of used, rejected or unwanted tyres (including shredded tyres and tyre pieces) stockpiled at the premises must not exceed 50 tonnes.
- O20.2 The licensee must ensure that stockpiles of used, rejected or unwanted tyres (including shredded tyres and tyre pieces) are located in a clearly defined area.
- O20.3 The licensee must ensure that stockpiles of used, rejected or unwanted tyres (including shredded tyres and tyre pieces) are managed so as not to cause or to be likely to cause the spread of disease by vermin.
- O20.4 The licensee must ensure that measures are taken to prevent stockpiles of used, rejected or unwanted tyres (including shredded tyres and tyre pieces) from catching on fire.
- O20.5 Without limiting 05.1 to 05.4, any area(s) used for the storage of used rejected or unwanted tyres (including shredded tyres and tyre pieces) at the facility must:
 - (a) be surrounded by a fire break of at least six (6) metres width that is kept clear of all combustible material; and
 - (b) be fenced or otherwise secured to prevent any unauthorised access to the tyres and the fire break.

Licence - 6194



O21 Processes and Management

- O21.1 The licensee must ensure that any inert and/or solid for storage or transfer or recovery by way of separating or processing at the premises is assessed and classified in accordance with the DECC Waste Classification Guidelines as in force from time to time.
- O21.2 The licensee must ensure that each waste for recovery/recycling is stockpiled separately.

5 Monitoring and recording conditions

M1 Monitoring records

- M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.
- M1.2 All records required to be kept by this licence must be:
 - (a) in a legible form, or in a form that can readily be reduced to a legible form;
 - (b) kept for at least 4 years after the monitoring or event to which they relate took place; and
 - (c) produced in a legible form to any authorised officer of the EPA who asks to see them.
- M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
 - (a) the date(s) on which the sample was taken;
 - (b) the time(s) at which the sample was collected;
 - (c) the point at which the sample was taken; and
 - (d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 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:

Licence - 6194

Environment, Climate Change & Water

Water and Land

POINTS	1,2,3,4					
	Pollutant	Units of measure	Frequency	Sampling Method		
	Alkalinity (as calcium carbonate)	micrograms per litre	Quarterly	Grab sample		
	Ammonia	micrograms per litre	Quarterly	Grab sample		
	Biochemical oxygen demand	milligrams per litre	Quarterly	Grab sample		
	Conductivity	microsiemens per centimetre	Quarterly	Grab sample		
	Nitrate	micrograms per litre	Quarterly	Grab sample		
	рН	рН	Quarterly	Grab sample		

M3 Testing methods - concentration limits

M3.1 Not applicable.

M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4 Recording of pollution complaints

- M4.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.
- M4.2 The record must include details of the following:
 - (a) the date and time of the complaint;
 - (b) the method by which the complaint was made;
 - (c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
 - (d) the nature of the complaint;
 - (e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
 - (f) if no action was taken by the licensee, the reasons why no action was taken.
- M4.3 The record of a complaint must be kept for at least 4 years after the complaint was made.
- M4.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M5 Telephone complaints line

Licence - 6194



- M5.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.
- M5.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.
- M5.3 Conditions M5.1 and M5.2 do not apply until 3 months after:
 - (a) the date of the issue of this licence or
 - (b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

M6 Requirement to monitor volume or mass

M6.1 Not applicable.

6 **Reporting conditions**

R1 Annual return documents

What documents must an Annual Return contain?

- R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
 - (a) a Statement of Compliance; and
 - (b) a Monitoring and Complaints Summary.

A copy of the form in which the Annual Return must be supplied to the EPA accompanies this licence. Before the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

Period covered by Annual Return

- R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.
- Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.
- R1.3 Where this licence is transferred from the licensee to a new licensee:
 - (a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
 - (b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Licence - 6194



- Note: An application to transfer a licence must be made in the approved form for this purpose.
- R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
 - (a) in relation to the surrender of a licence the date when notice in writing of approval of the surrender is given; or
 - (b) in relation to the revocation of the licence the date from which notice revoking the licence operates.

Deadline for Annual Return

R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

Notification where actual load can not be calculated

R1.6 Not applicable.

Licensee must retain copy of Annual Return

R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

Certifying of Statement of Compliance and signing of Monitoring and Complaints Summary

- R1.8 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
 - (a) the licence holder; or
 - (b) by a person approved in writing by the EPA to sign on behalf of the licence holder.
- R1.9 A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

R2 Notification of environmental harm

- Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.
- R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.
- R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Licence - 6194



R3 Written report

- R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
 - (a) where this licence applies to premises, an event has occurred at the premises; or
 - (b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,

and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

- R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.
- R3.3 The request may require a report which includes any or all of the following information:
 - (a) the cause, time and duration of the event;
 - (b) the type, volume and concentration of every pollutant discharged as a result of the event;
 - (c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
 - (d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
 - (e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
 - (f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
 - (g) any other relevant matters.
- R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

R4 Recording of fires

- R4.1 The licensee must record the following data in relation to fires occurring at the premises:
 - (a) Time and date when the fire started.
 - (b) Whether the fire was authorised by the licensee, and, if not, the circumstances which ignited the fire.
 - (c) The time and date that the fire burnt out or was extinguished.
 - (d) The location of fire (eg. clean timber stockpile, putrescible garbage cell, etc).
 - (e) Prevailing weather conditions at the time of the fire.
 - (f) Observations made in regard to smoke direction and dispersion.
 - (g) The amount of waste that was combusted by the fire.
 - (h) Action taken to extinguish the fire;
 - (i) Action taken to prevent a reoccurrence.

The data must be recorded on each day that the fire is burning.

R4.2 The licensee or its employees or agents must notify the occurrence of all fires on the premises in accordance with conditions R2.1 and R2.2 as soon as practical after becoming aware of the fire.

Licence - 6194



General conditions

G1 Copy of licence kept at the premises

- G1.1 A copy of this licence must be kept at the premises to which the licence applies.
- G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.
- G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

G2 Contact number for incidents and responsible employees

- G2.1 The licensee must operate 24-hour telephone contact lines for the purpose of enabling the EPA to directly contact one or more representatives of the licensee who can:
 - (a) respond at all times to incidents relating to the premises, and
 - (b) contact the licensee's senior employees or agents authorised at all times to:
 - (i) speak on behalf of the licensee
 - (ii) provide any information or document required under this licence.
- G2.2 The licensee is to inform the EPA of the representative or representatives and their telephone number within 3 months of the date of the issue of this licence. The EPA must be notified of the telephone number on commencement of its operation.
- G2.3 The licensee is to inform the EPA in writing of the appointment of any subsequent contact persons, or changes to the person's contact details as soon as practicable and in any event within fourteen days of the appointment or change.

Pollution studies and reduction programs

U1 Not applicable.

Special conditions

E1 Not applicable.

Licence - 6194

Dictionary

Environment, Climate Change & Water

General Dictionary

In this licence, unless the contrary is indicated, the terms below have the following meanings:

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
АМ	Together with a number, means an ambient air monitoring method of that number prescribed by the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
BOD	Means biochemical oxygen demand
СЕМ	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 1998.
flow weighted	Means a sample whose composites are sized in proportion to the flow at each composites time of



Licence - 6194

composite sample collection. general solid waste Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act (non-putrescible) 1997 general solid waste Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act (putrescible) 1997 grab sample Means a single sample taken at a point at a single time hazardous waste Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 licensee Means the licence holder described at the front of this licence load calculation Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998 protocol local authority Has the same meaning as in the Protection of the Environment Operations Act 1997 material harm Has the same meaning as in section 147 Protection of the Environment Operations Act 1997 MBAS Means methylene blue active substances Minister Means the Minister administering the Protection of the Environment Operations Act 1997 mobile plant Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 motor vehicle Has the same meaning as in the Protection of the Environment Operations Act 1997 O&G Means oil and grease percentile [in Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit relation to a specified in the licence for that pollutant over a specified period of time. In this licence, the specified period concentration limit of time is the Reporting Period unless otherwise stated in this licence. of a sample] plant Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles. pollution of waters Has the same meaning as in the Protection of the Environment Operations Act 1997 [or water pollution] premises Means the premises described in condition A2.1 public authority Has the same meaning as in the Protection of the Environment Operations Act 1997 regional office Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence reporting period For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act. restricted solid Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act waste 1997 scheduled activity Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997 special waste Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 тм Together with a number, means a test method of that number prescribed by the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.

Licence - 6194



TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non- putrescible), special waste or hazardous waste

Mr Nigel Sargent

Environment Protection Authority

(By Delegation)

Date of this edition - 07-Jun-2010

End Notes

- Licence varied by notice 1031471, issued on 21-Nov-2003, which came into effect on 16-Dec-2003.
- Licence varied by notice 1033607, issued on 05-Jan-2004, which came into effect on 30-Jan-2004.
- 3 Licence varied by change to DEC file number, issued on 15-Mar-2007, which came into effect on 15-Mar-2007.
- 4 Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
- 5 Licence varied by notice 1092252, issued on 08-Dec-2008, which came into effect on 08-Dec-2008.
- 6 Licence varied by notice 1098728, issued on 27-Mar-2009, which came into effect on 27-Mar-2009.
- 7 Licence varied by notice 1107836, issued on 22-Oct-2009, which came into effect on 22-Oct-2009.

Licence - 6194



End Notes

8 Licence varied by notice 1114110, issued on 07-Jun-2010, which came into effect on 07-Jun-2010.



Appendix B Drawings



Plot Date: 4 November 2011 - 1:58 PM Plotted By: Adrian P Miller/Sydney/GHD/AU

Cad File No: G:\21\20014\CADD\Drawings\21-20014-C001.dwg





EXISTING SURFACE LEVELS

PRELIMINARY COOMA MONARO SHIRE COUNCIL LANDFILL ENVIRONMENTAL MANAGEMENT PLAN **EXISTING SITE LAYOUT** A3 Drawing No: 21-20014-C001 Rev: B



Plot Date: 4 November 2011 - 1:58 PM Plotted By: Adrian P Miller/Sydney/GHD/AU

Cad File No: G:\21\20014\CADD\Drawings\21-20014-C002.dwg



-

EXISTING SURFACE LEVELS

PROPOSED FINAL SURFACE LEVELS

- STORMWATER FLOW PATH

AREAS ALREADY COMPLETED TO FINAL LEVEL (JUST REQUIRING RE-CONTOURING & CAPPING)

PRELIMINARY

be	Original Size	_	21 20014 0002		D
	Title	PROPOSEI	D FINAL SURFACE LEVELS		
					•
	Project	LANDFILL	ENVIRONMENTAL MANAGEMEI	NT PLAN	
	Client	COOMA MO	DNARO SHIRE COUNCIL		



LEGEND



COOMA MONARO SHIRE COUNCIL LANDFILL ENVIRONMENTAL MANAGEMENT PLAN POTENTIAL LANDFILL MINING AREAS A3 Drawing No: 21-20014-C003 Rev: B

PRELIMINARY



LEGEND

PROPOSED FILL DEPTH
 CONTOUR TO TOP OF
CAPPING/REVEGETATION LAYER
PROPOSED FILLING
 AREA BOUNDARY

VOLUME:

MATERIAL REQUIRED: 70,000m³

PRELIMINARY

be nless	Original Size	Drawing No:	21-20014-C004	Rev: B
	Title	FILLING TO	REACH FINAL LEVEL (INCL	UDING CAP)
	Project	LANDFILL E	ENVIRONMENTAL MANAGEN	IENT PLAN
	Client	COOMA MC	NARO SHIRE COUNCIL	



LEGEND



* TO TOP OF CAPPING/REVEGETATION LAYER

PREL	IMIN	ARY
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be unless	Original Size	Drawing No:	21-20014-C005	Rev: B
	Title	FILLING & S	STAGING PLAN	
	Project		NVIRONMENTAI MANAGEM	ΓΝΤ ΡΙ ΔΝ
	Client	COOMA MC	NARO SHIRE COUNCIL	



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Document Status

Rev	Author	Reviewer		Approved for Issue		
No.		Name	Signature	Name	Signature	Date
01	T Browne	D Gamble		DRAFT		21/1/11
02	D Gamble	A Montgomery	Alcotyoune	D Gamble	Daid louble	4/11/11