Broken Hill Waste Management Facility - Landfill Environmental Management Plan

BROKEN HILL
CITY COUNCIL

AUSTRALIA'S FIRST
HERITAGE LISTED CITY

QUALITY CONTROL			
EDRMS REFERENCE	11/200	**FILE REFERENCE**	D19/60207
RESPONSIBLE POSITION	Waste and Sustainability Manager		
APPROVED BY	General Manager		
REVIEW DATE	16 May 2024, 25 July 2024		
EFFECTIVE DATE	**ACTION**	**ENDORSED BY**	
1 October 2021	Approved	General Manager	
August 2024			
NOTES	Front Cover Image: Broken Hill Waste Management Facility. Images sourced from Council's Image Library © Copyright Broken Hill City Council 2020		
ASSOCIATED DOCUMENTS	Landfill Environment Management Plan		

FOREWORD

This Landfill Environmental Management Plan (LEMP) is a functional document, and it will be periodically updated. The operational controls used to meet the Environmental Goals will continue to grow and be modified as new initiatives are implemented and new procedures and responsibilities emerge.

For this reason, document control is an important part of the environmental management system. It is critical that it is always known who has copies of the LEMP, and that only the latest version is in use. Details on the version, the date of issue, are recorded on each page on the LEMP in the bottom left-hand corner.

Revised and updated versions of the LEMP will always be issued with a covering memo summarising the changes.

In summary this LEMP is a functional document; it is designed to help personnel at the Broken Hill Waste Management Facility undertake their tasks with minimal environmental risk and understand their environmental responsibilities.

The structure and scope of this LEMP reflects the requirements of the Environmental Protection Authority's Environmental Guidelines: Solid Waste Landfills, (Second Edition) 2016, and in doing so, embodies the principles of best practice environmental management.

Through using this LEMP, it will be possible to improve, monitor and demonstrate the environmental performance of the landfilling operations. If you have any suggestions or amendments, additions or improvements, please discuss these with your supervisor.

Adopted: 30 June 2016

Amended: February 2019

Amended: August 2024

CONTENTS

ABBREVIATIONS

AHD	Australian Height Datum
BHCC	Broken Hill City Council
BHWMF	Broken Hill Waste Management Facility
BOM	Bureau of Meteorology
dB	Decibels
DP	Deposited Plan
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
GAP	Groundwater Assessment Plan
LEMP	Landfill Environmental Management Plan
m	Metres
mg/L	Milligrams per litre
mm	Millimetres
m/s	Metres per second
OEH	Office of Environment and Heritage
PIRMP	Pollution Incident Response Management Plan
RL	Reduced Level

1. INTRODUCTION

1.1. Purpose

This Landfill Environmental Management Plan (LEMP) details the procedures required to manage and operate the Broken Hill Waste Management Facility (BHWMF) to meet the relevant Environmental Goals specified in the Environment Protection Authority (EPA) Environmental Guidelines: Solid Waste Landfills (Second Edition), 2016 (the Guidelines).

1.2. Environmental Guidelines

This LEMP details the procedures required to manage and operate the BHWMF in accordance with the relevant environmental issues and goals in landfilling specified in the Guidelines. In the context of this LEMP, the relevant broad goals for landfilling in NSW identified in the Guidelines include:

- Landfills should be sited, designed, constructed and operated to cause minimum impacts to the environment, human health and amenity.
- The waste mass should be stabilised, the site progressively rehabilitated, and the land returned to productive use as soon as practicable.
- Wherever feasible, resources should be extracted from the waste and beneficially reused.

1.3. Regulatory Controls

The BHWMF is a licensed premise pursuant to the requirements of the Protection of the Environment Operations Act, 1997. The facility is regulated through Environmental Protection Licence (EPL) No. 5898 issued to Broken Hill City Council by the NSW EPA under this Act. A copy of this licence is included as Attachment A, Section 3, of this LEMP.

1.4. Landfill Category

The BHWMF is a scheduled facility, whereby the activity 'Waste disposal (application to land)' as defined by Schedule 1 of the Protection of the Environment Operations Act, 1997 is permitted under EPL 5898. The facility accepts the following waste categories in accordance with Licence Condition L2:

- General solid waste including putrescible and non-putrescible waste
- Tyres - permitted if became waste outside the Sydney metropolitan area. Special conditions apply if tyres became waste within the Sydney metropolitan area
- Lead contaminated soil / dust from residential and commercial premises - No more than 5 tonnes per annum, and disposed in accordance with the Contaminated Waste Management Plan Appendix C
- Sewage sludge and residues (including nightsoil and septic tank sludge) - permitted whilst no other premises within the Broken Hill local government area is licensed to accept this waste.
- Grease trap waste - permitted whilst no other premises within the Broken Hill local government area is licensed to accept this waste

- Waste subject to general or specific exemption(s)
- Clinical and related wastes (excluding recognisable body parts, sharps waste, cytotoxic waste and radioactive waste), generated from outside the Sydney metropolitan or extended regulated area - No more than 200 kg per load,
- Asbestos waste in bonded matrix or fibre / dust - No more than 350 tonnes per annum,

The total of waste classified as 'Special Waste', which includes clinical and related waste, waste tyres or anything classified as special waste under an EPA gazettal notice, may not exceed 30 tonnes per reporting period.

The total of all wastes may not exceed 60,000 tonnes per reporting period.

Further, the activity 'Waste storage' as defined by Schedule 1 of the Protection of the Environment Operations Act, 1997 is permitted under EPL 5898, however this activity applies solely to storage (stockpiling) of waste tyres, up to a quantity not exceeding 450 tonnes.

1.5. LEMP Structure

This LEMP is structured as follows:

- Section 2 provides a site/facility overview; and details the operational controls to be employed to meet environmental goals of The Guidelines;
- Section 3 includes attachments and forms; and
- Section 4 includes site layout and staging drawings.

2. Site Overview

2.1. Background

Broken Hill City Council (BHCC) operates the BHWMF, located on a site of approximately 70 hectares, and is understood to have been operating since the early 1900s, receiving municipal waste from Broken Hill and the surrounding district.

2.2. Environmental Characteristics

2.2.1. Location and Land Use

The BHWMF is situated approximately 4.5 kilometres south-west of the Broken Hill town centre, and includes portions of Lot 9 in Deposited Plan (DP) 757294, Lot 17 in DP 39679 and Lot 7 in DP 757294 within the Parish of Nadbuck, County of Yancowinna (refer Figure 2.1). The site is zoned SP2 – Infrastructure (Waste or Resource Management Facility) under the Broken Hill Local Environmental Plan 2013.

The area adjoining the site is unutilised 'Rural Landscape' zoned land to the west and north, and 'Environmental Conservation' zoned land to the east (excluding the Wills Street Wastewater Treatment Plant). The portion of Lot 7300 in DP 1179131 adjacent the site to the south, as well as Lots 1974 and 1975 in DP 757298, are also zoned SP2 – Infrastructure, for possible future expansion of the BHWMF.

The Wills Street Wastewater Treatment Plant is located approximately 600 m east of the site, and includes digesting infrastructure and settlement lagoons. The Broken Hill Solar Plant is located approximately 2 km west of the site, and occupies an area of approximately 140 hectares.

The nearest residence to the BHWMF is located approximately 420 m to the north.

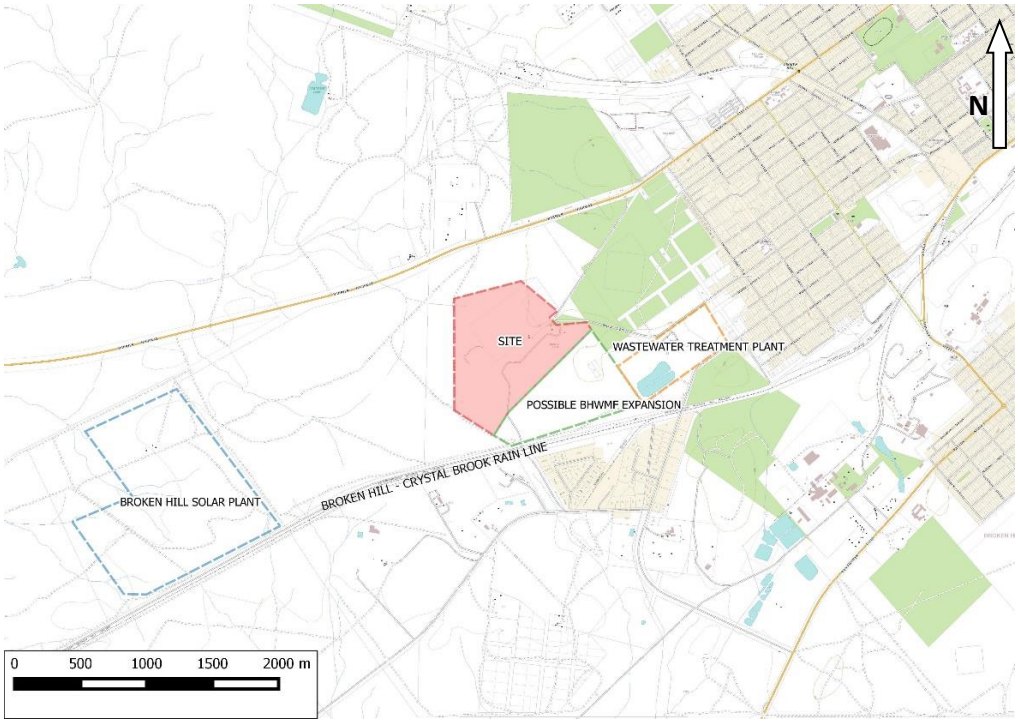


Figure 2.1: Location Plan of the BHWMF

2.2.2. Climate

The Broken Hill district is located within an arid region that has a hot desert climate, characterised by mild winters and hot summers (refer Figure 2.2). Temperature data compiled from the Bureau of Meteorology Station at the Broken Hill Airport Automated Weather Station (AWS) (5 kilometres south-east of the BHWMF) indicate the mean daily temperatures range from a minimum of 4.8°C in July through to a maximum of 33.8°C in January.

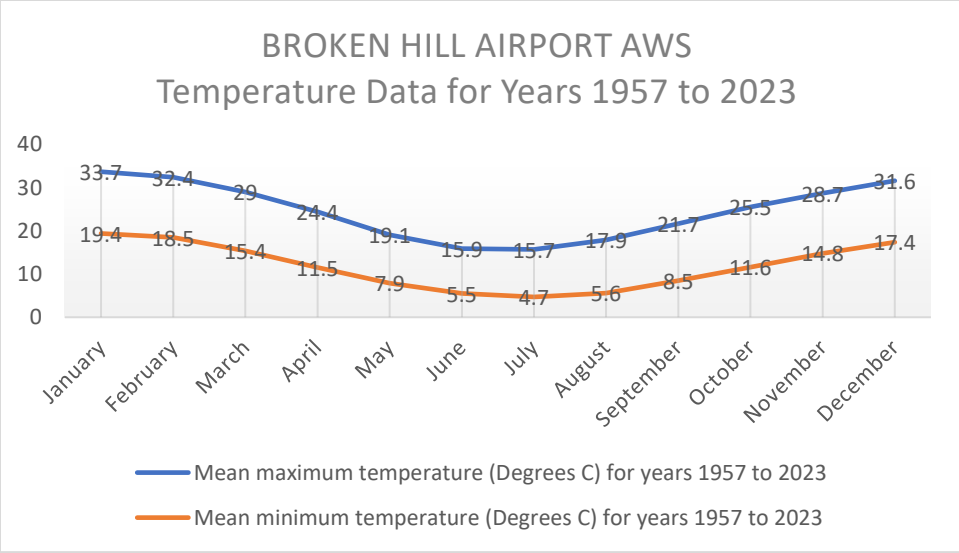


Figure 2.2: Mean Daily Minimum and Maximum Temperatures (Source: BOM)

Rainfall is low but somewhat variable throughout the year. The wettest month is January, with June being the driest month on average (refer Figure 2.3).

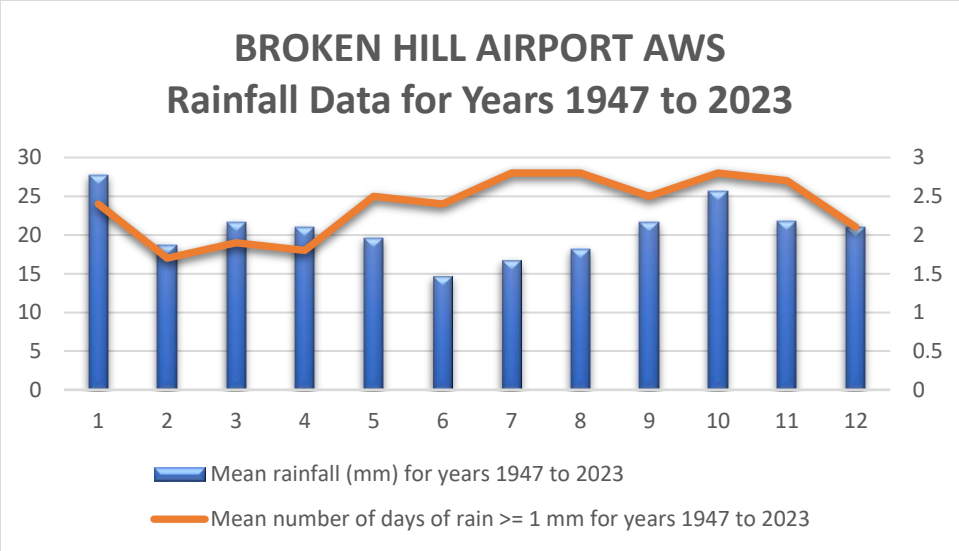


Figure 2.3: Average Monthly Rainfall and Rain Days (Source: BOM)

Evaporation data for Broken Hill (annually averaging 2,602 mm – Source: BOM) is indicative of a significant moisture deficit in the region, with average annual rainfall being recorded at 248 mm.

Morning wind conditions predominantly consist of southerlies averaging 10 – 30 km/hr and less frequent northerlies to north-westerlies averaging less than

20 km/hr. Afternoon conditions generally consist of southerlies averaging 10 – 30 km/hr (refer Figure 2.4).

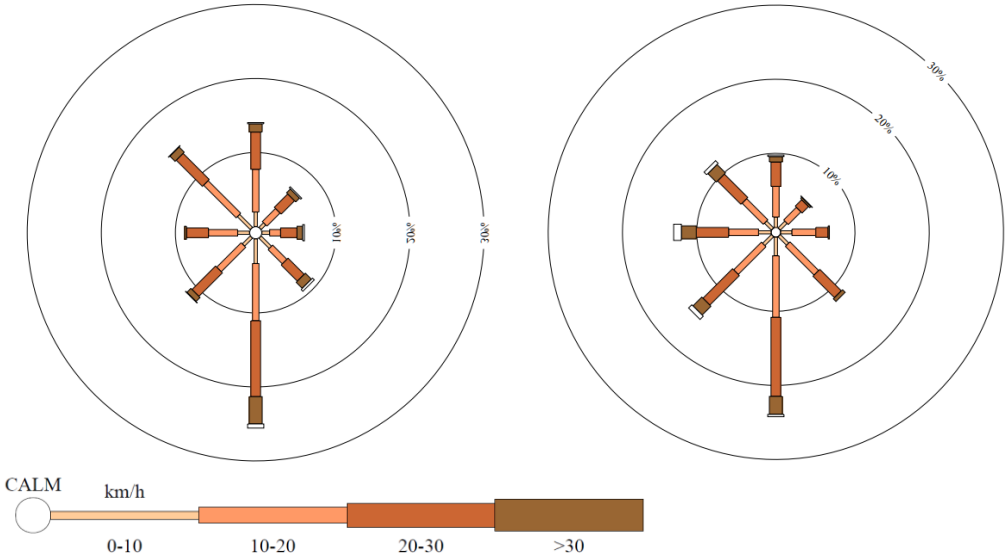


Figure 2.4: Wind Frequency Analysis, 9 am (left) and 3 pm (right) – Broken Hill (Source: BOM)

2.2.3. Surface Water

There is negligible off-site stormwater draining onto the site owing to the dry climate. The landfill is located on a relatively elevated position with some small catchments falling towards the site. A natural watercourse runs parallel to the southeast boundary which drains in a south westerly direction. A second natural watercourse commences at the northwestern corner of the site and drains to the west of the site.

Clean water diversion drains have been installed at several locations within and external to the site (see Section 4, Drawing 216074_01A_C001 – Stormwater Catchment Areas) and are in good condition.

A 2015 survey of the site shows that the dirty water collection and transport system is relatively informal however the site has been shaped generally to drain the previously filled areas and currently exposed areas of the site to the on-site dams / sedimentation basins.

No surface water quality monitoring program is currently in place, nor is such monitoring required by the EPL due to the significant moisture deficit in the region. In the rare occurrence of surface water being discharged from the site, quality monitoring of the discharge will be undertaken, as discussed in Operational Control 3.5 and would trigger incident reporting protocols, described in Operational Control 3.14

2.2.4. Groundwater and Geology

The geological units underlying the BHWMF, as indicated in the Broken Hill Stratigraphic 1:100 000 Geological Sheet, 1st edition (Geological Survey of New South Wales, 1989), is underlain by non-graphitic metasediment of the Sundown Group. Cainozoic rock units consisting of soil, sand gravel and/or clay overly the Sundown Group bedrock.

Six piezometers are located within the BHWMF site (see Section 4, Drawing 216074_02A_EV01 – Site Layout and Filling Areas). Routine monitoring of groundwater levels and quality for three piezometers (BH1, BH2 and BH3) is conducted biannually in May and November each year, in accordance with EPL 5898.

Groundwater levels have been recorded to be relatively consistent based on the data available from 2013 to 2015, however a slight decreasing trend in the standing water level may be occurring (refer Figure 2.5).

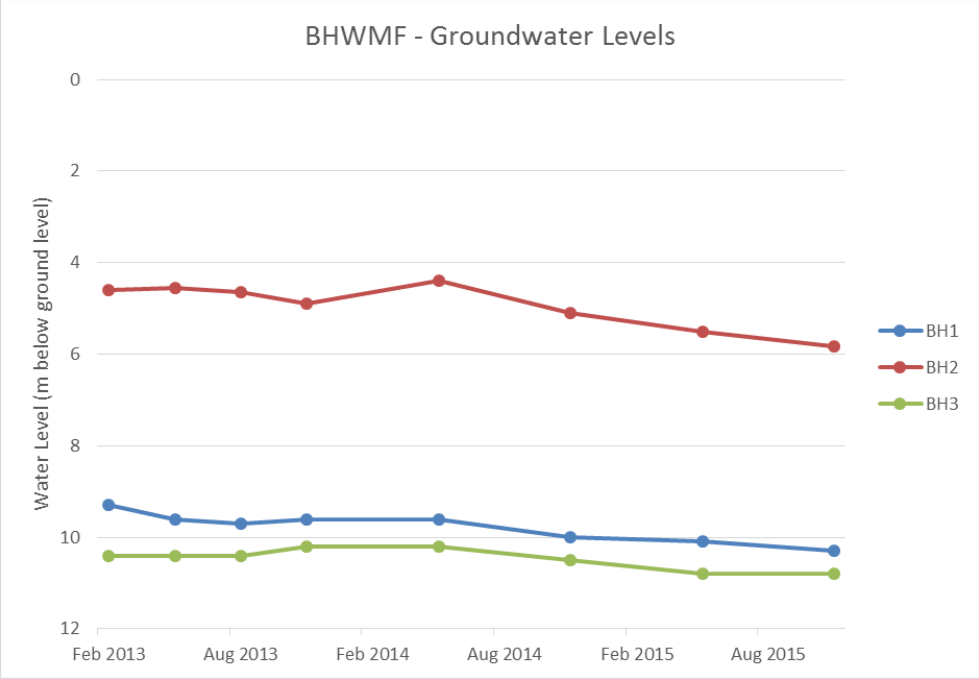


Figure 2.5: Groundwater Monitoring Results – Standing Water Level

Groundwater quality is generally indicative of impact by landfill leachate, characterised by elevated dissolved nitrate and sulfate concentrations. The locations of the three existing piezometers are understood to be within or adjacent to areas of historic landfilling, however bore construction data which may provide information on the relationship between leachate and groundwater is not available.

2.2.5. Flora and Fauna

There is minimal remnant vegetation across the site. Undisturbed areas surrounding the site consist of native shrub and grass species.

Eucalyptus revegetation areas are located to the north and north-east of the site.

Fauna species in the surrounding area has been recorded to include reptiles, birds and mammals, including invasive species of cats, rabbits, goats and foxes (data from BioNet Atlas of NSW Wildlife, accessed January 2019). No 'threatened' species, as described in the Biodiversity Conservation Act (2016) have been recorded within 2 km of the site, however the 'vulnerable' bird species Pyrrholaemus brunneus (redthroat) has been recorded approximately 600 m to the north-west. It is considered that the highly disturbed nature of the site is unlikely to provide favourable habitat for threatened or vulnerable species.

2.3. Site Facilities and Services

2.3.1. Access

Access to the BHWMF is via Wills Street, which is sealed, near the intersection of Depot Road. From the single entrance the BHWMF is accessed by a series of sealed and unsealed access roads leading to the various defined tipping areas.

2.3.2. Fencing

The BHWMF is fully enclosed with 1.8 metre chain mesh security fencing. Designated areas within the BHWMF are also enclosed with fencing to mitigate hazards associated with unauthorised access, e.g. clinical waste disposal area.

2.3.3. Security

Lockable security gates are in place at the main access to the BHWMF. The gates are locked outside of operating hours (refer Operational Control 3.2).

2.4. Operational Controls

2.4.1. Minimum Standards

The performance of the BHWMF is managed against one or more of the following environmental goals:

- Minimum impacts to water;
- Minimum impacts to air;
- Stabilisation and rehabilitation of land; and
- Prevention of hazards and preservation of amenity.

Table 3.1.1 lists the primary environmental goals and EPA's 'minimum standards for landfills' designed to achieve the goal. It also lists whether the minimum standard is adopted at the BHWMF and which Operational Control incorporates the standard.

Table Error! No text of specified style in document..**1.1** – Environmental Issues, Goals and Minimum Standards

Environmental Goal	Minimum Standard	Adopted	Operational Control
Minimum impacts to water	Leachate Barrier System	No	-
	Leachate Storage and Disposal	No	-
	Stormwater Management	Yes	OC3.5
	Water Quality Monitoring	Yes	OC3.6
Minimum impacts to air	Landfill Gas Management and Monitoring	No	-
	Covering of Waste	Yes	OC3.7
	Final Capping and Revegetation	Yes	OC3.11
	Closure	Yes	OC3.12
Stabilisation and rehabilitation of land	Covering of Waste	Yes	OC3.4 OC3.3
	Final Capping and Revegetation	Yes	OC3.12
	Closure	Yes	OC3.12
	Quality Assurance	Yes	OC3.4
Prevention of hazards and preservation of amenity	Amenity Issues: Odour, Dust, Noise, Litter and Fire Control	Yes	OC3.4 OC3.7 OC3.8 OC3.9 OC3.10 OC3.11
	Waste Acceptance and Site Security	Yes	OC3.2
	Quality Assurance	Yes	OC3.2 OC3.13 OC3.14 OC3.15

2.4.2. Management Structure

BHCC's Chief Operations Officer and the Landfill Supervisor are responsible for management of the BHWMF. Responsibilities assigned in each Operational Control refer to these positions.

2.4.3. Compliance with Standard

Relevant Minimum Standard	Compliance
Quality Assurance (11)	Yes

2.5. Site Supervision, Control and Training

2.5.1. Environmental Goals

Ensure that environmental responsibilities for appropriate management at the BHWMF are clearly defined and understood and prevent unauthorised entry.

2.5.2. Procedures

- **Site Supervision**

The BHWMF must be supervised at all times when open for the receipt of wastes. The BHWMF will be staffed by a qualified and experienced Landfill Supervisor and support personnel. All BHWMF personnel will conduct themselves in a courteous and inoffensive manner at all times.

- **Traffic Control**

The Landfill Supervisor will responsible for internal traffic control. A speed limit of 20 km/hour is in place, as signposted at the site entrance, and one-way sections of access roads have been identified.

- **Safety**

Landfill equipment used in the movement, spreading, compaction and covering of wastes must be operated in such a way as to minimise the risks to persons disposing of waste or vehicles delivering waste.

- **Scavenging**

No members of the public are permitted to scavenge at the active tip face. Recovery of recyclable and reusable materials, where feasible, will be performed by landfill personnel under the direct supervision of the Landfill Supervisor.

- **Opening Hours**

Public opening hours are set as:

  - 8:00 am to 5:30 pm, Monday and Friday
  - 8:00 am to 4:00 pm, Tuesday, Wednesday, Thursday and Weekends
  - Closed Anzac Day, Good Friday and Christmas Day
  - 8:00 am to 2:00 pm, Other Public Holidays

The facility is staffed 1 hour either side of opening hours.

- **Tipping Fees**

General household waste, recyclables, green waste and clean fill or rubble may be deposited at BHWMF without incurring tipping charges.

Fees apply for depositing of waste from other sources (e.g. commercial / industrial waste, tyres, dead animals).

- **Monitoring**

Monitoring of daily operations will be undertaken by the Landfill Supervisor.

- **Staff Training**

All landfill personnel are required to be inducted onto this LEMP and attached documents (including the pollution incident response management plan – PIRMP) prior to commencing site supervision activities and/or implementing operational controls. The staff training register, attached as Form 3.14c, includes the induction records for personnel at the BHWMF.

- **Responsibilities**
    - **BHCC Chief Operations Officer**

    Responsible for:

    - Inducting or coordinating induction of landfill personnel to the LEMP, and PIRMP attached to this LEMP as Attachment B.
    - Ensuring all current BHWMF personnel have been recorded on the staff training register (Form 3.14c).

    - **Landfill Supervisor**

    Responsible for:

    - Monitoring daily operations to ensure compliance with the LEMP;
    - Issue of invoices to vehicles required to pay tipping charges;
    - Maintaining site security;
    - Traffic control and safety within the waste disposal area; and
    - Ensuring that variations to operational hours are approved in advance.

2.5.3. Compliance with Standard

Relevant Minimum Standard	Compliance
Waste Acceptance and Site Security (7)	Yes
Quality Assurance (11)	Yes

2.6. Landfill Staging

2.6.1. Environmental Goals

Manage activities at the BHWMF in a manner that minimises the landfill space used and facilitate progressive rehabilitation.

2.6.2. Procedures

- **Staging**

The landfill will be staged in sequence as shown in **Drawings 03A_EV01** to **Drawing 03A_EV06**. The relative stage volumes are specified in **Table 3.3.1.** Stage 1 is understood to have commenced filling in April 2018.

Table Error! No text of specified style in document..**3.1 – Landfill Staging Volumes**			
Stage	Approximate Volume (m3)	Elevation Relative Level (RL) mAHD	Estimated Completion Date
1	247,735	295.0	2020
2	1,451,535	300.0	2035
3	1,671,395	305.0	2053
Based on aerial Light Detection and Ranging (LiDAR) data completed 2012			

The staging of the BHWMF is based on measured tonnages for the period from 2012/13 to 2014/15 (based on NSW EPA vehicle weight conversion factors) and compaction estimates which are calculated from filled waste density and volumetric survey data.

For modelling purposes, approximately 95,000 m3 of void space at the BHWMF is estimated to be consumed each year, comprised of:

- 85,000 m3 waste (at average density 0.375 tonnes/m3);
- 4,300 m3 daily cover material, at thickness 0.15 m;
- 5,700 m3 intermediate cover material, at thickness 0.30 m.

Waste is placed in lifts no greater than 4.55 m in height. Cover material 0.15 m in thickness is applied daily atop the landfilled waste, and once each stage is completed 0.30 m of intermediate cover will be applied, bringing the total height of each lift to 5.0 m.

The maximum height for completed areas at the BHWMF has been set at 15 m above the surrounding topography, comprised of a series of 3 lifts above existing landfilled material. Therefore the final filling stage of the BHWMF is projected to have a cap level of RL 305.0 mAHD graded at 1% to allow drainage. Perimeter batters are to be graded to the outside of the landfill at 4 H : 1 V gradient.

- **Filling Plan**

The filling plan for Stages 1, 2 and 3 is shown on **Drawing 03A_EV03** **Drawing 03A_EV04** and **Drawing 03A_EV05**, respectively. The filling plan identifies:

- The sequence of filling; and
- Reserved areas for development of a public drop-off waste transfer station.

Excavation will generally not be required as the filling plan is limited to areas atop previously filled cells.

Broken Hill City Council has commissioned a concept design for future development of a public drop-off waste transfer station near the site entrance. Development had not been completed at the time of preparation of this LEMP.

- **Cell Construction**

Cells Overlying Filled Areas

Stages 1 to 3 are to be prepared, filled and capped in accordance with the general construction details shown on **Drawing 03A_EV03 Drawing 03A_EV04** and **Drawing 03A_EV05**.

Waste is placed in lifts not exceeding five metres in depth. The impervious cover between the lifts will be comprised of 0.15 m of daily cover and 0.30 mm of intermediate cover. Accordingly, the cell height (depth of waste material) will not exceed 4.55 metres.

Cells In Unfilled Areas

No unfilled areas of the BHWMF are to be subject to filling as prescribed in this LEMP. In the event of a future amendment to the filling plan to utilise these areas, filling would proceed as described below:

- Excavations for waste cells at depths greater than 3 m below the existing grade are to include a leachate collection system(s) to minimise the potential for leachate to impact groundwater. Excavations for waste cells at depths greater than 12 m below the existing grade (corresponding to 4 m above the minimum anticipated depth to groundwater) are not considered to be suited to the local geology and hydrogeology.
- The leachate barrier system would be limited to an impervious clay liner, based on the identified climatic moisture deficit (annual evaporation averaging 2,602 mm, as compared to annual rainfall averaging 248 mm), where excavations of 3 m up to 12 m below the existing are proposed.
- A compacted clay liner would be at least 1,000 millimetres thick, with an in situ hydraulic conductivity of less than 1 x 10-9 metres / second.
- The leachate collection system would be designed by longitudinally sloping the floor of the cell by at least 1% grade (and 3% grade transversely) to a slotted vertical riser (minimum 150 mm diameter) which would be progressively extended as adjacent waste deposition and capping occurs.
- Filling and capping would be carried out as to avoid damage to the installed riser.

- **Final Levels**

Each stage will be filled to the final contour levels shown on **Drawing 03A_EV03 Drawing 03A_EV04** and **Drawing 03A_EV05**.

- **Capping**

Progressive capping of external batters will occur after the stage has reached final design levels. This will be in accordance with **Operational Control 3.12 – Landfill Rehabilitation and Closure**.

2.6.3. Monitoring

- **Adherence to Staging and Filling Plan**

The Landfill Supervisor will ensure adherence to the staging and filling plan.

- **Annual Survey**

An annual filling plan survey will be conducted by a registered Surveyor to determine the progress of filling, confirm the volume of landfill space used in the past 12 months and update calculations relating to remaining capacity.

2.6.4. Responsibilities

Landfill Supervisor

Responsible for:

- Adhering to the staging and filling plan.

BHCC Chief Operations Officer

Responsible for:

- Ensuring the annual survey, calculation and preparation of filling plans for each stage are complete.

2.6.5.Compliance with Standard

Relevant Minimum Standard	Compliance
Covering of Waste (8)	Yes
Final Capping and Revegetation (9)	Yes
Closure (10)	Yes

2.7. Waste Receipt and Management

2.7.1. Environmental Goals

Manage activities at the BHWMF in a manner that minimises the landfill space used and facilitate progressive rehabilitation.

2.7.2. Procedures

- **Waste Placement and Compaction**

All waste will be deposited, spread, covered and compacted in lifts not exceeding five (5) metres depth. The cover between the lifts (intermediate cover) will be 0.30 m.

Deposited waste should be placed and compacted to achieve a maximum effective density. Current landfill plant is understood to achieve an approximate density of 350 to 400 kilograms of waste per cubic metre of landfill space, however this could be improved through acquisition and operation of a specialised compaction vehicle.

- **Disposal of Animal Product / Offal**

Individual livestock, animal product and offal must be deposited away from the public area and covered with a minimum of 0.3 m of soil immediately. A minimum of 0.5 m of earth fill between carcasses and ground level should be maintained.

- **Excavation and Daily / Intermediate Cover**

Cover material should be sourced from excavations at the BHWMF and stockpiled adjacent to the landfilling area for use at the end of each day. Excavations are not to extend greater than 12 m below the existing grade, which corresponds to 4 m higher than the minimum encountered depth to groundwater (at 16 to 18 m depth).

0.15 m of cover material is to be applied over all exposed landfilled waste prior to ceasing operations at the end of each day. An intermediate cover must be applied to a depth of 0.30 m over surfaces of the landfilled waste at the premises which are to be exposed for more than 90 days.

At least two weeks cover material must be available under all weather conditions.

- **Capping**

Completed areas will be capped as soon as is practicable after reaching the final design level. Notwithstanding this, capping will commence within 90 days of completion of landfilling operations.

Capping will comprise:

  - A revegetation layer of 0.9 m thickness; and
  - m topsoil.

Revegetation of capped areas is described in **Operational Control 3.12**.

- **Permitted Wastes**

The BHCC and any contractors 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 Table 3.4.1 below.

Table Error! No text of specified style in document..**4.1 – Permitted Wastes**

Waste	Description	Activity	Other Limits
Tyres	Waste Tyres	Waste Disposal (application to land) Waste Storage	Where sourced from within the Sydney metropolitan area (SMA), tyres must be delivered in a load containing less than 25 whole tyres and have a diameter of greater than 1.2 metres. Tyres from the SMA must not be received unless they have been processed, or are to be processed at the BHWMF, in accordance with Section L2.9 of EPL 5898: Tyres stockpiled must: ▪ not exceed 450 tonnes at any time; and be in a clearly defined area away from the tipping face; and ▪ be managed to control vermin; and ▪ be managed to prevent any tyres from catching fire.
Contaminated Soil	Soils contaminated with a substance or waste referred to in Parts 1 or 2 of Schedule 1 of the *POEO (Waste) Regulation 2014*	Waste Disposal (application to land)	Lead contaminated soil/dust must not exceed 5 tonnes per annum. Waste must be disposed of in accordance with the Contaminated Waste Management Plan[1] for the Broken Hill Waste Management Facility.
Sewage sludge & residues	Sewage sludge and residues including nightsoil and septic tank sludge	Waste Disposal (application to land)	Sewage sludge and residues must only be accepted at the premises where there is no other facility available within the Broken Hill City Council area to legally accept the waste

[1] Appended to this LEMP as **Attachment C**

Table Error! No text of specified style in document..**4.1 – Permitted Wastes**

Waste	Description	Activity	Other Limits
Grease trap waste	Grease, oil, solids, water or other matter that: a) results from the preparation or manufacturing of food, and b) is collected in a grease trap in the usual course of the operation of the grease trap	Waste Disposal (application to land)	Grease trap wastes must only be accepted at the premises where there is no other facility available within the Broken Hill City Council area to legally accept the waste
General or Specific exempted waste	Waste material for which an exemption under clauses 91 and 92 of the POEO (Waste) Regulation 2014 applies.	Waste Disposal (application to land)	None
Clinical and related wastes	Clinical waste which does not contain any of the following: • recognisable body parts • sharps waste • cytotoxic waste or • radioactive waste and which was generated outside the Sydney metropolitan or extended regulated area	Waste Disposal (application to land)	Disposal of waste cannot exceed 200 kg at any one time.
Asbestos waste	Waste including asbestos waste in bonded matrix and asbestos fibre and dust waste resulting from the removal of thermal or acoustic insulating materials or from processes involving asbestos material, and dust from ventilation collection systems.	Waste Disposal (application to land)	Disposal of asbestos must be in accordance with Clause 80 of the POEO (Waste) Regulation 2014. No more than 350 tonnes per annum of asbestos waste in bonded matrix or fibre / dust may be disposed at the BHWMF
General solid waste (putrescible and non-putrescible)	General solid waste classified as putrescible or non-putrescible following Part 1: Classifying Wastes of the Waste Classification Guidelines (2014).	Waste Disposal (application to land)	None

Source: EPL No. 5898

The total of waste classified as 'Special Waste', which includes clinical and related waste, waste tyres or anything classified as special waste under an EPA gazettal notice, may not exceed 30 tonnes per reporting period.

The total of all wastes may not exceed 60,000 tonnes per reporting period.

- **Limitations Specific to Waste Tyres**

The storage and/or disposal of waste tyres at the BHWMF is in accordance with Section 76(7) of the Protection of the Environment Operations (Waste) Regulation 2014, specifically:

The occupier of any premises to which a load of waste tyres is delivered must cause the EPA to be given the following information (in the prescribed form and manner) within 3 days after the delivery:

a) the date and time of delivery,

b) the weight (in kilograms) of waste tyres in the load (rounded to the nearest kilogram and, if the amount to be rounded is 0.5 kilogram, rounded up),

c) the number of tyres in the load if the weight of the load is less than 200 kilograms,

d) any other information specified in the Asbestos and Waste Tyres Guidelines.

In addition to the requirements of the POEO (Waste) Regulation 2014, the following limit conditions are prescribed in EPL 5898:

L2.7 The licensee must not dispose of any tyres on the premises which;

a) have a diameter of less than 1.2 metres; and

b) are delivered at the premises in a load containing more than 25 whole tyres; and

c) became waste in the Sydney Metropolitan Area.

L2.8 Tyres stockpiled on the premises must:

a) not exceed four hundred and fifty (450) tonnes of tyres at any one time; and

b) be located in a clearly defined area away from the tipping face; and

c) be managed to control vermin; and

d) be managed to prevent any tyres from catching fire.

L2.9 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 250 mm 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.

Currently, the BHWMF conducts shredding of tyres which are disposed in the active landfill cell or collected by a contractor.

Waste management of tyres (including tyres and tyre pieces) must include measures to avoid catching on fire, or causing the spread of disease by vermin.

- **Limitations Specific to Asbestos Waste**

The disposal of asbestos waste at the BHWMF is in accordance with Section 80 of the Protection of the *Environment Operations (Waste) Regulation 2014*, specifically:

Asbestos waste disposed of at the site is covered with virgin excavated natural material:

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

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

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

Areas of the BHWMF where asbestos waste has been disposed are recorded to ensure adequate capping has been applied during final capping and closure.

Receipt and placement of asbestos is also addressed in the BHCC Asbestos Management Plan, appended to this LEMP as **Attachment C**.

- **Excluded Wastes**

The BHWMF will not accept for disposal waste except those described in **table 3.4.1**. All other wastes are to be excluded. Such waste materials may include, but not be limited to, any of the following (or combination thereof):

- Liquid waste (with the exception of sewage sludge and residues, and grease trap waste);
- Restricted solid waste;
- Hazardous waste;
- Clinical waste (or related waste) comprised of radioactive material, hospital sharps, cytotoxic waste and/or recognisable body parts; or
- Clinical waste (or related waste) generated within the Sydney metropolitan or extended regulated areas.

- **Screening of Received Wastes**

Waste material received at BHWMF arrives from three sources:

1. Members of the public
2. Council works / projects and municipal collection
3. Commercial and Industrial Sector

The following practices apply to screening of each of the waste streams:

Table Error! No text of specified style in document..**4.2 – Waste Sources and Screening Practices**	
Source	Screening Practice
Members of the public	Green waste and recyclables (glass, aluminium, cardboard, oil): • Dropped-off in the applicable area of the waste transfer precinct. Scrap metal, tyres and household waste: • Directed to the public tipping areas (until a drop-off area is available within the waste transfer precinct) • Public to segregate scrap metal and household waste to respective areas • Tyres are collected from the public tipping areas and diverted to the tyre shredding area. Animal carcasses: • Directed to current 'meat-hole' area. Public access is only permitted during opening hours: • 8:00 am to 5:30 pm, Monday and Friday • 8:00 am to 4:00 pm, Tuesday, Wednesday, Thursday and Weekends • Closed Anzac Day, Good Friday and Christmas Day • 8:00 am to 2:00 pm, Other Public Holidays Monitoring intermittently and randomly by site operator to ensure excluded non-approved wastes are not being disposed.

Council works / projects and municipal collection	Municipal waste:
	• Directed at weighbridge to current filling area (may include wet-weather area)
	
	Council works / projects waste:
	• Directed at weighbridge to:
	  o Current filling area (or wet-weather tipping area, as appropriate)
	  o Demolition waste area
	  o Green waste processing area
	  o Tyre shredding area

Commercial and Industrial Sector	• Waste material inspected at weighbridge, and directed to:
	  o Current filling area (or wet-weather tipping area, as appropriate)
	  o Demolition waste area
	  o Green waste processing area
	  o Tyre shredding area
	  o Current 'meat-hole' area
	  o Clinical waste area
	  o Contaminated soil area
	  o Grease trap waste area
	
	Monitoring intermittently and randomly by site operator during disposal to ensure excluded non-approved wastes are not being disposed

- **Suspected Excluded Wastes**

The following steps will be undertaken for vehicles suspected of containing excluded wastes:

  - The vehicle will be refused permission to deposit waste until the waste is verified as being acceptable;
  - If necessary, the Landfill Supervisor will obtain evidence from the driver (e.g. test or classification certificate) that the waste does not include excluded substances.

- **Identified Excluded Wastes**

The following steps will be undertaken if excluded wastes are identified:

  - If identified at the **point of entry** the vehicle will be refused entry and the driver advised to contact the EPA for advice on the proper disposal of the excluded waste. The incident will be reported as described in **Waste Recording page 29**.
  - If identified **during unloading** the Landfill Supervisor will advise the driver that the waste is not acceptable and organise for the waste to be loaded back on the vehicle, where practicable and safe to do so. The Landfill Supervisor will then escort the load off-site and advise the driver to contact the EPA for advice on the proper disposal of the excluded waste. The incident will be reported as described in **Waste Recording page 29**.
  - If identified **during waste spreading and compaction** the sanitary Landfill Supervisor will make all practicable efforts to identify the source of the waste (e.g. labelling, waste type). The Landfill Supervisor is responsible for then contacting the EPA for advice on the proper disposal of the excluded waste and will dispose of the excluded waste in accordance the EPAs requirements. In the event that the EPA cannot be contacted, the wastes will be relocated to a nominated quarantine area. The incident will be reported as described in **Waste Recording page 29**.

- **Reporting Excluded Wastes**

The BHCC Chief Operations Officer is to be notified immediately, and an Incident Report will be prepared (as per **Operational Control 3.14**) including the details of the type of excluded waste, the source of the waste and vehicle driver identification.

- **Recycling**

Designated areas for household recyclables including paper, glass, aluminium, paint, oil and batteries will be maintained.

The following types of waste will be directed to the appropriate area or removed from the landfill, where practicable, and stored in designated recycling areas as shown on the site layout and filling areas diagram (**Drawing 216074_02A_EV01**).

- Cardboard;
- Scrap metal;
- Sump oil;
- Automotive batteries;
- Green waste / garden waste;
- Gas bottles / cylinders; and
- Tyres.

Green-waste is mulched on site, and made available for use by Council in the rehabilitation of the site or on off-site projects. Material too large to be put through the chipping equipment is buried within the landfill.

Automotive batteries are stored on site and removed from site when sufficient stocks have accumulated.

Sump oil is collected in a 55,000 L bunded collection unit for removal by a designated and licensed contractor.

Council has an agreement with a contractor for the collection of all scrap metal.

- **Waste Recording**

All commercial vehicles entering the facility will be recorded by the Landfill Supervisor or staff. Records will include:

- Received waste quantity and destination within BHWMF;
- Waste type;
- Source of waste received; and
- Quantity and destination of waste transported from BHWMF.

2.7.3. Monitoring

Records of wastes entering and exiting the landfill will be kept. The Landfill Supervisor or staff will be present at the site during operational hours to ensure that wastes are deposited and disposed in the appropriate area of the landfill.

Annual volumetric surveys will monitor the volume of landfill used.

The density of the compacted waste will be monitored by calculation, from records of wastes received and volume used (from annual volumetric survey).

2.7.4. Responsibilities

- **Landfill Supervisor**

Responsible for:

- Ensuring correct procedures for waste receipt and management are implemented.
- Approving access to the depot outside of normal hours (Waste Coordinator)

- **BHCC Chief Operations Officer**

Responsible for:

- Approving access to the depot outside of normal hours (if Waste Coordinator not available);
- Maintaining arrangements for processing of green waste and scrap metal; and
- Organising an annual survey, calculations and submission of annual reports.

2.7.5.Compliance with Standard

Relevant Minimum Standard	Compliance
Amenity Issues: Odour, Dust, Noise, Litter and Fire Control (6)	Yes
Waste Acceptance and Site Security (7)	Yes
Covering of Waste (8)	Yes
Final Capping and Revegetation (9)	Yes
Closure (10)	Yes
Quality Assurance (11)	Yes

2.8. Surface Water Management

2.8.1. Environmental Goals

Manage activities to prevent pollution of water by leachate. A checklist outlining the requirements for monitoring of surface water is provided as Attachment F

2.8.2. Procedures

- **Surface Water Management**

Surface water runoff is to be managed in the following way to minimise environmental impact:

- A clean water diversion system separated from waste disposal areas via earth embankments to divert clean water flows from catchments upstream of the landfill site;
- Diverting runoff water away from filling areas to ensure refuse is at no stage inundated with water;
- Holding heavily loaded runoff in sedimentation / evaporation basins to prevent runoff. Water from sedimentation basins may be utilised for dust control and vegetation watering;
- Maintaining sufficient void capacity within sedimentation / evaporation basins to ensure overflow does not occur in storm events (less significant than storm events of 90th percentile and 5 day duration);
- Unpolluted runoff from stable areas is diverted to avoid contributing to polluted runoff.

- **Clean Water Diversion**

The clean water diversion drains are separated from waste disposal areas via earth embankments or in the case of the north eastern drain the property boundary fence.

All gross pollutants are to be removed from the clean water diversion drains and only clean fill be used to create the earth embankments separating the clean water diversion drains and dirty areas.

The clean water diversion drains have sufficient capacity to convey the calculated 1 in 20 year average recurrence interval (ARI) peak flows along their length (refer to **Attachment D**, Surface Water Management Plan). Flow velocities were above specifications and accordingly Rock Check Dams and/or other check dam systems are required to be installed in the bare soil areas of the drains to reduce velocities.

- **Dirty Water Containment**

The existing dams on the site act as Type D sedimentation basins, albeit with no formal discharge outlets. Council staff advised that the dams / basins never fill and captured water evaporates due to the significant rainfall deficit at the site (mean annual rainfall 227 mm, mean annual evaporation 2,592 mm [2])

The volume of the sedimentation basins required for Catchment 1 (29.5 ha) and Catchment 2 (24.9 ha) are 3,345 m3 and 2,824 m3 respectively (using the 90th percentile rainfall depth for Broken Hill of 21.6 mm, Cv = 0.35, and 50% of settling zone capacity for sediment storage zone).

[2] Broken Hill Stephens Creek Reservoir BOM station 047031

The surface area of Dam 1 is 4,400 m2 and Dam 2 is 2,400 m2 , meaning that depths of 0.76 m and 1.18 m are required respectively. The available LiDAR data shows that the depths of the two dams are at least this deep and therefore have adequate capacity for their respective catchments. Site survey will confirm the depths of the dams.

- **Surface Water Discharge**

Stormwater may overflow during and for a period immediately after a storm event greater than a 1 in 10 year recurrence at a 5 day duration. Surface water discharge from the site would trigger incident reporting protocols, as described in **Operational Control 3.14**

- **Surface Water Monitoring**

In the event of a surface water discharge, monitoring of surface water will be conducted within 48 hours of the discharge occurring. Monitoring will include collection of surface water samples at the point(s) of discharge and analysis for the parameters listed in **Table 3.5.1**:

Table Error! No text of specified style in document..**5.1 – Surface Water Quality Parameters**		
Pollutant	Units of Measure	Sampling Method
Calcium	milligrams per litre	Grab Sample
Chloride	milligrams per litre	Grab Sample
Conductivity	microsiemens per centimetre	Probe and Grab Sample
Faecal Coliforms & E.coli	colony forming units per 100 mL	Grab Sample
Magnesium	milligrams per litre	Grab Sample
Nitrate	milligrams per litre	Grab Sample
Nitrogen (Ammonia)	milligrams per litre	Grab Sample
pH	pH	Probe and Grab Sample
Potassium	milligrams per litre	Grab Sample
Phosphorus (Total)	milligrams per litre	Grab Sample
Sodium	milligrams per litre	Grab Sample
Sulfate	milligrams per litre	Grab Sample
Total Organic Carbon	milligrams per litre	Grab Sample

The results of the surface water monitoring will be conveyed to the EPA in writing within 14 days.

2.8.3. Responsibilities

- **Landfill Supervisor**

Responsible for:

- Diverting clean runoff around the active cells;
- Inspection and maintenance of all stormwater drainage to ensure proper functioning and to prevent contaminated runoff leaving the site;
- Initiating incident reporting in the event of a surface water discharge from site;
- Advising the BHCC Chief Operations Officer of any upgrading required to contain or redirect surface water runoff.

- **BHCC Chief Operations Officer**

Responsible for:

- Coordinating surface water quality monitoring in the event of a surface water discharge from the site;
- Coordinating and implementing upgrades to the surface water diversion or containment systems.

2.8.4. Compliance with Standard

Relevant Minimum Standard	Compliance
Stormwater Management (3)	Yes
Water Quality Monitoring (4)	Yes

2.9. Groundwater Management

2.9.1. Environmental goals

Undertake activities in a manner that prevents pollution of groundwater resources and monitor for impacts to detecting water pollution. A checklist outlining the requirements for groundwater monitoring is provided as **Attachment F**.

2.9.2. Procedures

- **Preventing Pollution**

The landfill must be operated so as to minimise the risk of groundwater pollution by leachate. This will be achieved by:

Implementing surface water controls;

Ensuring adequate compaction of deposited wastes and cover material;

Capping completed cells;

Progressively rehabilitating disturbed areas; and

Ensuring adequate revegetation of completed cells.

- **Leachate Monitoring Program**

Waste Cell Monitoring Wells

A leachate monitoring and recovery well is present within waste cells of the former quarry area, and is identified as LW1, as shown on **Drawing Reference 216074_02A_EV01**. Should future landfill cells be constructed in areas not previously filled (discussed in **Operational Control 3.3** 'Landfill Staging'), additional leachate monitoring and recovery wells will be installed, with a slotted vertical riser (minimum 150 mm diameter) installed at the lowest point and being progressively extended as adjacent waste deposition and capping occurs.

The depth to leachate is recorded every six (6) months. Where leachate levels are recorded to be greater than 300 mm from the base of the cell (corresponding to 1.3 m from the base of well LW1 which includes a 1 m sump) pumping of leachate to surface evaporation basins will be conducted.

Evaporation basins are to be clay-lined to prevent re-infiltration of leachate and located within on-site catchments that drain to existing on-site surface water retention dams (to minimise the risk of leachate leaving the site in the event of overflow during a storm event).

- **Groundwater Monitoring Program**

Monitoring Network

The groundwater monitoring network is shown on **Drawing Reference 216074_02A_EV01**. It comprises six piezometers, three of which are required by EPL 5898 to monitor groundwater levels and quality. The monitoring points are listed in **Table 3.6.1**.

Table Error! No text of specified style in document.**.6.1 – Groundwater Monitoring Points**

EPA Identification No.	Piezometer No.
1	BH1
2	BH2
3	BH3
N/A	BH4
N/A	BH5
N/A	BH6

Monitoring Schedule

Groundwater levels and quality parameters as described in Table **3.6.2** are monitored on a bi-annual basis at all monitoring points where liquid is present.

Parameters for Quality Analysis

Table Error! No text of specified style in document..**6.2 – Groundwater Quality Parameters**

Pollutant	Units of Measure	Frequency	Sampling Method
Cadmium	milligrams per litre	every 6 months	Grab Sample
Calcium	milligrams per litre	every 6 months	Grab Sample
Chloride	milligrams per litre	every 6 months	Grab Sample
Conductivity	microsiemens per centimetre	every 6 months	Grab Sample
Hardness	milligrams per litre	every 6 months	Grab Sample
Lead	milligrams per litre	every 6 months	Grab Sample
Magnesium	milligrams per litre	every 6 months	Grab Sample
Nitrate	milligrams per litre	every 6 months	Grab Sample
Nitrogen (Ammonia)	milligrams per litre	every 6 months	Grab Sample
pH	pH	every 6 months	Grab Sample
Phenols (non-halogenated)	milligrams per litre	Annually	Grab Sample
Potassium	milligrams per litre	every 6 months	Grab Sample
Sodium	milligrams per litre	every 6 months	Grab Sample
Standing Water Level	metres	every 6 months	Inspection
Sulfate	milligrams per litre	every 6 months	Grab Sample
Total Organic Carbon	milligrams per litre	every 6 months	Grab Sample

Source: EPA Licence No. 5898, April 2016

- **Validation Sampling**

If monitoring indicates pollution, groundwater in the affected piezometer will be resampled and retested again as soon as possible to confirm the results. If re-sampling confirms the anomaly, the EPA will be notified immediately by telephone and in writing within 14 days.

Contingent on requirements of the EPA, a Groundwater Assessment Plan (GAP) will then be prepared. The GAP is expected to:

- Identify the specific groundwater contaminants;
- Establish the extent of the pollution, including possible source(s);
- Assess the potential impacts to receptors; and
- Outline a proposed sampling plan to obtain sufficient information to prepare a Groundwater Contamination Remediation Plan.

2.9.3. Responsibilities

Landfill Supervisor

Responsible for:

- Implementation of procedures identified in this LEMP so as to minimise the risk of groundwater pollution.

BHCC Chief Operations Officer

Responsible for:

- Coordinating and implementing the Groundwater Monitoring Program, including EPA notification if required.

2.9.4. Compliance with Standard

Relevant Minimum Standard	Compliance
Stormwater Management (3)	Yes
Water Quality Monitoring (4)	Yes

2.10. Air Quality Management

2.10.1. Environmental Goals

Ensure all operations and activities occurring at the BHWMF are carried out in a manner that will minimise the emission of dust and/or potentially offensive odour from the premises.

2.10.2. Procedures

Odour generation is controlled by daily covering of wastes and immediate covering of waste that is producing offensive odours.

Landfill gas generation is controlled by capping and revegetating completed stages with shallow rooted species, as well as minimising the amount of water entering the active landfill area. A previous landfill gas assessment ('Assessment of Landfill Gas Emissions: Comprehensive Assessment – Broken Hill City Council, Hyder Consulting, 2009) identified the BHWMF as being "a dry-tomb site with minimal methane production (i.e. extremely dry conditions limit the bacterial activity that generates methane)" and accordingly landfill gas monitoring is not considered to be warranted.

Dust generation is kept to a minimum by maintaining gravel seals on access roads; posting speed restrictions within the site; strategic watering of operational areas; and minimising extent of exposed areas.

2.10.3. Monitoring

Air quality is monitored by recording any odour and/or dust complaint received and confirming operational controls are in place.

2.10.4. Responsibilities

Landfill Supervisor

Responsible for:

- Implementation of procedures identified in this LEMP so as to minimise adverse impacts on air quality; and
- Completing complaint forms (**Forms 3.15a and 3.15b**) and forwarding to the Chief Operations Officer.

BHCC Chief Operations Officer

Responsible for:

- Maintaining records of, and investigating, odour and dust complaints.

2.10.5. Compliance with Standard

Relevant Minimum Standard	Compliance
Landfill Gas Management and Monitoring (5)	Yes
Amenity Issues: Odour, Dust, Noise, Litter and Fire Control (6)	Yes
Covering of Waste (8)	Yes
Final Capping and Revegetation (9)	Yes
Closure (10)	Yes

2.11. Noise Control

2.11.1. Environmental Goal

Ensure BHWMF does not adversely affect amenity at nearby receptors through generation of excessive noise.

2.11.2. Procedures

Noise generation will be restricted by:

- Restricting operations to approved times;
- Regularly servicing all equipment on site to ensure sound power levels of each item remains at or below the default or factory-set values; and
- Investigation of any complaint regarding noise.

2.11.3. Monitoring

Noise will be monitored by recording and investigating any complaints received. **Operational Control 3.15** details complaints handling and recording in further detail.

2.11.4. Responsibilities

Landfill Supervisor

Responsible for:

- Correct maintenance and operation of machinery;
- Keeping records of noise complaints received; and
- Completing complaint forms **(Forms 3.15a and 3.15b)** and forwarding to the BHCC Chief Operations Officer.

BHCC Chief Operations Officer

Responsible for:

- Arranging noise measurements if required; and
- Keeping records of noise complaints.

2.11.5. Compliance with Standard

Relevant Minimum Standard	Compliance
Amenity Issues: Odour, Dust, Noise, Litter and Fire Control (6)	Yes

2.12. Litter Control

2.12.1. Environmental Goals

Minimise litter to prevent degradation of local amenity. A checklist outlining the requirements for litter monitoring is provided as **Attachment F**.

2.12.2. Procedures

Litter is controlled by implementation of the control measures described in Section 5.0 of the Litter Control Plan – Broken Hill Waste Management Facility' (BHCC, 2016) appended as **Attachment E**, and include:

1. Confining the working face of the active fill area;
2. Use of litter fences and screens;
3. Maintaining short pushing distances when placing waste material;
4. Covering waste more frequently during periods of high wind;
5. Restricting waste placement during periods of high wind;
6. Undertaking routine (weekly) litter inspections and pick-ups;
7. Use of portable litter fences for downwind deployment close to the working area;
8. Covering of transfer bins and tip trucks containing waste;
9. Litter collection during inspections;
10. Record keeping by taking photos after litter has been collected;
11. Placement of intermediate cover;
12. Responding to extreme weather to coordinate litter collection, as required;
13. Establishment of cleared buffer zones about the site perimeter;

14. Weekly tool-box talks to discuss litter control.

2.12.3. Monitoring

Litter will be monitored by recording complaints received, recording photographs and through the conduct of spot audit checks, **Operational Control 3.15** details complaints handling and recording further.

2.12.4. Responsibilities

Landfill Supervisor

Responsible for:

- Ensuring the application of daily cover;
- Undertaking litter patrols as required; and
- Implementing control measures described in the Litter Control Plan, as appropriate

BHCC Chief Operations Officer

Responsible for:

- Undertaking spot audits.

2.12.5. Compliance with Standard

Relevant Minimum Standard	Compliance
Amenity Issues: Odour, Dust, Noise, Litter and Fire Control (6)	Yes

2.13. Pest, Vermin and Noxious Weed Control

2.13.1. Environmental Goals

Undertake operations to minimise favourable habitat for pests, vermin and noxious weeds to prevent degradation of local amenity. A checklist outlining the requirements for nuisance monitoring is provided as **Attachment F**.

2.13.2. Procedures

Pests, vermin and noxious weeds will be controlled by ensuring that:

- Odorous wastes are covered immediately;
- Wastes are adequately compacted and covered on a daily basis;
- Litter is controlled;
- The security fence is maintained to prevent access by larger animals;
- Surface drainage minimises ponding on site; and
- Weeds Identified as 'Regional Priority Weeds' in the Western Regional Strategic Weed Management Plan 2017 - 2022 (Local Land Services - Western, 2017) are reported to Broken Hill City Council for control.

2.13.3. Monitoring

Pests, vermin and noxious weeds will be monitored on an ongoing weekly basis.

2.13.4. Responsibilities

Landfill Supervisor

Responsible for:

- Monitoring pests, vermin and noxious weeds;
- Controlling and, if necessary, destroying pests; and
- Reporting the presence of vermin and noxious weeds to the BHCC Chief Operations Officer.

2.13.5. Compliance with Standard

Relevant Minimum Standard	Compliance
Amenity Issues: Odour, Dust, Noise, Litter and Fire Control (6)	Yes

2.14. Fire Management

2.14.1. Environmental Goals

Effectively manage potential hazards associated with fires through provision of an adequate firefighting capacity.

2.14.2. Procedures

The procedures detailed below are linked to three separate spheres of action and responsibility. These include:

- Measures to be undertaken to prevent a fire from occurring;
- Actions to be taken in the event that a fire does occur; and
- Action to be taken after a fire incident had been contained.

- **Fire Prevention**

The potential for fires to be controlled at the site will be controlled by:

  - A security fence to prevent unauthorised entry;
  - Maintaining machinery in good working order to minimise the risk of sparks;
  - Adequately compacting and covering wastes;
  - Regular litter patrols;
  - Ensuring fire breaks around the perimeter of the depot (i.e. access roads) and around any combustibles within the site are maintained;
  - Slashing heavy stands of grass before the bushfire season commences;
  - Access to on-site fire fighting equipment; and
  - Accepting only permitted wastes.

- Responding to a Fire

In the event that a fire occurs on-site, the action required is to follow the procedures detailed in the Pollution Incident Response Management Plan (PIRMP), refer **Operational Control 3.14** – Incident Reporting, and **Attachment B** – PIRMP Supporting Statement.

The first action to be taken is a determination by the Landfill Supervisor as to whether the fire can be contained and extinguished without compromising safety. In the event that the fire can be safely handled by BHWMF personnel, the fire will be controlled by covering it with soil. If there is any doubt as to the ability to safely control the fire, the following actions must be taken (as per the requirements of the PIRMP):

Step 1: Immediately ring the Broken Hill Fire Department on phone number **(08) 8087 2233.**

If there is any problem in making contact then landfill personnel must immediately ring Emergency Services on phone number **000**.

Step 2: Listen to and act on instructions issued by the Fire Service.

Step 3: Organise for evacuation from the BHWMF of all members of the public, expediting a quick but safe exit, as well as preventing other members of the general public from entering the facility.

Step 4: Prepare for the arrival of the Fire Service by:

- Extracting the latest plan of the BHWMF that identifies location of different waste types;
- Mobilising earth moving equipment so that it is ready for use, as directed by Fire Services.

Step 5: As soon as practicable to do so, contact the BHCC Chief Operations Officer on phone number:

Business Hours:	**(08) 8080 3353**
After Hours / Mobile:	**0409 016 293**

Step 6: On the Fire Service's arrival at the BHWMF, follow all instructions issued by the Officer in Charge.

- **Post Containment Action**

After a fire has been contained, the Landfill Supervisor is responsible for preparing an incident report (Form 3.14a) and submitting this to the BHCC Chief Operations Officer within 48 hours of the fire.

- The Incident Report must include the following information:
- The time and date that the fire was started or reported;
- The cause of the fire (if known);
- The time and date that the fire was either burnt out or extinguished;
- The location of the fire;
- Prevailing wind conditions;
- The amount of waste that was combusted by the fire;
- Action taken to extinguish the fire;
- Any complaints of smoke nuisance from the public or local residents; and
- Observations made in regard to smoke direction and dispersion.

The EPA must be notified of all fires at the premises as soon as practicable.

2.14.3. Monitoring

The premises will be continually monitored for fire.

2.14.4. Responsibilities

Landfill Supervisor

Responsible for:

- Ensuring all of the above procedures are followed in sequence and implemented; and
- Following the procedures identified in the PIRMP.

BHCC Chief Operations Officer

Responsible for:

- Ensuring that all fires are reported to the EPA.

2.14.5. Compliance with Standard

Relevant Minimum Standard	Compliance
Amenity Issues: Odour, Dust, Noise, Litter and Fire Control (6)	Yes
Covering of Waste (8)	Yes

2.15. Landfill Rehabilitation and Closure

2.15.1. Environmental Goals

Exercise appropriate land management and conservation principles through undertaking progressive rehabilitation and planning for landfill closure.

2.15.2. Procedures

- **Closure Plan**

A written closure plan will be submitted to the EPA for approval within three months of the completion of waste receipt operations. The plan will include detail of the final landforms, a post-closure monitoring and maintenance program to ensure the long-term integrity of the landfill.

- **Revegetation**

A revegetation layer of not less than 100 millimetres of topsoil will be placed over the capping layer of each completed stage. This will be sown with a mixture of grasses and be fertilised and mulched to assist establishment. A vegetation plan will be included in the closure plan, outlining the grass mix and application rates.

- **Maintenance of Revegetated Areas**

Revegetated areas will be inspected monthly to identify areas where revegetation has not been successful. Bare areas will be re-seeded. Areas where revegetation has not been successful will be fertilised.

2.15.3. Monitoring

Rehabilitation areas will be monitored to ensure effectiveness of groundcover and drainage structures.

2.15.4. Responsibilities

BHCC Chief Operations Officer

Responsible for:

- Preparation, submission and implementation of the Closure Plan;
- Coordinating implementation of the revegetation works; and
- Ensuring that adequate funds are set aside to cover rehabilitation and closure of the landfill.

2.15.5. Compliance with Standard

Relevant Minimum Standard	Compliance
Covering of Waste (8)	Yes
Final Capping and Revegetation (9)	Yes
Closure (10)	Yes

2.16. Document Control

2.16.1. Environmental Goals

To ensure that this LEMP (and supporting Pollution Incident Response Management Plan) is reviewed and updated as required, and only the latest version is held by relevant parties, with updates being disseminated in a controlled manner.

2.16.2. Procedures

- **Dissemination**

Controlled copies of this LEMP and the PIRMP will be made available to:

- Chief Operations Officer, Broken Hill City Council;
- Landfill Supervisor, Broken Hill City Council; and
- Environment Protection Authority.

- **Review**

This LEMP is required to be reviewed by BHCC as per the below schedule:

- Entire document: Every five (5) years
- Operational controls (Section 2.4): Annually
- Against statutory requirements: Every six (6) months

All reviews with respect to the LEMP are to be recorded on the LEMP Review Record (**Form 3.13a**).

- **Updates**

Any updates or revisions to the LEMP and PIRMP will be circulated with detail on the updated version number and date issue. Updated versions of any section of this LEMP or the PIRMP must always be issued with a covering memo summarising changes.

Owners of controlled copies of the LEMP must incorporate new versions and sign off on the Updates Register (**Form 3.13b**).

2.16.3. Monitoring

Periodic internal audits will be conducted to ensure that only the latest version of the LEMP is in use.

2.16.4. Responsibilities

BHCC Chief Operations Officer

Responsible for:

- Conducting reviews of the LEMP in accordance with the schedule specified in Section 2.16.2 and signing off the review record (Form 3.13a)
- Ensuring that updates of the LEMP (or sections of it) and the PIRMP are disseminated properly and undertaking periodic audits to check that document control procedures are followed.

Owners of Controlled Copies

Responsible for:

- Actioning updated versions and signing off on the Updates Register (Form 3.13b).

2.16.5. Compliance with Standard

Relevant Minimum Standard	Compliance
Quality Assurance (11)	Yes

2.17. Incident Reporting

2.17.1. Environmental Goal

To ensure any incident that causes or threatens material harm to the environment is reported in accordance with the licence requirements, and the PIRMP.

2.17.2. Pollution Incident Response Management Plan

In 2012 a PIRMP was prepared to assist personnel at the BHWMF to correctly identify pollution incidents and detail the procedures for the response and reporting of a pollution incident. The PIRMP and Supporting Statement were last updated in February 2019 and are included in this LEMP as **Attachment B**.

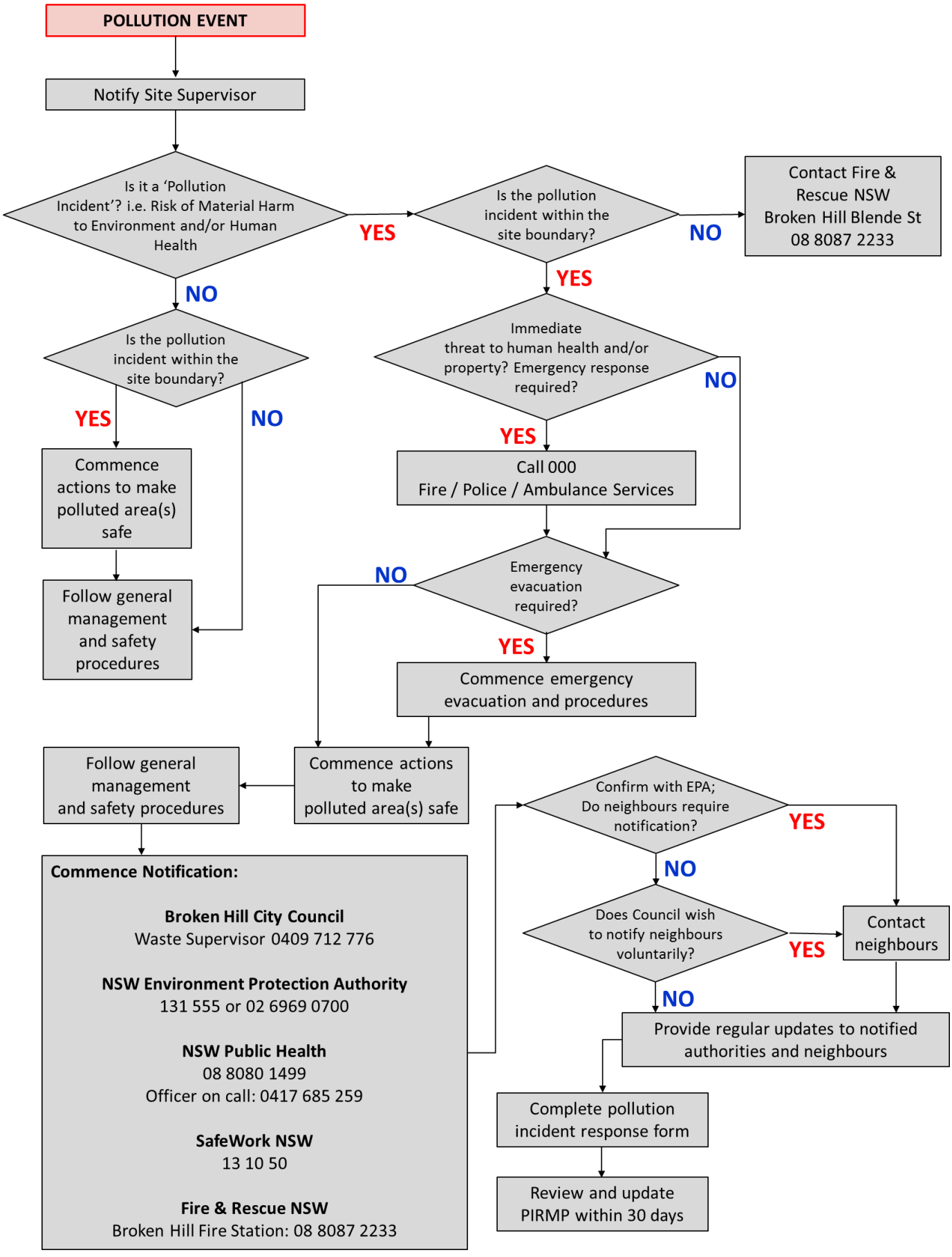
2.17.3. Pollution Incident Classification, Risk Assessment and Contributing Factors

Table Error! No text of specified style in document..**14.1 – Pollution Incident Classification, Risk Assessment and Contributing Factors**

Description of Pollution Incident	Likelihood	Impact	Contributing Factors
Identifying non-domestic quantities of hazardous substances among waste	Medium	Low	Human errors made during waste screening. Deception by landfill patrons.
Surface or subsurface fires at active landfill, public receival areas or recycling facility	Medium	Medium	High winds, dry weather, prolonged high temps and low humidity. Human errors made during waste screening, poor maintenance of plant and equipment, spontaneous combustion, hot embers in waste deliveries.

Table Error! No text of specified style in document..**14.1 – Pollution Incident Classification, Risk Assessment and Contributing Factors**			
Description of Pollution Incident	**Likelihood**	**Impact**	**Contributing Factors**
Surface or subsurface fires at maintenance and inactive areas	Low	High	High winds, dry weather, prolonged high temps, low humidity and spontaneous combustion.
Mixing of waste and stormwater	Low	Medium	Prolonged periods of heavy rain, and lack of surface water pond and site maintenance.
Identification of any failure of an environmental protection system	Low	Low	Prolonged periods of heavy rain and/or a mechanical failure of the pump at the leachate pond.
Identification of a significant difference in groundwater indicator parameters	Low	Low	Prolonged periods of heavy rain
Acts of vandalism or target of terrorist activity	Medium	Medium	Increased risk during hours of closure
Any other incident or observation that could potentially pose an immediate environmental hazard outside normal operating conditions	Low	Low	n/a

2.17.4. Document A - Pollution Incident Decision Flow Chart



2.17.5. Document B – Pollution Incident Emergency Contact details

- **Definition of a Pollution Incident**

A pollution incident is required to be notified if there is a risk of 'material harm to the environment', which is defined in section 147 of the *POEO Act*:

a) harm to the environment is material if:

   i. it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

   ii. it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, and

b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

- **Notification of a Pollution Incident**

Notification Speed of Response

The requirement for notification of a pollution incident has changed from 'as soon as practicable' to 'immediately'. In short, 'immediately' means 'promptly without delay', but it does not mean undertaking notification ahead of doing what is necessary to make safe.

Notification of Relevant Authorities

Where the pollution incident causes or threatens material harm to the environment or human health, all the following authorities must be notified by the Depot Supervisor:

Notification of Relevant Authorities	
Emergency Call Services	**Contact Number**
Emergency Hotline Number (24 hours) *The Site Supervisor should call 000 if the incident presents an immediate threat to human health and/or property and a combat agency is required (i.e. NSW Fire and Rescue, NSW Ambulance Service, NSW Police Force) and then notify all other parties below including NSW Fire and Rescue via a local telephone number.	000*
Broken Hill City Council Chief Operations Officer, Broken Hill City Council Landfill Supervisor Council Emergency contact number (after hours)	08 8080 3300 0409 016 293 0409 712 776 0408 858 493
The Environment Protection Authority (EPA) Griffith Regional Office Emergency Hotline Number (24 hours)	02 6969 0700 131 555
NSW Public Health - Broken Hill Regional Office Public Health Officer on Call (24 hours)	08 8080 1499 0417 685 259
SafeWork NSW -Hotline Number	13 10 50
Fire and Rescue NSW - Broken Hill Fire Station	08 8087 2233**

If there is no immediate threat to human health and/or property i.e. a combat agency is not required, then the Depot Supervisor is still required to follow that outlined above except for dialing 000.

2.17.6. Responsibilities

Landfill Supervisor

Responsible for:

- Ensuring all incidents are reported to the Chief Operations Officer;
- Completing Incident Reporting Form (**Section 4** of the PIRMP) when required.

BHCC Chief Operations Officer

Responsible for:

- Completing the PIRMP Testing and updates register (**Section 5** of the PIRMP);
- Completing the Staff Training Register (**Section 6** of the PIRMP);
- Notifying the EPA of the incident, if required; and
- Ensuring the incident reports are completed and acted upon.

2.17.7. Compliance with Standard

Relevant Minimum Standard	Compliance
Amenity Issues: Odour, Dust, Noise, Litter and Fire Control (6)	Yes
Quality Assurance (11)	Yes

2.18. Complaints Reporting

2.18.1. Environmental Goal

Any complaint received will be investigated and measures for avoiding recurrence will be investigated.

2.18.2. Procedures

- **Reporting**

Any complaint received must be reported immediately to the Waste Coordinator and/or the Chief Operations Officer.

- **Documenting Complaint Investigation**

Any complaint must be reported on both the **Complaints Register (Form 3.15a)** and a **Complaint Report (Form 3.15b)**. the report must include:

a) The date and time of the complaint;

b) The method by which the complaint was lodged;

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 complainant; and

f) If no action was taken by the licensee, the reason why no action was taken.

All complaints reports must be kept for at least four (4) years and be included in the Annual Report (refer **Operational Control 3.16**).

- **Noting Weather Conditions**

  On receipt of any complaint the existing weather conditions, including wind direction and approximate speed, will be recorded on Form **3.15b**.

- **Investigation**

  Any Complaint Received must be followed up as to the cause of the complaint. Options for avoiding recurrence must be investigated.

  Follow-up action will be recorded on Form **3.15b**.

2.18.3. Responsibilities

Landfill Supervisor

Responsible for:

- Reporting any complaint received by an outside party to the Chief Operations Officer;
- Ensuring that on receipt of any complaint, existing weather conditions, including wind direction and approximate speed, are recorded; and

BHCC Chief Operations Officer

Responsible for:

- Ensuring any complaint received is followed up by an investigation as to the cause of the complaint and assessing options for avoiding recurrence;
- Ensuring that all complaints are recorded.

2.18.4. Compliance with Standard

Relevant Minimum Standard	Compliance
Quality Assurance (11)	Yes

2.19. Annual reporting

2.19.1. Environmental Goal

To ensure that Annual Return Documents are completed and submitted to the EPA in accordance with EPL requirements.

2.19.2. Procedures

- **Scope of Annual Return**

Annual Return reports must include:

a) A Statement of Compliance;

b) A Monitoring and Complaints Summary. 3. a Statement of Compliance - Licence Conditions,

c) A Statement of Compliance - Load based Fee,

d) A Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,

e) A Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and

f) A Statement of Compliance - Environmental Management Systems and Practices.

Environmental monitoring is described in **Operational Controls 3.5 and 3.6**. Volumetric surveying to obtain data to calculate the achieved compaction rate is described in **Operational Control 3.3**.

- **Annual Return Submission Deadline**

The Annual Return for the reporting period must be supplied to the EPA by registered post no later than 60 days after the anniversary date. The Licence anniversary is 11 September each year and the deadline for receipt of the Annual Return by the EPA is **11 November** each year.

- **Annual Return Copies**

A copy of each Annual Return must be kept for a period of four years after the date of submission.

2.19.3. Responsibilities

BHCC Chief Operations Officer

Responsible for:

- The preparation and submission of the annual reports.

2.19.4. Compliance with Standard

Relevant Minimum Standard	Compliance
Quality Assurance (11)	Yes

3. Attachments

3.1. ATTACHMENT A - ENVIRONMENTAL PROTECTION LICENCE NO. 5898

Section 58(5) Protection of the Environment Operations Act 1997

Licence Variation

Licence - 5898

COUNCIL OF THE CITY OF BROKEN HILL
PO BOX 448
BROKEN HILL NSW 2880

Attention: Marisa Pickett

Notice Number	1636829
File Number	EF13/2717
Date	05-Apr-2024

NOTICE OF VARIATION OF LICENCE NO. 5898

BACKGROUND

A. COUNCIL OF THE CITY OF BROKEN HILL ("the licensee") is the holder of Environment Protection Licence No. 5898 ("the licence") issued under the *Protection of the Environment Operations Act 1997* ("the Act"). The licence authorises the carrying out of activities at WILLS STREET, BROKEN HILL, NSW, 2880 ("the premises").

B. On 05-Feb-2024 the Environment Protection Authority (EPA) received an application for the variation of the licence. The variation requested an increase in tyre acceptance load from 25 tyres to 80 tyres.

C. On 19 Dec 2023, discussions occurred between the licensee and EPA via email, where the licensee discussed the need to increase the current tyre limit that can be received on premises in the interest of appeasing local businesses who utilised the premises.

D. On 24 Jan 2024, information was provided to the licensee from the EPA via email, detailing the process of applying for a licence variation and the need to utilise the Integrated Waste Tracking Solution (IWTS) as a result of any increase in tyre capacity.

E. Clause 76 of the Protection of the Environment Operations (Waste) Regulations 2014, outlines the requirements for waste operators, transporters and waste recycling facilities.

F. A draft copy of the license was sent to the licensee on 15 March 2024

G. Comments were received from the licensee on 19 March 2024.

H. The Licence Variation captures the below changes in line with the correspondence above.

VARIATION OF LICENCE NO. 5898

1. By this notice the EPA varies licence No. 5898. The attached licence document contains all variations that are made to the licence by this notice.

Licence Variation

2. The following variations have been made to the licence:
   - L2.7 - tyre acceptance load increased from 25 to 80 per load

.....

Briohny Seaman

A/ Unit Head

Environment Protection Authority

(by Delegation)

INFORMATION ABOUT THIS NOTICE

- This notice is issued under section 58(5) of the Act.
- Details provided in this notice, along with an updated version of the licence, will be available on the EPA's Public Register (http://www.epa.nsw.gov.au/prpoeo/index.htm) in accordance with section 308 of the Act.

Appeals against this decision

- You can appeal to the Land and Environment Court against this decision. The deadline for lodging the appeal is 21 days after you were given notice of this decision.

When this notice begins to operate

- The variations to the licence specified in this notice begin to operate immediately from the date of this notice, unless another date is specified in this notice.
- If an appeal is made against this decision to vary the licence and the Land and Environment Court directs that the decision is stayed the decision does not operate until the stay ceases to have effect or the Land and Environment Court confirms the decision or the appeal is withdrawn (whichever occurs first).

Environment Protection Licence

Licence - 5898

Licence Details	
Number:	5898
Anniversary Date:	11-September

Licensee
COUNCIL OF THE CITY OF BROKEN HILL
PO BOX 448
BROKEN HILL NSW 2880

Premises
BROKEN HILL WASTE DEPOT
WILLS STREET
BROKEN HILL NSW 2880

Scheduled Activity
Waste disposal (application to land)
Waste processing (non-thermal treatment)
Waste storage

Fee Based Activity	Scale
Non-thermal treatment of hazardous and other waste	Any annual processing capacity
Waste disposal by application to land	Any capacity
Waste storage - waste tyres	> Any tyres stored

Contact Us
NSW EPA
6 Parramatta Square
10 Darcy Street
PARRAMATTA NSW 2150
Phone: 131 555
Email: info@epa.nsw.gov.au
Locked Bag 5022
PARRAMATTA NSW 2124

Environment Protection Licence

Licence - 5898

Environment Protection Licence

Licence - 5898

Environment Protection Licence

Licence - 5898

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);
- 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).

Environment Protection Licence

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:

COUNCIL OF THE CITY OF BROKEN HILL
PO BOX 448
BROKEN HILL NSW 2880

subject to the conditions which follow.

Environment Protection Licence

Licence - 5898

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 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, fee-based 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	Fee Based Activity	Scale
Waste processing (non-thermal treatment)	Non-thermal treatment of hazardous and other waste	Any annual processing capacity
Waste disposal (application to land)	Waste disposal by application to land	Any capacity
Waste storage	Waste storage - waste tyres	> tyres stored

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
BROKEN HILL WASTE DEPOT
WILLS STREET
BROKEN HILL
NSW 2880
LOT 17 DP 39679, LOT 7 DP 757294, LOT 9 DP 757294

A3 Other activities

A3.1 This licence applies to all other activities carried on at the premises, including:

Ancillary Activity
Composting and Related Reprocessing or Treatment

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 Broken Hill Landfill Environmental Management Plan prepared by RW Corkery & Co Pty Ltd ("the LEMP"), dated February 2005 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 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.

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.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Groundwater quality monitoring		Piezometer labelled Bore 'BH1' as shown on Broken Hill Waste Management Facility Layout Plan, EPA electronic record DOC23/701894.
2	Groundwater quality monitoring		Piezometer labelled Bore 'BH2' as shown on Broken Hill Waste Management Facility Layout Plan, EPA electronic record DOC23/701894.
3	Groundwater quality monitoring		Bore outside the landfill northeast boundary fence labelled Bore 'BH3' as shown on site plan titled Broken Hill Waste Management Facility Layout Plan, EPA electronic record DOC23/701894.

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 Waste

L2.1 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.
This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
T140	Tyres	Waste tyres	Waste disposal (application to land) Waste storage	N/A
N120	Soils contaminated with a substance or waste referred to in Parts 1 or 2 of Schedule 1 of the Protection of the Environment Operations (Waste) Regulation 2014	Lead contaminated soil/dust from residential and commercial premises.	Waste disposal (application to land)	Lead contaminated soil/dust must not exceed 5 tonnes per annum. Waste must be disposed of in accordance with the Contaminated Waste Management Plan for the Broken Hill Waste Management Facility.
K130	Sewage sludge & residues	Sewage sludge and residues including nightsoil and septic tank sludge.	Waste disposal (application to land)	Sewage sludge and residues must only be accepted at the premises where there is no other facility available within the Broken Hill City Council area to legally accept the waste.
K110	Grease trap waste	N/A	Waste disposal (application to land)	Grease trap wastes must only be accepted at the premises where there is no other facility available within the Broken

				Hill City Council area to legally accept the waste.
NA	General or Specific exempted waste	N/A	Waste disposal (application to land)	N/A
R100	Clinical and related wastes	Clinical waste which does not contain any of the following: recognisable body parts, sharps waste, cytotoxic waste or radioactive waste and which was generated outside the Sydney metropolitan or extended regulated area may be disposed of at the premises.	Waste disposal (application to land)	This waste can be disposed of in amounts that do not exceed 200kg at any one time.
N220	Asbestos	Waste including asbestos waste in bonded matrix and asbestos fibre and dust waste resulting from the removal of thermal or acoustic insulating materials or from processes involving asbestos material, and dust from ventilation collection systems.	Waste disposal (application to land)	Disposal of asbestos must be in accordance with Clause 42 of the Protection of the Environment Operations (Waste) Regulation 2005.
NA	General solid waste (non-putrescible and putrescible)	General solid waste classified as putrescible or non-putrescible following Part 1: Classifying Wastes of the Waste Classification Guidelines (2008).	Waste disposal (application to land)	N/A

L2.2 Condition L2.1 only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if those activities require an environment protection licence.

L2.3 Except as provided by any other condition of this licence, only the hazardous and/or industrial and/or non-aqueous liquid and/or controlled aqueous liquid and/or liquid grease trap waste resulting from the preparation or manufacturing of food and/or liquid food listed above may be treated, processed, reprocessed or disposed of at the premises.

Clinical waste of type specified in condition L2.1 and grease trap and septic tank waste may be disposed of.

L2.4 The total tonnage of wastes defined in condition L2.1 disposed of at the premises must not exceed 60,000 tonnes in any reporting period.

L2.5 The quantity of special waste defined in condition L2.1 of this licence disposed of at the premises must not exceed 30 tonnes per reporting period.

L2.6 The quantity of asbestos waste defined in condition L2.1 of this licence disposed of at the premises must not exceed 350 tonnes per reporting period.

L2.7 The licensee must not dispose of any tyres on the premises which;
a) have a diameter of less than 1.2 metres; and
b) are delivered at the premises in a load containing more than 80 whole tyres; and
c) became waste in the Sydney Metropolitan Area.

L2.8 Tyres stockpiled on the premises must:
a) not exceed four hundred and fifty (450) tonnes of tyres at any one time; and
b) be located in a clearly defined area away from the tipping face; and
c) be managed to control vermin; and
d) be managed to prevent any tyres from catching fire.

L2.9 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.

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.

O3 Dust

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.

Environment Protection Licence

O4 Emergency response

O4.1 The licensee must have in place and implement proceedures to prevent fires at the premises as identified in section 5.7 of the LEMP to minimise the risk of fire at the premises.

O4.2 The licensee must extinguish fires at the premises as soon as possible.

O5 Processes and management

O5.1 The drainage from all areas at the premises which will liberate suspended solids when stormwater runs over these areas must be diverted into in a manner discribed in section 3.4 of the LEMP.

O5.2 The licensee must take all practicable steps to control entry to the premises.

O5.3 The licensee must install and maintain a high wire mesh fence of not less than 1.8 metres around the active tipping area.

O5.4 The licensee must install and maintain lockable security gates at all access and departure locations.

O5.5 The licensee must ensure that all gates are locked whenever the landfill is unattended.

O5.6 The licensee must implement the litter management program specified in section 5.3 of the LEMP.

O5.7 The licensee must control pests, vermin and weeds at the premises.

O5.8 The licensee must train staff in accordance with section 6.3.6 of the LEMP.

O5.9 The licensee must ensure that adequately trained staff are available at the premises in order to administer the requirements of this licence.

O5.10 All work at the premises must be conducted between the following hours:
6 am to 6 pm 7 days a week.

O6 Waste management

O6.1 A leachate collection system designed according to section 3.3.3 & 3.3.4 of the LEMP must be installed on each surface within the premises to be used for the disposal of waste.

O6.2 Surface drainage must be diverted away from any area where waste is being or has been landfilled.

O6.3 There must be no incineration or burning of any waste at the premises.

Note: In this condition “waste” does not include materials incinerated under the supervision of the NSW Police Force or the NSW Agriculture Department.

O6.4 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.

O6.5 The licensee must manage the disposal of waste at the premises in accordance with the progressive filling plan detailed in section 2 of the LEMP.

O6.6 The licensee must minimise the tracking of waste and mud by vehicles.

O6.7 Cover material must be soil, clay and cracker dust.
a) Daily cover
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) Cover material stockpile
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.

O6.8 Any clinical waste disposed of at the premises must be packaged in accordance with the requirements set out in the document called NSW Health: Waste Management Guidelines for Health Care Facilities issued by the Department of Health and dated August 1998.

O6.9 Any clinical waste received at the premises must be:
a) buried, or
b) immediately contained
in a manner that prevents the waste coming into contact with any person or animal.

O6.10 The licensee must submit to the EPA within three months prior to the last load of waste being landfilled a closure plan in accordance with Section 76 of the Protection of the Environment Operations Act 1997.

O6.11 Materials that have absorbed oil must only be disposed in areas where there are clay or HDPE liners acceptable to the EPA.

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:

M2.2 Water and/ or Land Monitoring Requirements

POINT 1,2,3

Pollutant	Units of measure	Frequency	Sampling Method
Cadmium	milligrams per litre	Every 6 months	Grab sample
Calcium	milligrams per litre	Every 6 months	Grab sample
Chloride	milligrams per litre	Every 6 months	Grab sample
Conductivity	microsiemens per centimetre	Every 6 months	Grab sample
Hardness (as calcium carbonate)	milligrams per litre	Every 6 months	Grab sample
Lead	milligrams per litre	Every 6 months	Grab sample
Magnesium	milligrams per litre	Every 6 months	Grab sample
Nitrate	milligrams per litre	Every 6 months	Grab sample
Nitrogen (ammonia)	milligrams per litre	Every 6 months	Grab sample
pH	pH	Every 6 months	Grab sample
Phenols (non-halogenated)	milligrams per litre	Yearly	Grab sample
Potassium	milligrams per litre	Every 6 months	Grab sample
Sodium	milligrams per litre	Every 6 months	Grab sample
Standing Water Level	metres	Every 6 months	Inspection
Sulfate	milligrams per litre	Every 6 months	Grab sample
Total organic carbon	milligrams per litre	Every 6 months	Grab sample

M3 Testing methods - concentration limits

M3.1 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.

Environment Protection Licence

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

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 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

M6 Other monitoring and recording conditions

M6.1 The licensee must monitor the remaining disposal capacity (in cubic metres) of the landfill.

6 Reporting Conditions

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

1. a Statement of Compliance,
2. a Monitoring and Complaints Summary,
3. a Statement of Compliance - Licence Conditions,
4. a Statement of Compliance - Load based Fee,
5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,

6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

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.

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.

R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or 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').

R1.6 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.

R1.7 Within the Annual Return, the Statements 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.

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.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R2 Notification of environmental harm

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 they became aware of the incident.

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the

requirements of Part 5.7 of the Act.

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 Other reporting conditions

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.

7 General Conditions

G1 Copy of licence kept at the premises or plant

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.

Environment Protection Licence

Licence - 5898

Dictionary

General Dictionary

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 2009
AM	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 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
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 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 5898

flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 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 describe d at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
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 relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
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 mo nths. 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 waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 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
TM	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*.

Environment Protection Licence

Licence - 5898

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
Wellhead	Has the same meaning as in Schedule 1 to the Protection of the Environment Operations (General) Regulation 2021.

Mr Craig Bretherton

Environment Protection Authority

(By Delegation)

Date of this edition: 12-September-2000

Environment Protection Licence

Licence - 5898

End Notes

1	Licence varied by notice 1003187, issued on 25-Mar-2002, which came into effect on 19-Apr-2002.
2	Licence varied by notice 1030272, issued on 13-Oct-2003, which came into effect on 07-Nov-2003.
3	Licence varied by notice 1032348, issued on 25-Nov-2003, which came into effect on 25-Nov-2003.
4	Licence varied by notice 1068037, issued on 05-Jun-2008, which came into effect on 05-Jun-2008.
5	Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
6	Licence varied by notice 1093955, issued on 20-Nov-2008, which came into effect on 20-Nov-2008.
7	Licence varied by notice 1512708 issued on 26-Nov-2013
8	Licence varied by notice 1518976 issued on 20-Jan-2014
9	Licence varied by notice 1534737 issued on 15-Oct-2015
10	Licence varied by notice 1542579 issued on 19-Jul-2016
11	Licence varied by notice 1555360 issued on 17-Aug-2017
12	Licence varied by notice 1561459 issued on 12-Feb-2018
13	Licence varied by notice 1563940 issued on 02-May-2018
14	Licence varied by notice 1569966 issued on 20-Sep-2018
15	Licence varied by notice 1573267 issued on 03-Dec-2018
16	Licence varied by notice 1580793 issued on 14-Jun-2019
17	Licence varied by notice 1587125 issued on 21-Oct-2019
18	Licence varied by notice 1631955 issued on 24-Aug-2023

3.2. ATTACHMENT B - POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN

POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN

BROKEN HILL
CITY COUNCIL

AUSTRALIA'S FIRST
HERITAGE LISTED CITY

QUALITY CONTROL			
EDRMS REFERENCE	11/200	**FILE REFERENCE**	D20/42791
RESPONSIBLE POSITION	Waste and Sustainability Manager		
APPROVED BY	General Manager		
REVIEW DATE	16 May 2024, 25 July 2024		
EFFECTIVE DATE	**ACTION**	**ENDORSED BY**	
1 October 2021	Approved	General Manager	
July 2024			
NOTES	Front Cover Image: Broken Hill Waste Management Facility. Images sourced from Council's Image Library © Copyright Broken Hill City Council 2020		
ASSOCIATED DOCUMENTS	Landfill Environment Management Plan		

TABLE OF CONTENTS

1. PURPOSE

The Broken Hill City Council holds an Environment Protection Licence with the NSW Environment Protection Authority (EPA) for the Broken Hill Waste Management Facility. As per the *Protection of the Environment Operations Act 1997* (the POEO Act), the holder of an Environment Protection Licence must prepare, keep, test and implement a Pollution Incident Response Management Plan (PIRMP) that complies with Part 5.7A of the POEO Act in relation to the activity to which the licence relates.

If a pollution incident occurs in the course of an activity so that material harm to the environment (within the meaning of section 147 of the POEO Act) is caused or threatened, the person carrying out the activity must **immediately** implement this plan in relation to the activity required by Part 5.7A of the POEO Act.

A copy of this plan must be kept at the Broken Hill Waste Management Facility and be made available on request by an authorised EPA officer and to any person who is responsible for implementing this plan.

Parts of the plan are also available on the Broken Hill City Council website. The sections of the plan that are required to be publicly available are set out in clause 98D of the Protection of the Environment Operations (General) Regulation 2021.

This plan was developed in accordance with the *Protection of the Environment Operations Act 1997* and the Protection of the Environment Operations (General) Regulation 2009 and reflects the EPA's *Guideline: Pollution Incident Response Management Plans, Update 2019*.

A standalone BHWMF Emergency Procedure 2021 has been developed under the requirements of Work Health and Safety legislation and is attached as Appendix G.

2. ENVIRONMENT PROTECTION LICENCE (EPL) DETAILS

Name of licensee: (Including ABN)	Broken Hill City Council ABN: 84873116132
EPL number:	5898
Premises name and address:	Broken Hill Waste Management Facility 1 Wills Street, BROKEN HILL NSW 2880
Company or business contact details:	**Position or title:** Waste and Sustainability Manager **Contact number:** 08 8080 3177 **After-hours contact number:** 0409 316 103
Website address:	https://www.brokenhill.nsw.gov.au/Home
Scheduled activity/activities on EPL:	Waste processing (non-thermal treatment) Waste disposal (application to land) Waste Storage
Fee-based activity/activities on EPL:	Non-thermal treatment of hazardous and other waste Waste disposal (application to land) Waste Storage – waste tyres

3. POLLUTION INCIDENT – PERSON/S RESPONSIBLE

Contact details must include the names, position titles and 24-hour contact details. Details are to include alternative person/s, should the primary contact be unavailable.

PIRMP Activation:	**PRIMARY CONTACT** **Position or title:** Waste Coordinator **Contact details:** 08 8080 3116 **After-hours contact number:** 0409 712 776 **ALTERNATIVE CONTACT** **Position or title:** Leading Hand Waste Services Operator **Contact details:** 08 8080 3149 **After-hours contact number:** 0458 242 190
Notifying Relevant Authorities:	**PRIMARY CONTACT** **Position or title:** Waste and Sustainability Manager **Contact details:** 08 8080 3177 **After-hours contact number:** 0409 316 103 **ALTERNATIVE CONTACT** **Position or title:** Waste Coordinator **Contact details:** 08 8080 3116 **After-hours contact number:** 0409 712 776
Managing Response to Pollution Incidents:	**PRIMARY CONTACT** **Position or title:** Waste Coordinator **Business hours contact number:** 08 8080 3116 **After-hours contact number:** 0409 712 776 **ALTERNATIVE CONTACT** **Position or title:** Leading Hand Waste Services Operator **Contact details:** 08 8080 3149 **After-hours contact number:** 0458 242 190

4. NOTIFICATION OF RELEVANT AUTHORITIES

The notification of the relevant authority when material harm to the environment is caused or threatened must be 'immediate', meaning 'promptly without delay'. Where the pollution incident causes or threatens material harm to the environment or human health, the following authorities must be notified by those authorised to notify relevant authorities.

The Site Supervisor should call 000 if the incident presents an immediate threat to human health and/or property and a combat agency is required (i.e. NSW Fire and Rescue, NSW Ambulance Service, NSW Police Force) and then notify all other parties below including NSW Fire and Rescue via a local telephone number (see Relevant Authorities Contact Details table).

Relevant authorities include:

- Fire & Rescue NSW and/or Rural Fire Service as applicable.
- EPA
- NSW Health
- SafeWork NSW
- Broken Hill City Council

RELEVANT AUTHORITIES CONTACT DETAILS		
Fire & Rescue NSW/ Rural Fire Service	**Contact number:**	000 (first notification) Ph: 08 8087 2233
EPA	**Contact number:**	Griffith Regional Office Ph: 02 6969 0700 Emergency Hotline Number Ph: 131 555 (24 hours)
NSW Health	**Relevant Area Health Service Contact number:**	Ph: 08 8080 1499 Public Health Officer on Call (24 hours) Mob: 0417 685 259
SafeWork NSW	**Contact number:**	Ph: 131 050
Broken Hill City Council	**Contact number:**	Ph: 08 80803300 A/Hs Mobile: 0409 712 776

5. NOTIFICATION OF NEIGHBOURS AND THE LOCAL COMMUNITY

The council will notify neighbours initially by telephone, following up with 'door knocking' if unresponsive. If warnings are required, these can be issued via ABC radio and social media.

Identified owners or occupiers of premises in the vicinity of the Broken Hill Waste Management Facility are included in Table 1.

A summary of the neighbour notification procedure is provided in the Pollution Incident Decision Flow Chart in Appendix A.

Table 1: List of Neighbours to be Notified.

PROPERTY	ADDRESS	OWNER
Cremona Stud	700 Barrier Highway, Broken Hill, NSW 2880	Greg Wilkins PO Box 996 Broken Hill 80886855
Local Land Services	724 Barrier Highway, Broken Hill, NSW 2880	Local Land Services Ph: 08 8087 3378
Essential Water	33 Wills Street, Broken Hill, NSW 2880	Sewage Treatment Plant Office Ph: 13 23 91 (24 hrs.)
Transgrid (Electricity Transmission Authority)	76 Pinnacles Road, Broken Hill, NSW 2880	1800 027 253 (emergencies)
Essential Energy	66-68 Pinnacles Place, Broken Hill, NSW 2880	Essential Energy Regional Office Ph: 13 23 91 (24 hrs.)
Mutooroo Pastoral Company Pty Ltd	62-64 Pinnacles Place, Broken Hill, NSW 2880	Mutooroo Pastoral Company Pty Ltd
E C Andrews Drillcore Facility	42-56 Pinnacles Place, Broken Hill, NSW 2880	Dept of Planning and Environment 0429874891
Consolidated Broken Hill Holdings	70-72 Pinnacles Place, Broken Hill, NSW 2880	
Broken Hill Solar Plant	Barrier Hwy Broken Hill, NSW 2880	AGL – Ph: 1800 039 600 AGLCommunity@agl.com.au
Desert Rats Rod and Custom Club Inc	Barrier Hwy	Rob Lee 0427872548 Alternative Greg Wilkins

6. DESCRIPTION AND LIKELIHOOD OF HAZARDS

The primary potential hazards to human health or the environment associated with the activity undertaken at this site – ie 'Pollution Incidents' – include the following:

- Identifying non-domestic quantities (more than 200 millimetres per tonne or 200 grams per tonne) of hazardous substances among waste.
- Surface or subsurface fires.
- Mixing of waste and stormwater.
- Identification of any failure of an environmental protection system.
- Identification of a significant difference in groundwater indicator parameters.
- Acts of vandalism or targets of terrorist activity.
- Any other incident or observation that could potentially pose an immediate environmental hazard outside normal operating conditions.

Incidents can be classified as being of low, medium, or high risk of occurring (likelihood) based on the history of the facility, an assessment of management procedures, staff training and site layout.

The impact of an incident can be classed as low, medium or high based on the potential extent of off-site harm to humans and/or the environment.

The following is an assessment of potential pollution incidents and includes:

• **SURFACE OR SUBSURFACE FIRES**			
Active Landfill, Public Receival Areas, and Recycling Facility The BHWMF often deals with the sorting and deposition of combustible waste, coupled with the storage and use of some highly combustible chemicals and fuels.	**Medium Likelihood** The likelihood of a fire within the active landfill area is relatively high, for example, kerbside collection can include household fire embers and mulch can self-combust.	**Medium Impact** A fire of this nature could probably be contained due to the procedures and equipment in place. Therefore, the impact is classed as medium.	**Contributing Factors** Factors that may increase fire risk include high winds, dry weather, prolonged periods of high temperatures and low humidity, spontaneous combustion and hot embers in waste deliveries. Human errors made during waste screening and the poor maintenance of plant and equipment may spark a fire.
Maintenance and Inactive areas	**Low Likelihood** The storage of potential accelerants such as maintenance chemicals and fuels are undertaken onsite. These are stored securely and only utilised by trained staff. Minimal Risk.	**High Impact** If a fire were to initiate within the chemical storage areas or in an inactive area of the site, there is a high risk of spread offsite and to susceptible surrounding low-level stock grazing areas.	**Contributing Factors** Factors that may increase fire risk include high winds, dry weather, prolonged periods of high temperatures and low humidity.

• MIXING OF WASTE AND STORMWATER			
	Low Likelihood The site has a protective system of drainage, bunding and holding ponds which contain surface water and waste sufficient to manage a 1 in 100-year storm event. On-site roads are designed to channel and capture runoff. Evaporation rates are consistently high throughout the year due to low average annual rainfall and high annual average temperatures.	**Medium Impact** The site has a protective system of drainage, bunding and holding ponds which are likely to contain and prevent the immediate spread of surface water and waste outside the premises. The impact is considered to be medium due to the stormwater channel running southwards from the south-west corner of the site. Any pollutants that manage to reach the stormwater channel could cause harm to properties and environmental habitats for some distance south of the site.	**Contributing Factors** Prolonged periods of heavy rain and lack of surface water pond and site maintenance may increase risk.
• IDENTIFICATION OF ANY FAILURE OF AN ENVIRONMENTAL PROTECTION SYSTEM			
	Low Likelihood The site has a protective system of drainage, bunding, and holding ponds, and the surface water and groundwater of the premises are regularly monitored.	**Low Impact** The site has a protective system of drainage, bunding, and holding ponds and the surface water and groundwater of the premises are regularly monitored. This means any failure in this environmental protection system is likely to be identified well before there is potential for impact outside of the site.	**Contributing Factors** Prolonged periods of heavy rain and/or a mechanical failure of the pump at the stormwater pond may result in the stormwater flowing directly into the adjacent stormwater channel without first being deposited back onto the active landfill cell.

• **IDENTIFICATION OF A SIGNIFICANT DIFFERENCE IN GROUNDWATER INDICATOR PARAMETERS**			
	Low Likelihood The site has a protective system of drainage, bunding, and holding ponds, and the surface water, groundwater, surface gas and sub-surface gas of the premises are regularly monitored.	**Low Impact** The site has a protective system of drainage, bunding and holding ponds and the surface water and groundwater of the premises are regularly monitored. This means any significant difference in groundwater indicator parameters is likely to be identified well before there is a potential impact outside of the site.	**Contributing Factors** Prolonged periods of heavy rain may increase risk.
• **ACTS OF VANDALISM OR TARGET OF TERRORIST ACTIVITY**			
	Medium Likelihood The site is enclosed by secure fencing and some sections of the site are covered by CCTV cameras. Although the site is of limited strategic value in terms of being a potential target for terrorism, the premises may prove attractive to arsonists as it is isolated from habited areas and deals with the sorting and deposition of combustible waste, coupled with the storage and use of often highly combustible chemicals.	**Medium Impact** The site is surrounded by low-level stock grazing areas susceptible to fire.	**Contributing Factors** Increased risk during hours of closure and sustained periods of hot and dry weather.
• **ANY OTHER INCIDENT OR OBSERVATION THAT COULD POTENTIALLY POSE AN IMMEDIATE ENVIRONMENTAL HAZARD OUTSIDE NORMAL OPERATING CONDITIONS**			
	Low Likelihood The site has significant and advanced environmental protection measures and monitoring equipment.	**Low Impact** The site has significant and advanced environmental protection measures and monitoring equipment that are likely to identify,	**Contributing Factors** N/A.

		contain, and prevent the immediate spread of environmental hazards outside of the premises even outside of normal operating conditions.	
	Medium Likelihood Non-domestic quantities of hazardous waste could be discovered at the point of entry into the site, during waste deposition and/or during waste/recycling spreading, sorting, and/or compaction.	**Low Impact** The site has a protective system of drainage, bunding, and holding ponds which are likely to contain and prevent the immediate spread of hazardous substances outside of the premises.	**Contributing Factors** Human errors made during waste screening, or deception by landfill patrons.

7. PRE-EMPTIVE ACTIONS TO BE TAKEN

The following provides a detailed description of the pre-emptive actions to be taken to minimise or prevent any risk of harm to human health or the environment arising from the activities undertaken at the premises.

- **IDENTIFYING NON-DOMESTIC QUANTITIES OF HAZARDOUS SUBSTANCES**

  The following practices apply to the screening of incoming wastes:

  - Public access is only permitted during opening hours.
  - Drivers are asked to describe the type of waste to be deposited on entry to the Facility.
  - Inspections of waste loads are made when required.
  - Drivers are directed to the correct area of the facility (facility has clear signage)for disposal of specific loads
    (eg builder's wastes, greens, whitegoods, tyres, derelict cars, etc)
  - Wastes are monitored and inspected as they are being discharged to ensure excluded non-approved wastes are not being disposed; of and
  - Wastes are monitored and inspected during spreading, compaction and covering.

  The following steps are undertaken if non-domestic quantities of hazardous wastes are identified. A more detailed procedure is highlighted in the Safe Work Procedure (SWP) relating to Asbestos and the BHWMF Asbestos Management Plan 2024.

  - If identified at the point of entry, the vehicle is refused entry, and the driver is advised to contact the EPA for advice on proper disposal of the hazardous waste.
  - If identified during waste deposition, the waste facility operators immediately advise the Waste Leading Hand (Landfill Supervisor). The supervisor advises the driver that the waste is not acceptable and organises for the waste to be loaded back onto the vehicle, where practicable and safe to do so. The supervisor then escorts the load off-site and advises the driver to contact the EPA for advice on the proper disposal of the excluded waste.

- If identified during waste spreading and compaction the waste facility operators will:
  - Staff to notify Weighbridge staff that the area is contaminated and to close that area of the facility. Staff will section off contaminated areas.
  - Staff to notify the Waste Services Coordinator for direction.
  - Waste services Coordinator/staff will wear full PPE while evaluating the amount of Asbestos.
  - The site will be covered with water to avoid any chance of Asbestos becoming airborne.
  - **Less than 10m2 Asbestos.**
    - Staff will follow the procedure for disposal of Asbestos: Full PPE (Mask, gloves, coveralls)
    - Asbestos will be double bagged with 200-micron plastic and tape or 200-micron plastic bags. Ensuring no breakage.
    - Asbestos is then taken to the Asbestos Pit for disposal and covered with 500ml of Soil/dirt.
    - Removal of PPE is completed as per SafeWork Australia recommendations.

      All staff are trained in identifying Asbestos and the correct procedures for safe handling, PPE use, and disposal, by the Work Health and Safety Act 2011 Work Health and Safety Regulation 2017 , and Protection of the Environment Operations Act 1997
  - **More than 10m2 Asbestos.**
    - The Waste Services Coordinator will contact a licensed contractor to remove the Asbestos.
    - Contractor will supply the Council with a copy of their public liability insurance, Asbestos license, EPA consignment notice, Asbestos removal Control plan, and a notice of intent from SafeWork NSW. Once the job has been completed, they will provide a Visual Clearance Certificate.
    - The contractor will then dispose of the Asbestos into the Asbestos pit.
    - Staff will cover with 500ml of Soil/Dirt.

      All staff are trained in identifying Asbestos and the correct procedures for safe handling, PPE use, and disposal, by the Work Health and Safety Act 2011 Work Health and Safety Regulation 2017 , and Protection of the Environment Operations Act 1997

Any materials other than Asbestos that is still classified as a 'hazardous Substance' will be treated similarly to the above. If in doubt the Supervisor will contact the EPA or Safe Work NSW for advice.

- **SURFACE OR SUBSURFACE FIRES**

  The potential for fires to occur at the site are controlled by:
  - A security fence to prevent unauthorised access and acts of vandalism.
  - Maintaining machinery in good working order to minimise the risk of sparks.
  - Smothering immediately with soil or water sprayed from the water cart.
  - Adequately compacting and covering waste.

- Mulched green waste can spontaneously combust. This risk is minimised via shaping into divided windrows (ie small cones) to isolate/contain any fires.
- Regular litter patrols.
- Ensuring fire breaks are maintained around any temporary stockpile of combustibles.
- Access to on-site firefighting equipment; and
- Accepting only permitted wastes.

No compacting of construction/timber materials on days when:

- Temperature 38 degrees or above.
- Above 30km an hour wind.
- High fire danger warning issued by NSW Government.
- During extended 'High Fire Danger warnings' eg More than 10 days: The waste manager shall conduct a written risk assessment if compaction of construction/timber materials that need to be crushed to reduce the storage pile is to be completed, therefore reducing the risk of fire. This may be conducted after the assessment has been undertaken with no wind and low temperatures eg early morning.

In addition to the above preventative measures, operators at the Facility maintain the firefighting equipment to ensure that the on-site firefighting capability is maintained. Specifically, this involves:

- Ensuring that the water cart permanently located at the facility is full at all times and that it is positioned in a readily accessible location.
- Weekly testing of the tanker pump and checks that the motor is topped with fuel and oil; and
- Weekly checks that the overhead standpipe that feeds the water cart is functional.

- **MIXING OF WASTE AND STORMWATER**

  The potential for the mixing of waste and stormwater is controlled by ensuring that the level of the surface water ponds is regularly checked. If the level of a pond is too high and at risk of flooding, then the excess water is pumped back onto the active landfill site to create airspace.

- **ACTS OF VANDALISM OR TARGET OF TERRORIST ACTIVITY**

  The boundary road fence along Depot Road and Wills Street limits unauthorised access outside operational hours. All staff are required to be vigilant and aware that the site is a potential target for vandalism, particularly by arsonists. The boundary fence is checked daily and maintained as required following these checks.

8. INVENTORY OF POLLUTANTS

LOCATION/TANK	MAXIMUM QUANTITY	CONTENTS	COMMENTS
Oil Tank - CRC	55,000L	Waste Oil	Maximum of 2,500L on-site at any given time
Diesel Tank	2,000L	Diesel	Double Bunded

Asbestos Pit	125 tonnes	Asbestos Waste	Asbestos received and covered in accordance with EPA asbestos guidelines
SLUDGE PIT	200L		Grease trap and septic

9. SAFETY EQUIPMENT

The BHWMF maintains a water truck with advanced fire suppression and firefighting capabilities, including a remote-operated water cannon and low-positioned spray nozzles designed to target ground-level fires effectively. This vehicle is complemented by two 45,000-litre water tanks and can be mobilised immediately to the site of the fire as and when required. The Waste Transfer, weighbridge, and shed are protected from fire by several hose reels, fire extinguishers, and hydrants.

To manage leaks, chemicals such as diesel fuel are kept on mobile self-bunded trolleys to allow their safe use in less well-protected areas of the site. Spill Sorb (or similar) is present on-site to manage fuel and oil spills and is located at the Community recycling Centre (CRC station). The used Spill Sorb is then deposited in the landfill. In the event of a chemical spill, PPE is provided for onsite staff which consists of safety goggles, safety vests, ear plugs, masks and protective gloves.

Staff are required to wear steel cap boots, long pants and long-sleeved high visibility shirts at all times whilst on site.

The extra protective gear of safety glasses, ear plugs and protective gloves are also stored on site. These are checked daily and replaced if required.

Spill kits are provided at the waste oil area, the shed/lunchroom area and the bitumen area.

10. COMMUNICATING WITH NEIGHBOURS AND THE LOCAL COMMUNITY

Identify details of the mechanisms for providing early warnings and regular updates to owners and occupiers of premises in the vicinity of the premises to which the license relates or where the scheduled activity is carried out:

- **KEY MECHANISMS**

  Neighbours are to be notified in the event of an incident causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the *Environment Operations Act 1997,* which proposes a threat to the off lease surrounding environment.

  The council will notify neighbours initially by telephone, following up with 'door knocking' if unresponsive. If warnings are required, these will be issued via Media releases, the Council webpage, Council social media, radio, and newspaper adverts.

  The following will be considered when deciding what methods to employ and the extent of the communications with neighbors and the wider community:

  - The size of the emission or discharge.
  - The type of pollutant.
  - What the pollutant(s) might impact (eg water, land).
  - The size of the potentially impacted area.
  - Weather conditions.
  - Potential duration of the incident.

  Specific information to be provided to the community in the event of an incident so it can minimise the risk of harm, will include but not be limited to:

- **KEY MESSAGING**
  - Details of the type of incident.

- Potential threats of the incident.
- Likelihood of the incident and/or impacts.
- Timeframe of incident and clean-up operations.
- Primary community contact regarding the incident.
- How community members should respond (eg lock windows and stay indoors, leave the neighbourhood).
- Any land or waterways where contact should be avoided.

If a pollutant extends outside the facility, the Council may erect signage in prominent locations to warn users of possible contamination and to advise the affected area. Once any affected area is cleaned up and deemed safe to the public, the Council will inform the public and staff that regular activities may resume in the area.

11. MINIMISING HARM TO PERSONS ON THE PREMISES

In the event of a pollution incident occurring, all members of the public and other Council staff will be mustered by Council site staff to the Emergency Assembly Point at the front entrance of the facility (identified on Site Plan **09A_EV03**), after which they will be safely evacuated from the site where appropriate. It is a condition of entry that in the event of an emergency, both the public and staff must adhere to directions given by the Site Supervisor.

12. MAPS

Maps are attached in Appendix F.

13. ACTIONS TO BE TAKEN DURING OR IMMEDIATELY AFTER A POLLUTION INCIDENT

All site personnel with relevant training must make every effort to contain the pollution incident on site, without putting themselves at risk of harm.

ALL ACTIONS TAKEN DURING OR IMMEDIATELY AFTER A POLLUTION INCIDENT MUST BE IN ACCORDANCE WITH THE BHCC Emergency Procedures – Broken Hill Waste Management Facility (Attachment G).

In the case of a fire, attempts must be made – where safe – to extinguish or contain the fire immediately. This could be through the use of a fire extinguisher, fire hose, water cart, or smothering with cover material. The NSW Fire and Rescue must be notified.

In the event of a chemical spill that is not contained by bunding, Spill Sorb (or similar) must be used to restrict the spread of the chemical.

If the surface water ponds are nearing capacity, staff must initiate pumping of liquid back to the active landfill to retain headspace. If pollution is identified through groundwater or surface monitoring, procedures identified in the LEMP will be followed.

It is possible that the dumping of hazardous waste may occur outside the boundary, but in close visual proximity to the BHWMF outside of normal operational hours. In this instance, if the pollution is a risk of material harm to the environment and/or human health, then the NSW Fire and Rescue service should be contacted immediately. The initial response to the pollution and assessment of

the situation thereafter will be managed by the NSW Fire and Rescue service. Refer to Document A – Pollution Incident Decision Flow Chart in Appendix A for details.

The notification of the relevant authority when material harm to the environment is caused or threatened must be '*immediate*', meaning '*promptly without delay*', but it does not mean undertaking notification ahead of doing what is necessary to make the environment safe.

Develop a detailed description of how any identified risk of harm to human health will be reduced, including (as a minimum) employing early warnings, updates, and the action to be taken during or immediately after a pollution incident to reduce that risk:

- In the event of a pollution incident occurring during operational hours of 8 am to 4 pm, contact is to be made with the weighbridge operator **(0428 134 929)**, who will initiate the sound alarm advising everyone within the facility that an incident has occurred and to commence evacuation. Council site staff will immediately attend the access gate to ensure no members of the public enter the premises. All members of the public and other Council staff will be mustered by Council site staff to the Emergency Assembly Point at the front entrance of the facility (identified on Site Plan **09A_EV03**), after which they will be safely evacuated from the site where appropriate.

- It is a condition of entry that in the event of an emergency, both the public and staff must adhere to directions given by the Site Supervisor.

Identify any actions to be taken in combating the pollution caused by the incident and how any clean-up and associated funding resulting from an incident will be undertaken:

- **Hazardous Waste including Illegal Asbestos**
  - Non-domestic quantities of hazardous waste and/or asbestos could be discovered at the point of entry into the site, during waste deposition and/or during waste/recycling spreading, sorting and/or compaction.
  - If handled inappropriately Hazardous Waste including Illegal Asbestos can be a major health hazard to workers and the public.
  - Hazardous Waste including Illegal Asbestos must be managed in line with the Council's procedures and the Landfill Environmental Management Plan (LEMP).
  - If Hazardous Waste including Illegal Asbestos is found inappropriately dumped, the following procedure will be followed:
    - Evacuate the immediate area. If discovered at the Waste Transfer Station, the whole facility is to be evacuated following the evacuation plan.
    - Workers attending the incident must have full PPE including suit, gloves and mask.
    - A water truck to be employed to water down contaminants to eliminate windblown particle emission.
    - Double wrap in plastic and remove to asbestos pit.
    - Bury as per the asbestos procedure outlined in the Landfill Environmental Management Plan (LEMP).

- **Fire at Waste Facility**
  - Dial 000
  - Notify the weighbridge to close the facility and attend the gate to stop the public from entering the facility.
  - If safe to do so, small surface fires can be isolated from the remainder of the landfill by using earthmoving equipment to push waste or soil.

- All fires must be reported to NSW Fire & Rescue to determine if it is safe to isolate it or if it is deep, dig it out with an excavator.
- ALL ACTIONS TAKEN DURING OR IMMEDIATELY AFTER A FIRE MUST IN ACCORDANCE WITH THE BHCC Emergency Procedures – Broken Hill Waste Management Facility (Attachment G).
- Fire in Green Waste - Generally, these are smouldering fires and can often be readily isolated from the rest of the mulch heap using a loader or alternative earth-moving equipment. If safe to do so, the mulch can be spread thinly and hosed down until smouldering ceases.

NOTIFICATION OF FIRES TO THE EPA AND SAFEWORK NSW IS MANDATORY

14. COORDINATING WITH PERSONS

Identify the procedures to be followed for coordinating with the authorities or persons who have been notified:

If the incident poses an immediate threat to human health or safety, the absolute priority is calling triple zero '000'.

Then proceed with the following as required:

- Any environmental or pollution incidents must be reported immediately to the site supervisor.
- Then, if not already aware of the incident, the Waste and Sustainability Manager and Waste Coordinator must be notified when a decision is made on whether to notify external authorities.

In all situations, pollution incidents must be lodged in the BHCC Incident reporting app, DoneSafe. Internal incident reports are investigated, and corrective actions are instigated in accordance with Council procedures.

Notification to all external authorities is required immediately if any of the following circumstances occur as a result of a pollution incident:

i. There is actual or potential harm to the environment.
ii. There is actual or potential harm to human health or safety.

Identify the person/s through whom all communications are to be made:

- Notification to authorities will occur at the level of Manager (or someone delegated by the Manager), however, if personal contact cannot be made with any of the Coordinators or Managers listed then a staff member aware of a pollution incident causing (i) or (ii) or must immediately call the relevant external authorities.

- Notification is made by contacting the relevant external authorities listed under Notification of relevant authorities in this Plan. Contact must be made in the order shown in the list. If emergency services were notified as part of the immediate reporting process, they do not need to be notified again. If, at the time of making the notification, it is believed that some of these authorities do not need to attend the incident, you may provide that advice. However, you must still provide all the information you have regarding the incident to each authority. It is the responsibility of each authority to decide whether they need to attend the incident.

15. STAFF TRAINING

Identify the nature and objectives of any staff training program in relation to this plan:

All staff and relevant contractors will be inducted under the new plan; further inductions will be completed for new staff members as required. The induction must cover the purpose, requirements, and responsibilities detailed in this PIRMP.

All staff should receive sufficient training to enable them to carry out their assigned duties competently and safely. In particular:

- Staff must be capable of using the fire-fighting equipment.
- Staff must be capable of identifying excluded wastes.
- Staff must be capable of identifying potential pollution incidents; and
- Staff must be familiar with the requirements and procedures contained within this PIRMP.

Staff competency will be monitored through audits, public complaints and pollution incident reports.

At least once every year staff should undertake a simulated pollution incident response exercise, including with emergency services, to familiarise site personnel with the requirements of this management plan. A register of staff training can be found in **Appendix A** and must be kept on-site and updated regularly.

Regular site briefings and toolbox meetings should be held when considered appropriate to draw attention to potential pollution incidents and identify improvements to on-site safety procedures.

Consideration of **Section 3.2** '*Site Supervision, Control and Training'* in the Landfill Emergency Management Plan is required, and the staff training register (**Form 3.14c**) is to be updated as required.

15.1 TESTING AND UPDATING THE PIRMP

The PIRMP is a living document required to be reviewed, tested, and updated at least once every 12 months to ensure accuracy and effectiveness. A review must also be undertaken within one month of any pollution incident occurring. For these reasons, document control is an important part of the environmental management system. It is critical that PIRMP storage locations are made known to all relevant staff members and that only the latest version is in use. Details of the version and date of issue are recorded on each page of the PIRMP in the bottom left-hand corner.

Revised and updated versions of the PIRMP will always be issued with a cover memo summarising the changes. When a new PIRMP is received, the old version is replaced in its entirety. A register for updating and testing the PIRMP can be found in Appendix A and must be kept on-site and updated regularly.

Five copies of any new PIRMP will need to be produced. They are to be distributed to the following:

- General Manager (or delegate), Broken Hill City Council.
- Director Infrastructure and Environment, Broken Hill City Council.
- Waste and Sustainability Manager, Broken Hill City Council.
- Waste Coordinator, Broken Hill City Council; and
- Administration Manager, Broken Hill City Council.

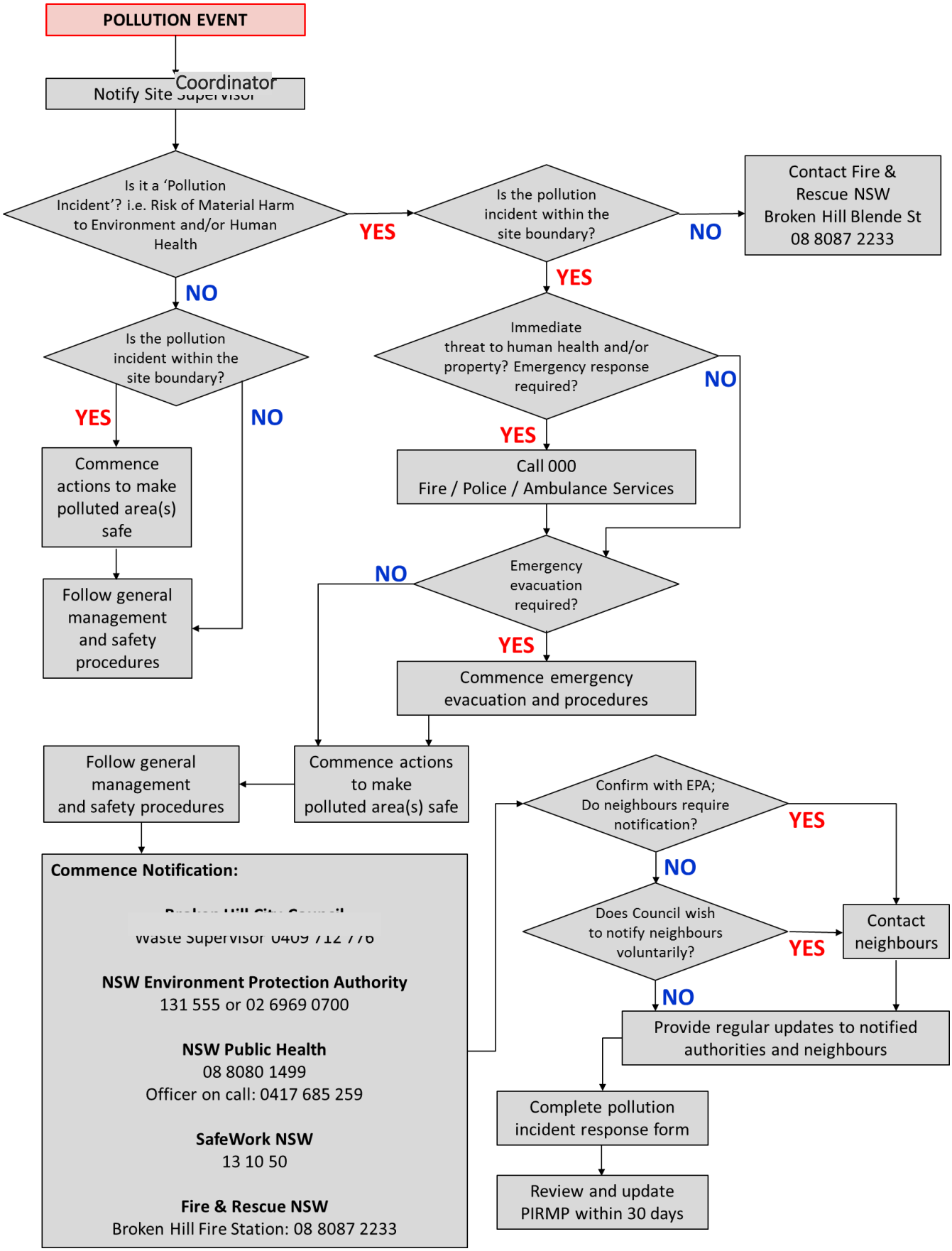
Mock emergency response training events for the premises are held at least annually and can include desktop exercises and practical exercises or drills. These events are utilised to demonstrate readiness and refine responses to specific scenarios for which Emergency Scenario Responses have been documented. De-briefing after the training event allows for further staff consultation and procedural refinement of the response. Within one month of a pollution incident occurring, an additional test of the PIRMP will be conducted to assess, in the light of that incident, whether the relevant responses can be implemented effectively. Details of the dates on which the plan was updated and tested are outlined in Appendices D and E - PIRMP Testing Register and PIRMP Update Register.

16. APPENDICES

APPENDIX A – POLLUTION INCIDENT CLASSIFICATION, RISK ASSESSMENT AND CONTRIBUTING FACTORS

DESCRIPTION OF POLLUTION INCIDENT	LIKELIHOOD	IMPACT	CONTRIBUTING FACTORS
Identifying non-domestic quantities of hazardous substances among waste	Medium	Low	Human errors made during waste screening. Deception by landfill patrons.
Surface or subsurface fires at active landfills, public received areas, or recycling facilities	Medium	Medium	High winds, dry weather, prolonged high temps and low humidity. Human errors were made during waste screening, poor maintenance of plant and equipment, spontaneous combustion, and hot embers in waste deliveries.
Surface or subsurface fires at maintenance and inactive areas	Low	High	High winds, dry weather, prolonged high temps, low humidity, and spontaneous combustion.
Mixing of waste and stormwater	Low	Medium	Prolonged periods of heavy rain, lack of surface water pond, and site maintenance.
Identification of any failure of an environmental protection system	Low	Low	Prolonged periods of heavy rain and/or a mechanical failure of the pump at the leachate pond.
Identification of a significant difference in groundwater indicator parameters	Low	Low	Prolonged periods of heavy rain
Acts of vandalism or target of terrorist activity	Medium	Medium	Increased risk during hours of closure
Any other incident or observation that could potentially pose an immediate environmental hazard outside normal operating conditions	Low	Low	n/a

APPENDIX B – POLLUTION INCIDENT DECISION FOW CHART



APPENDIX C – POLLUTION INCIDENT REPORTING FORM

BROKEN HILL CITY COUNCIL

POLLUTION INCIDENT REPORTING FORM

Office Hours: 8.30am – 5pm

240 Blende Street
PO Box 448
Broken Hill NSW 2880
council@brokenhill.nsw.gov.au
www.brokenhill.nsw.gov.au
General Enquiries
Phone: 08 8080 3300

INCIDENT NO:	TIME:
DATE:	**DURATION OF INCIDENT:**

NATURE OF INCIDENT:

TEMPERATURE:	**°C**	**WIND DIRECTION & SPEED:**	**KM/HR**
RELATIVE HUMIDITY:	**%**	**RAINFALL SINCE 9AM:**	**MM**
FIRE DANGER RATING:			

THE LOCATION OF THE PLACE WHERE POLLUTION IS OCCURRING OR IS LIKELY TO OCCUR:

THE NATURE, THE ESTIMATED QUANTITY OR VOLUME, AND THE CONCENTRATION OF ANY POLLUTANTS INVOLVED:

THE CIRCUMSTANCES IN WHICH THE INCIDENT OCCURRED, INCLUDING THE CAUSE OF THE INCIDENT:

THE CORRECTIVE ACTION TAKEN OR PROPOSED TO BE TAKEN TO DEAL WITH THE INCIDENT AND ANY RESULTING POLLUTION OR THREATENED POLLUTION:

NOTIFICATIONS:		
STAKEHOLDER	**DATE/TIME**	**CONTACT**
Broken Hill City Council	/ / AM/PM	
NSW Environment Protection Authority	/ / AM/PM	
NSW Public Health	/ / AM/PM	
SafeWork NSW	/ / AM/PM	
NSW Fire & Rescue	/ / AM/PM	

NOTIFICATION OF NEIGHBOURS REQUIRED BY EPA:	
YES ☐	NO ☐
IF NOT, HAVE NEIGHBOURS BEEN NOTIFIED VOLUNTARILY:	
YES ☐	NO ☐

PARTICULARS:

DECLARATION:	
SIGNATURE:	DATE: / /
DIRECTOR INFRASTRUCTURE AND ENVIRONMENT SIGNATURE:	DATE: / /

APPENDIX D – PIRMP TESTING REGISTER

DATE TESTED	TESTED BY	DETAILS OF TEST	FINDING OF TEST, including issues identified	NEXT SCHEDULED TESTING DATE (must be within 12 months from the current test)
October 2015	Brendan Stuart (Geolyse)	Simulations: 1. Excluded waste rejected 2. Fire (lightning) at tipping face 3. Unidentified waste observed	Contact details out of date.	
September 2016	Training of all waste staff completed 2 September and 6 September 2016.	Testing with scenarios. Training completed internally	Process reviewed and found adequate following two fires on site – May 2016 and July 2016	
September 2017	Training of all waste staff completed 27 September and 28 September 2017.	Testing with scenarios. Training completed internally		
October 2020	Internal Waste and Sustainability Manager	Desktop review Testing with scenarios Training completed internally	Contact details are out of date. Plan updated in line with new guidelines.	September 2021
February 2021	Internal Manager Sustainability Waste and Works	Desktop review	Update emergency response and mitigation measures.	December 2021
March 2021	Fire Response Training	Training in push and cover method of firefighting in conjunction with CFS and Fire and Rescue NSW. Training in water truck use and water cannon use.	All staff trained in emergency response.	March 2022

DATE TESTED	TESTED BY	DETAILS OF TEST	FINDING OF TEST, including issues identified	NEXT SCHEDULED TESTING DATE (must be within 12 months from the current test)
November 2021	NSW Fire and Rescue/BHCC Response Training	Training/Drill in water transfer from new BHCC water truck to NSWF&R unit to ensure uninterrupted water supply in fire response.	No issues were identified. Emergency response improvements inc new water storage on-site and a new BHCC water truck tested with positive results.	November 2022
February 2023	NSW Fire and Rescue/BHCC Fire Response	Staff implemented PIRMP with NSW Fire and Rescue in response to a small site fire.	PIRMP was followed. NSW Fire and Rescue supplied feedback that the response was well executed. No issues were identified.	February 2023.
January 2024	NSW Fire and Rescue/BHCC Waste Facility Staff	Staff implemented PIRMP with NSW Fire and Rescue in response to a small site fire.	PIRMP was followed. NSW Fire and Rescue supplied feedback that the response was well executed. No issues were identified.	January 2024
February 2024	NSW Fire and Rescue/BHCC Waste Facility Staff	Staff implemented PIRMP with NSW Fire and Rescue in response to a small site fire.	PIRMP was followed. NSW Fire and Rescue supplied feedback that the response was well executed. No issues were identified.	February 2025
March 2025	NSW Fire and Rescue/BHCC Waste Facility Staff	Staff implemented PIRMP with NSW Fire and Rescue in response to a small site fire.	PIRMP was followed. NSW Fire and Rescue supplied feedback that the response was well executed. No issues were identified.	March 2026

APPENDIX E – PIRMP UPDATE REGISTER

DATE UPDATE OCCURRED	REASON FOR UPDATE	DETAILS OF UPDATES	DATE THE UPDATED VERSION UPLOADED TO THE WEBSITE	DATE OF COMPLETION	DISTRIBUTED
March 2013	Annual Review	Contact Details Content check Website Upload	March 2013	March 2013	Trimmed electronically and copy provided for landfill
September 2014	Annual Review	Content check Contact Details	October 2014	October 2014	Trimmed electronically and copy provided for landfill
October 2015	Annual Review	Content of document updated to reflect changes at the facility, contact numbers checked and updated as required			Trimmed and updated copies provided for landfill. Senior staff notified that updated copies are now available
September 2017	Annual Review	Content updated to reflect changes on site including hours and operations. Contact details checked and updated where required.			Saved in TRIM (version 8). Copies were provided to staff in training sessions and copies were taken to the landfill.
February 2019	Review	Contact Details Content Check and corresponding amendments.			
December 2019	Update/review after fire incident	Contact Details Updated to reflect new guidelines. Community notification response updated. Pollutant register updated. Maps updated			
September 2020	Review and update to new 2019 Guidelines	Contact Details Content check Website Upload	October 2020	October 2020	Saved in TRIM. Copies were provided to staff in training sessions and copies were taken to the landfill.

February 2021	Update/review after fire incident	Contact Details reviewed – no changes. Standalone Emergency Procedure included in plan as Appendix G. Mitigation measures updated to include no compaction of construction/timber material in adverse conditions.			
November 2021	Update and review	Contact and content check			Electronically updated Trim. Hard copies were provided to BHWMF.
January 2022	Update/review after fire incident	Document and Contact Details reviewed – no changes.			Electronically updated Trim. Hard copies were provided to BHWMF.
July 2022	Update	Detailed survey plan updated.			Electronically updated Trim. Hard copies were provided to BHWMF.
March 2023	Updated	Contact Details changed. Minor content changes		April 2023	Electronically updated Trim. Hard copies were provided to BHWMF.
May 2024	Updated	Contact Details changed. Information reviewed with no changes		May 2024	Electronically updated Trim. Hard copies were provided to BHWMF.
May 2025	Updated	New formatting, contact details updated, Information reviewed, and remains relevant. Risk register updated.			

APPENDIX F – PLANS

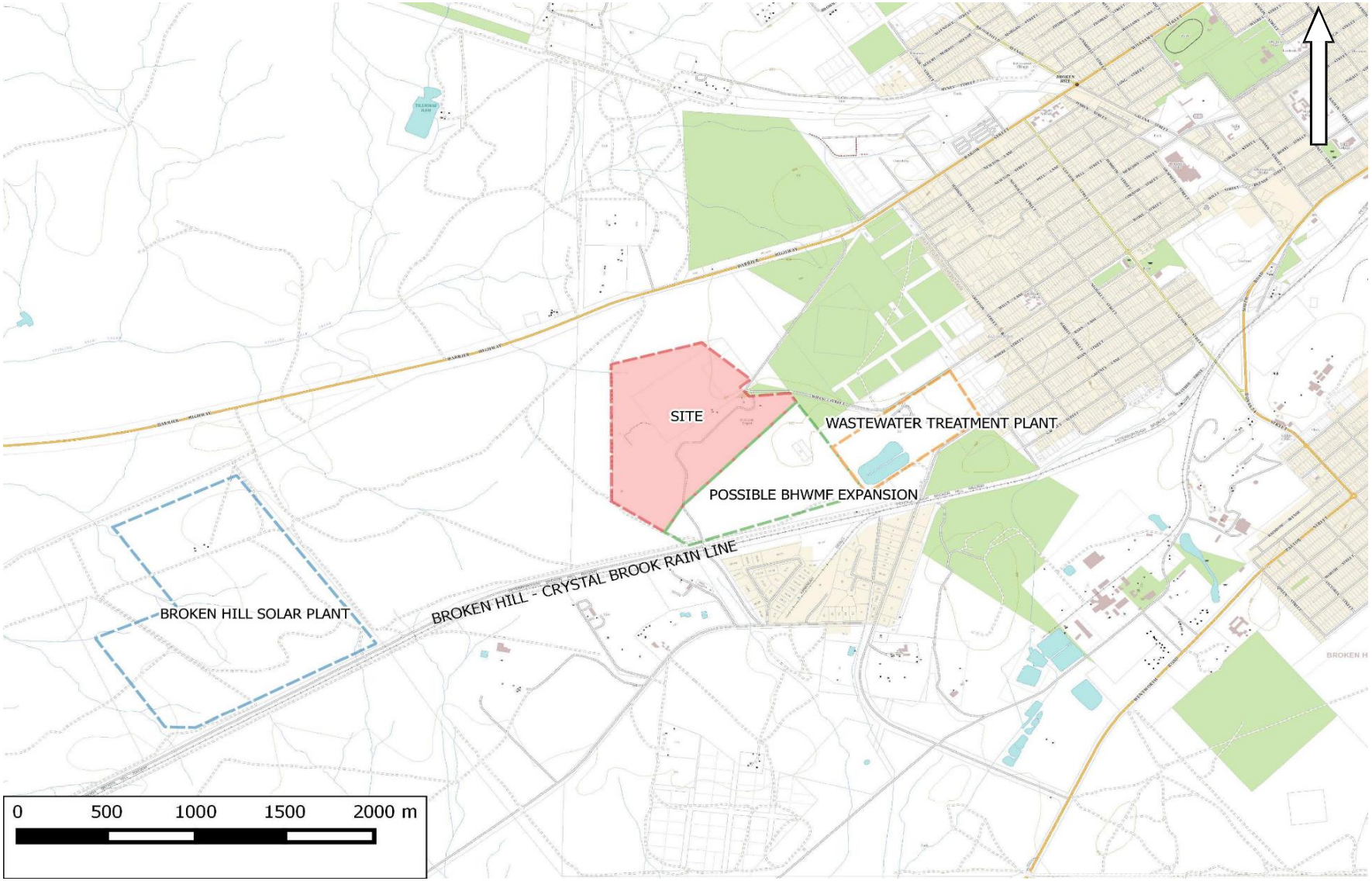


Figure 1. Broken Hill Waste Management Facility locality map

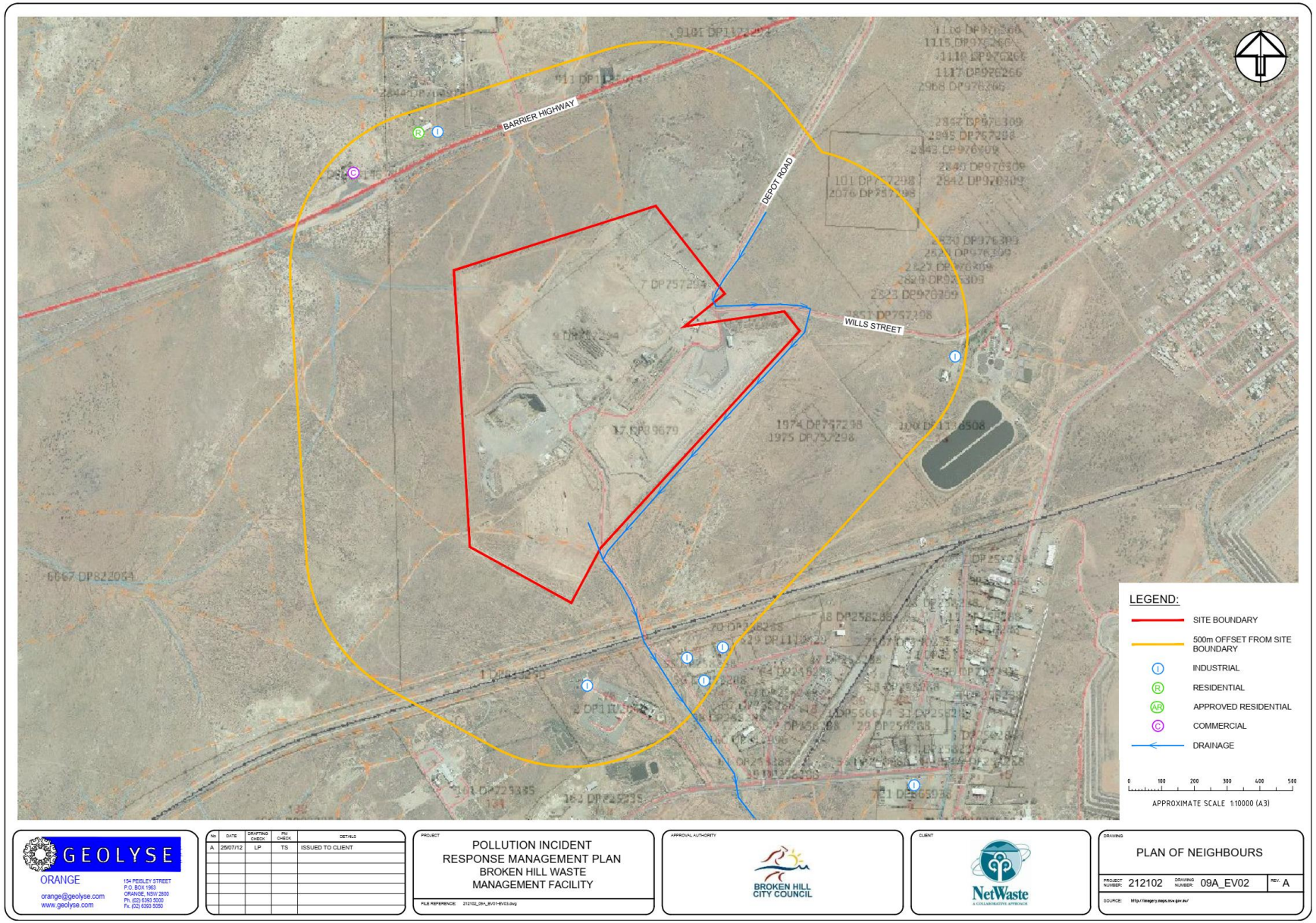


Figure 2. *Broken Hill Waste Management Facility surrounding environment*

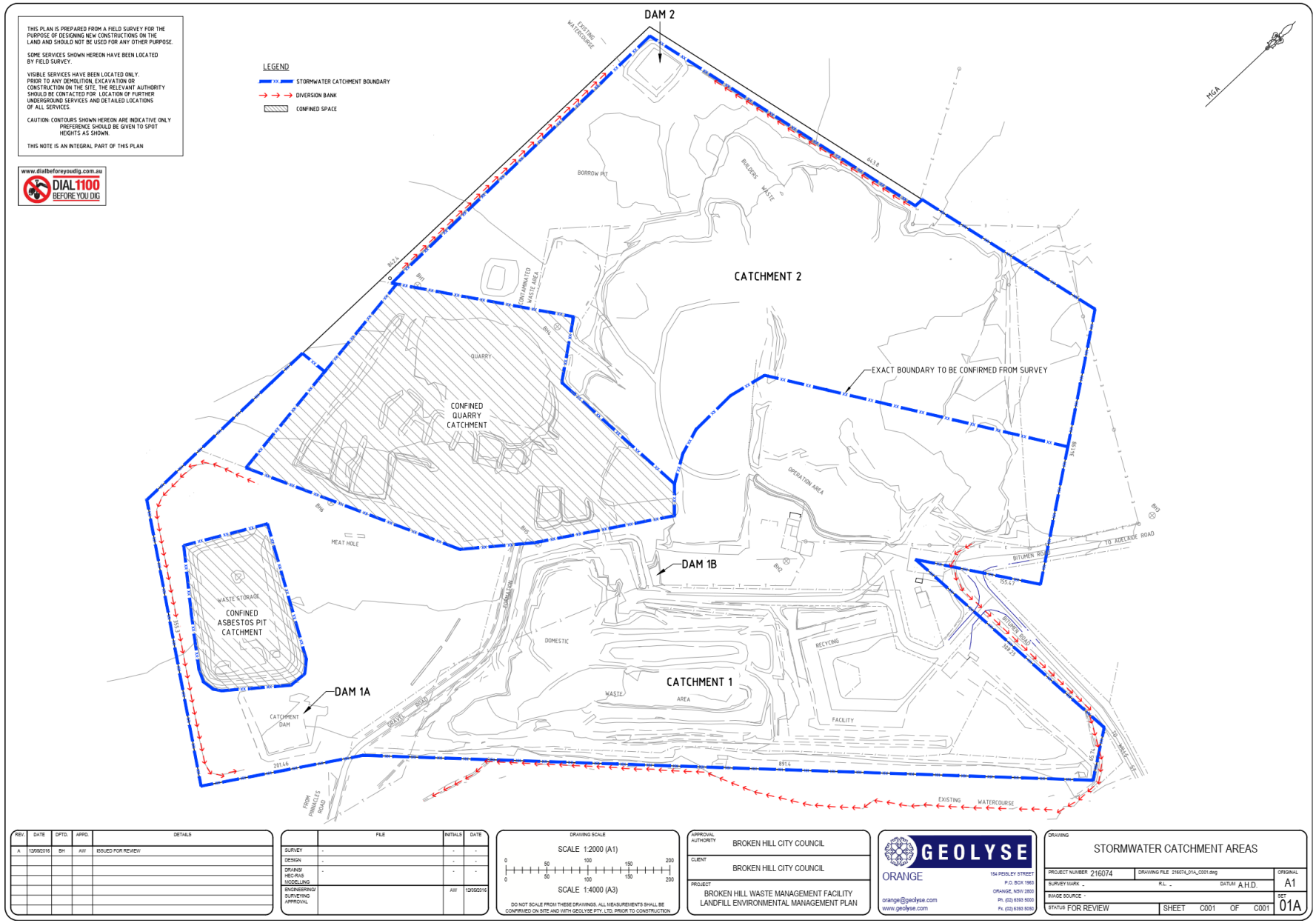


Figure 3. Broken Hill Waste Management Facility Stormwater Catchment Areas

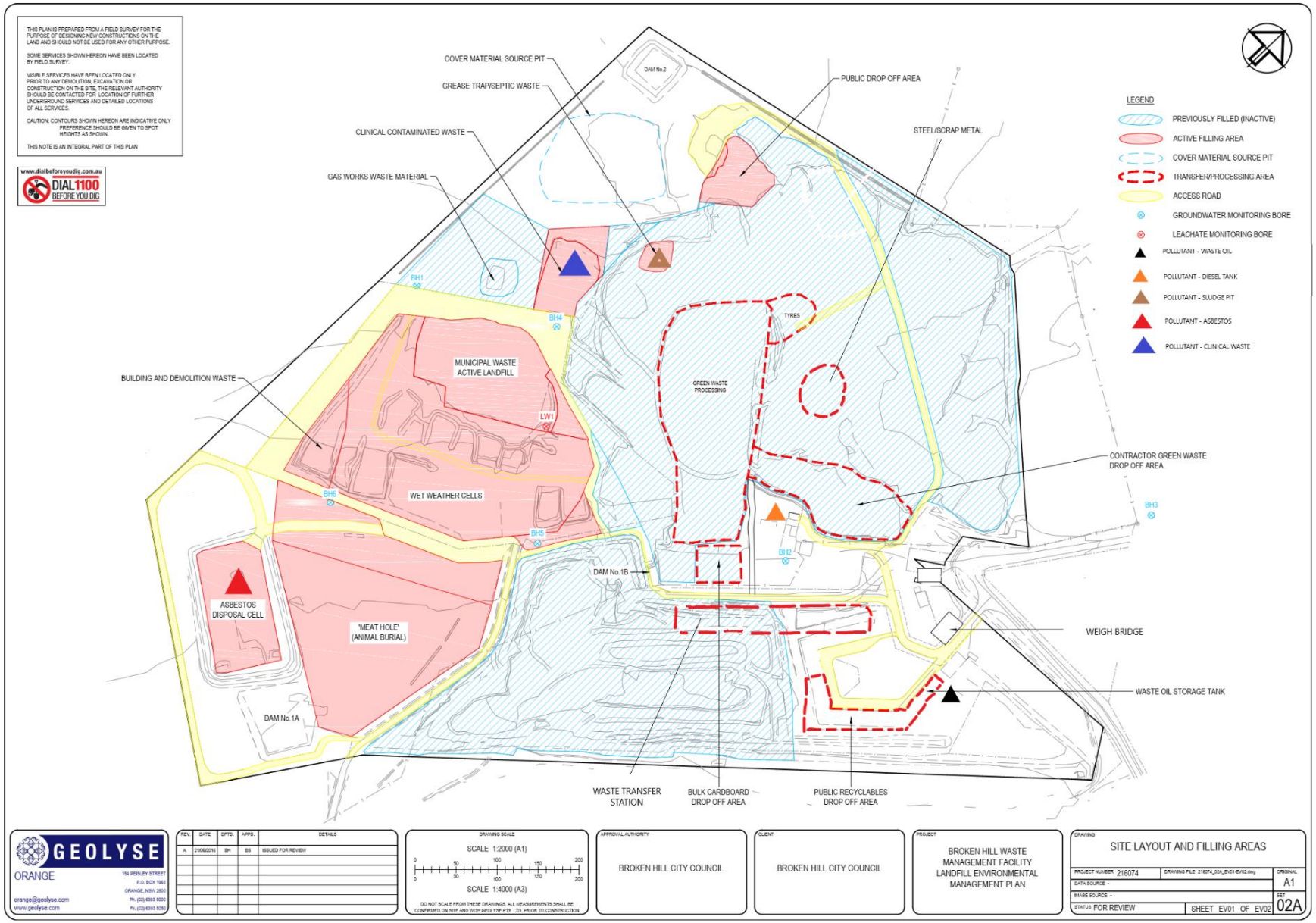


Figure 4. Broken Hill Waste Management Facility Layout Plan showing pollutant locations

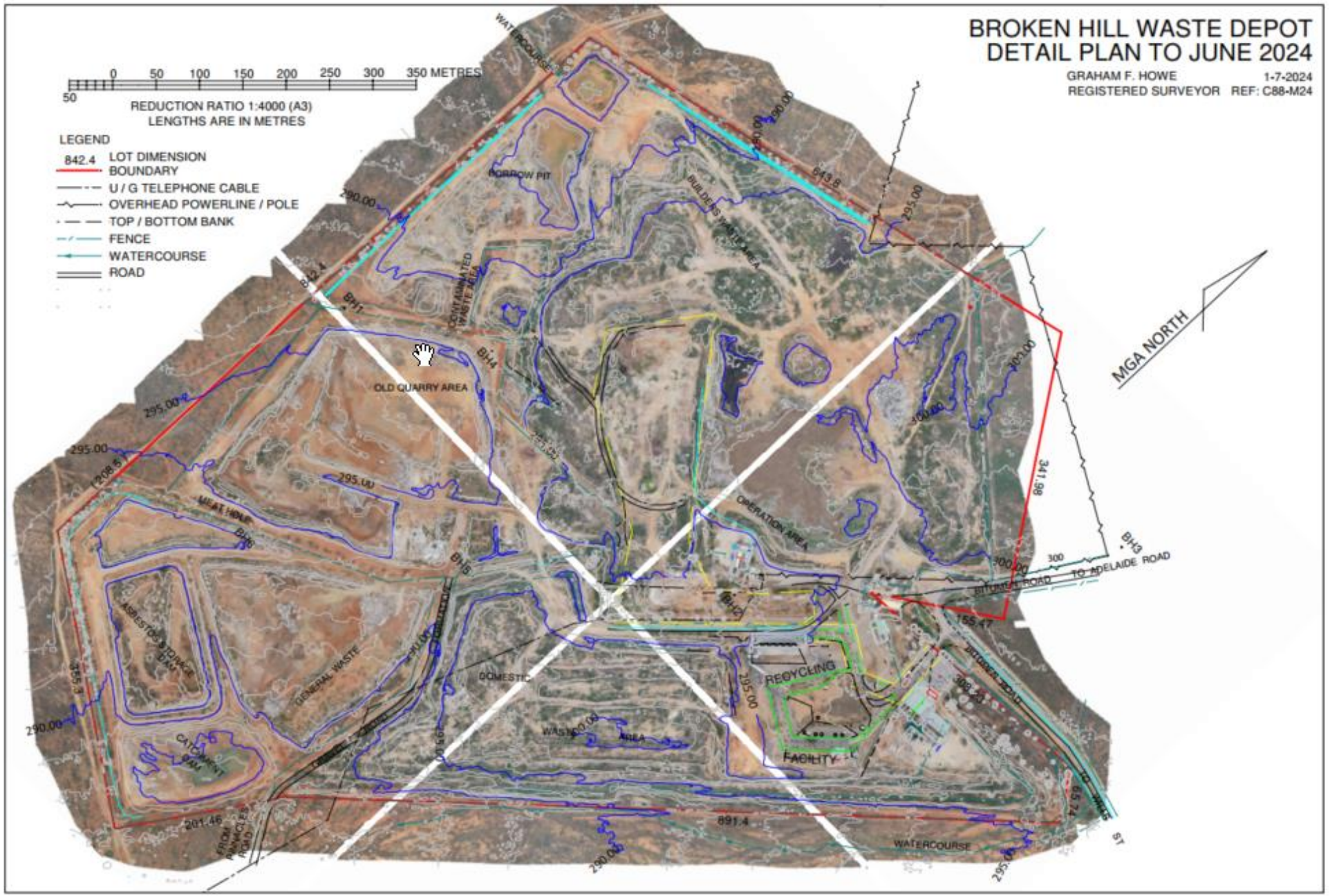


Figure 5. Broken Hill Waste Management Facility 2024 Survey Plan

Waste Management Facility

EMERGENCY RESPONSE PROCEDURES

BROKEN HILL
CITY COUNCIL

AUSTRALIA'S FIRST
HERITAGE LISTED CITY

EMPLOYEE ASSISTANCE PROGRAM

EMERGENCY CONTACT NUMBERS		
Emergency Services	Police, Ambulance, NSW Fire and Rescue, Ambulance (Via Mobile)	000 112
NSW Fire and Rescue		08 8087 2233
EPA		131555
Marisa Pickett	Waste and Sustainability Manager	0880803177 0409316103
Lyle Maguire	Waste Services Coordinator	08 80803116 0409712776
Chris Manoel	L-H Waste Services Operator	0458242190
Andrew Finlayson	GTE Contractors - Manager	0438688443
Weighbridge		0428134292
UHF Channel		2
EAP	Workplace Options	Free Phone 1800 730 931 Direct Dial 02 8046 6416

EMERGENCY RESPONSE PERSONNEL			
Warden	**Phone**	**Email**	**Work Area**
Wade Nilsen	0422144687	Wade.Nilsen@brokenhill.nsw.gov.au	BHWMF
Cathryn Horne	0477536628	Cathryn.Horne@brokenhill.nsw.gov.au	BHWMF
Chris Manoel	0458242190	Chris.Manoel@brokenhill.nsw.gov.au	BHWMF
First Aid			
Peter Bessell	0488576151	Peter.Bessell@brokenhill.nsw.gov.au	BHWMF
Wade Nilsen	0422144687	Wade.Nilsen@brokenhill.nsw.gov.au	BHWMF
Cathryn Horne	0477536628	Cathryn.Horne@brokenhill.nsw.gov.au	BHWMF
Randall Pettitt		Randall.Pettitt@brokenhill.nsw.gov.au	Mobile Operator
Dale Turner		Dale.Turner@brokenhill.nsw.gov.au	Mobile Operator
Mason Ferguson		Mason.Ferguson@brokenhill.nsw.gov.au	Mobile Operator
Rodney Tozer		Rodney.Tozer@brokenhill.nsw.gov.au	BHWMF
Ebony Bessell		Ebony.Bessell@brokenhill.nsw.gov.au	Weighbridge

EMERGENCY RESPONSE ASSETS

Emergency Communication	Portable Air Horn - Mobile Phone – Verbally (face to face) - UHF Channel 2
Emergency Assembly Point	Entry Gate
Warden / Incident Control Point	Weighbridge / Crib Room
Warden Identification	White Vest – Chief Warden
Site Plan / Map	Weighbridge / Crib Room / Intranet
First Aid Kits	Weighbridge, Crib Room, Mobile Plant
Defibrillator	Weighbridge
15kl Water Truck	Fitted with sprinkler system and water cannon
2 x Loaders - 1x Dump Truck	Available to load / transport soil
Stockpiled Soil	Located at strategic locations for current operations
Air Horns	Located in Weighbridge - Additional units available for mobile plant if required

WARDEN - INCIDENT CONTROLER - SUPERVISORS - COUNCIL OFFICERS

Evacuation

1. Consider if a broader evacuation is required.
2. Raise the alarm/alert all persons to commence an orderly evacuation of the waste facility immediately.
3. Coordinate, instruct and communicate the emergency response to Council Personnel.
4. All Council officers must report to the Emergency Assembly Point at the entry gate of the facility or as instructed.
5. All persons must follow all reasonable instruction from the Warden, Incident Controller, Council Officer or Emergency Services Personnel.

Fire

1. If safe to do so, coordinate local fire- fighting efforts (no larger than 2m2).
2. Ensure that all non-essential persons are evacuated from the immediate vicinity (200m) exclusion zone.
3. Consider if a broader evacuation is required.
4. Ensure that the Fire NSW/Emergency Services have been advised.
5. Prepare Fire Fighting equipment as instructed by FRNSW (loader, water tanker etc).
6. Provide a current plan of the BHWMF to FRNSW/Emergency Services/Police if required.
7. Must remain on site for the entirety of the incident (or until relieved) to liaise and coordinate all instructions issued by FRNSW / Emergency Services/Police.

Reporting

1. Ensure Senior Management or Risk Team are advised at soon as practicable.
2. Notifiable incidents will be reported to SafeWork by the Risk Team or Responsible ELT Manager
3. Under no circumstances must any BHCC employees, volunteers, contractors, or officers make any comment or release any visual images to a media organisation or on a social media platform regarding any emergency at Council operated facilities.
4. All Emergency Events and Incidents must be recorded in Vault as soon as reasonably practicable.

Investigation

1. All notifiable incidents and emergencies will be investigated by authorised/nominated Council Officer.
2. Investigations will comply to the WHS Regulation.

Employee Assistance Program	**Council's EAP program is available to all personnel or family members that may be adversely impacted after being involved in or exposed to and emergency**

EMERGENCY

EVACUATION

1. All persons must respond emergency communications or alarms.

WOOP… WOOP… Evacuate.

2. The Weighbridge operator must communicate the approximate location of all vehicles, members of the public and contractors who have entered the facility to the waste facility operators by UHF 2

3. Waste facility personnel must alert members of the public or contractors that don't hear the alarm of the emergency and commence an evacuation.

4. The weighbridge operator or nominated officer must close the gate to prevent access into the facility to all persons not involved in the emergency.

5. A nominated waste facility operator must stay the front gate and ensure that only Emergency Service Workers' have access to the facility.

6. Waste facility personnel must report to the Emergency Assembly Point at the entry gate even if they have used the alternative emergency exits.

7. Waste facility operators must confirm status of the evacuation to the responsible person.

8. Only nominated waste operators / council representatives can remain on the premises in an Emergency.

9. All officers must wait for instruction from Emergency Services before re- entering the facility.

FIRE

ALL FIRES AT THE WASTE FACILITY MUST BE REPORTED TO FRNSW – OOO EMERGENCY

RESCUE PEOPLE

1. You must consider your own safety first.
2. *Remove all persons from the immediate danger* ***IF SAFE TO DO SO***

ALARM

1. *Council personnel must notify weighbridge officer of all fires.*
2. *Council operators and members of the public must evacuate the facility in the event of any uncontrolled fire.*
3. *The weighbridge officer must initiate an Evacuation of the Facility.*
4. *The weighbridge officer must call 000 (FRNSW) immediately.*
5. *If the weighbridge officer is not available, the waste facility officer must contact 000.*
6. *When reporting fires to the 000 – Call centre you must advise:*
    - *The status of the fire/materials/location.*
    - *Whether the fire has been extinguished and controlled.*

CONTAIN FIRE & SMOKE

1. *Council officers must only attempt to contain a fire using the correct firefighting equipment and must be trained.*
2. *Waste Facility operators may attempt to apply soil to a naked flame that is no larger than 2m2.*
3. *Adequate soil must can be applied onto a naked flame.*
4. *Waste facility operators must NEVER drive a vehicle into a flame.*
5. The water truck and cannon can be used contain/extinguish small fires.
    a) *If the flame has been extinguished after applying soil the waste facility operator must apply water to the area to ensure no re-ignition or flare up occurs and monitor the area.*
    b) If a fire is extinguished prior to FRNSW arrival the area must quarantined and inspected by a FRNSW representative and cleared before the facility/vicinity is reopened for operations.

EXTINGUISH

1. *Waste operators must never attempt to fight or control a large fire.*
2. *FRNSW will attend and extinguish large fires at the facility.*

FIRE PREVENTION

Fires present significant risk to Health and Safety of persons and the Environment at the 'Broken Hill Waste Facility' Controls must be implemented and maintained to prevent fires.

FIRE CONTROLS

- The facility is continually monitored for fire.
- The Broken Hill Waste Facility is a 'No Smoking Workplace'
- Security fencing to prevent unauthorised entry.
- Maintaining machinery in good working order to minimise the risk of sparks.
- Ensure adequate stockpiles of soil are available at designated locations to cover fires.
- Adequately compacting and covering wastes.
- Slashing heavy stands of grass before the bushfire season commences.
- Access to on-site firefighting equipment; and
- Accepting permitted waste only.
- Regulated / recyclable waste stored in approved locations (batteries, hydrocarbons)
- Regular litter patrols
- Ensuring fire breaks around the perimeter access roads of the depot and around all combustibles materials on the site are maintained.
- Reducing and limiting sizes of stockpiles of combustible waste.
- No compacting of construction/timber materials on 'High Fire Danger' warning issued by the NSW Government
- No compacting of construction/timber materials with temperature above 38c or wind speeds above 50 km/hour
- If compaction on extended days of 'Hire Fire Warnings' is required a Risk Assessment must be conducted by the site supervisor, considerations.
    1. Early morning (low temperature)
    2. No wind
    3. Water truck available and in proximity
    4. All waste is deluged prior to compaction.

MEDICAL EMERGENCY

INJURED OR ILL PERSONS - PUBLIC

1. Assess the scene.
2. Commence First Aid as required if trained - DRSABCD.
3. Notify the Weighbridge Officer, Supervisor or First Aider
4. Advise of any additional required resources – Defibrillator – First Aid Kit
5. Call Ambulance 000 if required.
6. Do not move casualty unless exposed to life threatening situation.
7. Stay with injured, ill person to complete handover with ambulance / first responders.

INJURED OR ILL PERSONS – PERSONNEL

1. Notify your supervisor or colleague if you are injured or become ill.
2. Commence First Aid as required if trained – DRSABCD.
3. Discuss any medical conditions or allergies eg, Asthma, Diabetes, Anaphylaxis
4. Call Ambulance 000 if required.
5. Do not move casualty unless exposed to life threatening situation.
6. Stay with injured, ill person to complete handover with the ambulance or first responders.

DECEASED PERSON

1. Remain calm.
2. Non disturbance of the body, site, or possible evidence.
3. Avoid contact with blood and other body fluids.
4. Call 000 Police.
5. Quarantine Area – remove spectators.
6. Notify Chief Warden, Manage or Supervisor.
7. Remove friends/colleagues of the deceased to private area away from scene.
8. Segregate witnesses to private area away from scene.
9. Complete handover/report with Police.

PERSONNEL THREAT- ABUSE

IF YOU ARE INVOLVED IN OR WITNESS PERSONAL THREATS

1. Remain Calm.
2. Keep a safe distance.
3. Avoid Eye Contact.
4. Do not physically engage or obstruct persons.
5. Do not antagonize, argue, or ask for personal details.
6. Alert team members.
7. Call Police 000 if required.
8. Record details if safe to do so (Names, Rego Numbers, Vehicles).

PERSONAL THREAT -ASSAULT

POLICE MUST BE CALLED IMMEDIATELY ON 000

Personal Assault

- If you are assaulted move away from the assailant if safe to do so.
- Do not provoke the assailant or aggravate the situation if still on the premises.
- Apply First Aid – DRSABCD if required.
- Call 000 – Police/Emergency Services/Ambulance as required.
- Seek Assistance/Send for help immediately if safe to do so.
- Report to the Council officer/Supervisor as soon as possible.

Witness Assault

- Assess the situation.
- Do not provoke the assailant or aggravate the situation if still on the premises.
- Isolate victim or persons from assailant if safe to do so.
- Assist Victims if safe to do so.
- Apply First Aid – DRSABCD if required.
- Call 000 – Police/Emergency Services/Ambulance as required.
- Seek Assistance/Send for help immediately if safe to do so.
- Disperse spectators but ask witnesses to remain.
- Record witness names, addresses and timelines where possible.

BOMB THREAT

- Complete handover with Police/Ambulance

Bomb threats are usually received by a telephone call, but occasionally a written threat. The response to a bomb threat is totally different from other emergencies. Every threat must be treated a genuine until proven otherwise.

Remain Calm

- Treat the call or threat as genuine.
- DO NOT hang up your telephone, even after the caller has hung up, as calls may be traced.
- Note the number if digitally displayed.

Record

- As much information as possible on Appendix 4

Attract Attention

- Raise the attention of second person (if possible)
- Supervisor, Warden, Facility Coordinator
- Call 000 Police

Evacuate

- Commence evacuation of the facility to the nominated Emergency Assembly Point when instructed by the Chief Warden, Supervisor or Emergency Service Personnel (200m) exclusion zone.

Instruction

- Follow all instruction from police or emergency services personnel.
- Follow any further instructions from your Facility / Service Manager or In-charge (after hours).

Suspicious Items

- Do not touch or approach suspicious items.
- Report the item to Warden, BHCC Officer, Supervisor immediately including the location.
- Commence evacuation of the facility to the nominated Emergency Assembly Point when instructed by the Chief Warden, Supervisor or Emergency Service Personnel (200m) exclusion zone.

Clearance

- No persons are to re- enter a facility or premises after a bomb threat until it has been inspected and cleared by the Emergency Services Personnel

EXTREME WEATHER

DUST STORM – HIGH WINDS – LIGHTNING – HIGH RAINFALL

A risk assessment must be completed for all Extreme Weather Conditions that present a risk to Health & Safety. Direction and velocity of wind (flying objects) Dust storm (visibility) Lightning Strike.

- Initiate facility EVACUATION of all patrons.
- Close gate
- BHCC officers retreat to safe location (weighbridge/crib room)
- Do not return to work until risk has passed / subsided.

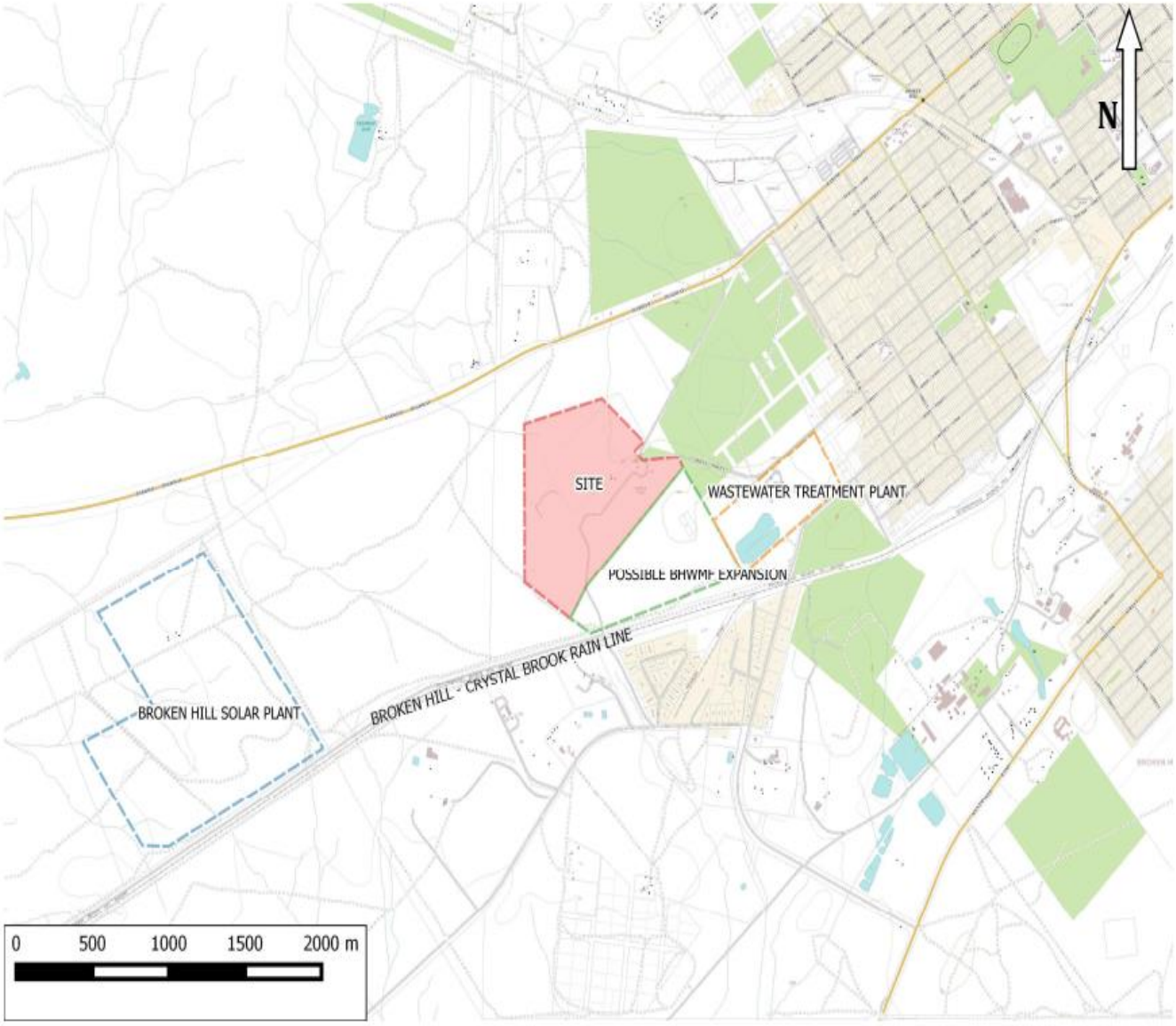
EXPLOSION

- Call 000 Emergency Services Immediately.
- Evacuate all persons where possible and safe to do so to Emergency Assembly Point. or other location determined by Chief Warden/Incident Controller/Supervisor
- Follow EVACUATION PROCEDURE.
- Notify emergency service personnel of ALL unaccounted persons.
- Apply first aid where required to persons at Emergency Assembly Point.
- Seriously injured persons may be attended by first aiders at the scene (if safe to do so) until Ambulance Officers arrive.
- No persons are to re- enter a facility or premises until it has been inspected and cleared by the Emergency Services Personnel.

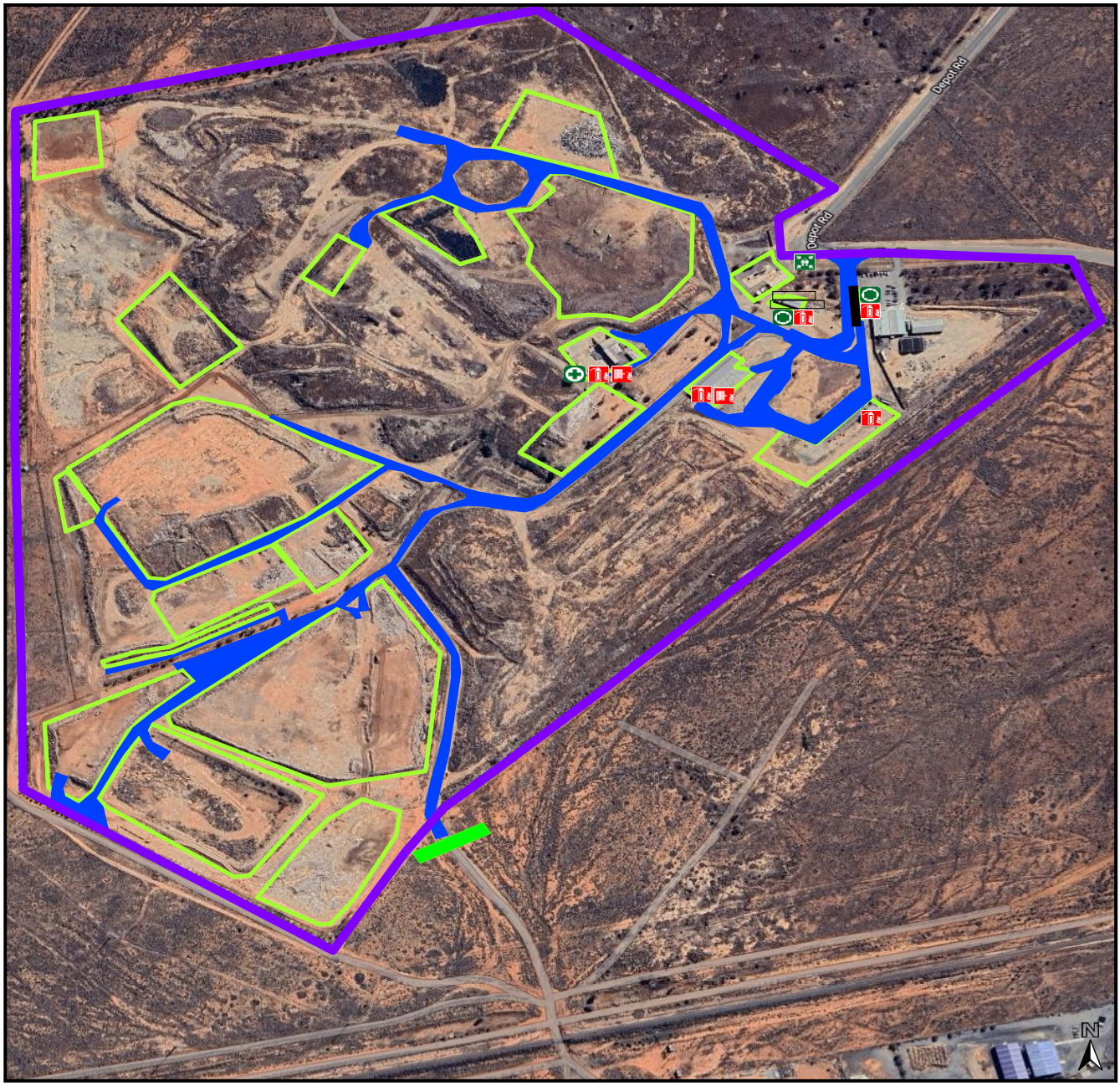
Actions

- A minimum 200 metre radius 'no-go' zone is required to be placed around the scene.
- Emergency Services personnel will manage the scene, only authorised persons are permitted inside this restricted area.
- Trained / Inducted personnel may be deployed to isolate/shut down hazardous processes or equipment which could present a risk to rescue and recovery operations.
- All efforts must be made to preserve the physical and legal integrity of all evidence.
- Nothing must be touched without the permission of the senior emergency services officer present. Buildings must be quarantined until inspected for structural damage and cleared for re-entry by a qualified engineer.

WASTE FACILITY MAP - LOCATION



WASTE FACILITY LAYOUT



Plan #: Layout 2024	Location: Broken Hill	Title: Broken Hill Waste Management Facility Layout

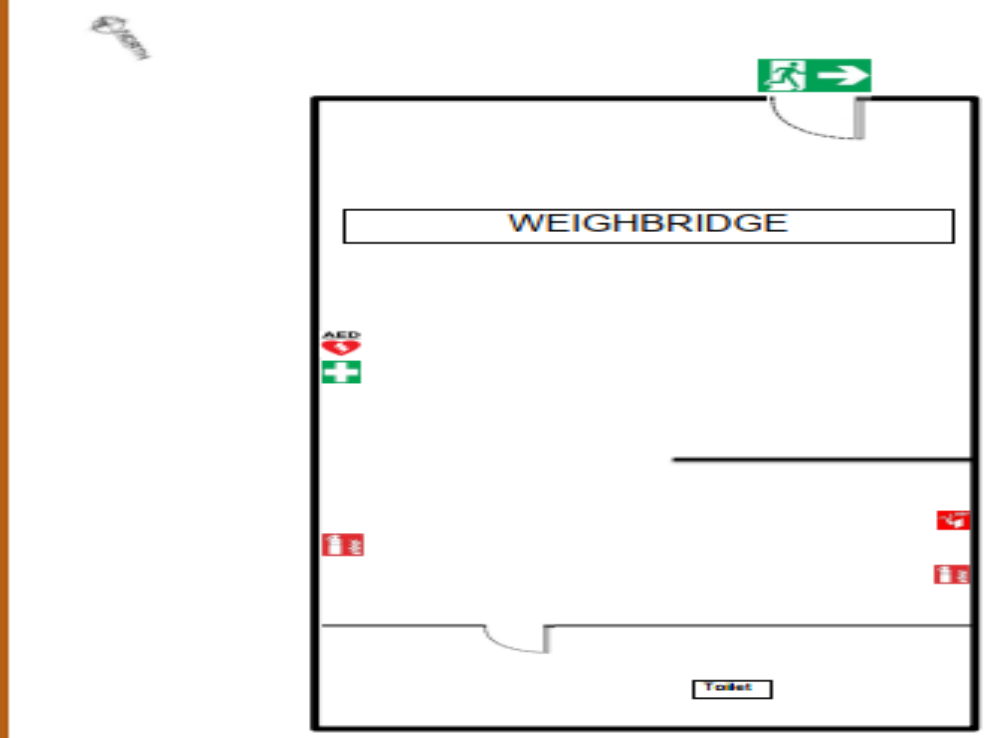
Notes:				On-Site Contact:	
Purple Outline - Facility Boundary Blue Line - Travel Road Green Outline - Waste Location				Lyle Maguire - Waste Services Coordinator	
				Site Induction:	Date Drawn:
				License #:	Drawn By: Michael Maalste
Posted Speed: 10 & 20	Reduced Speed:	Revision:	Signature:	Date and Time of Project:	

0 25 50 75 100m
Scale 1:3974

BROKEN HILL CITY COUNCIL

Evacuation Diagram – Waste Facility Weighbridge

NOT TO SCALE



LEGEND

- Dry Chemical Extinguisher
- Fire Blanket
- Emergency Assembly Point
- Emergency Exit
- First Aid Kit
- AED Defibrillator

ASSEMBLY AREA

EMERGENCY INFORMATION

000 EMERGENCY

- Police, Fire or Ambulance 000

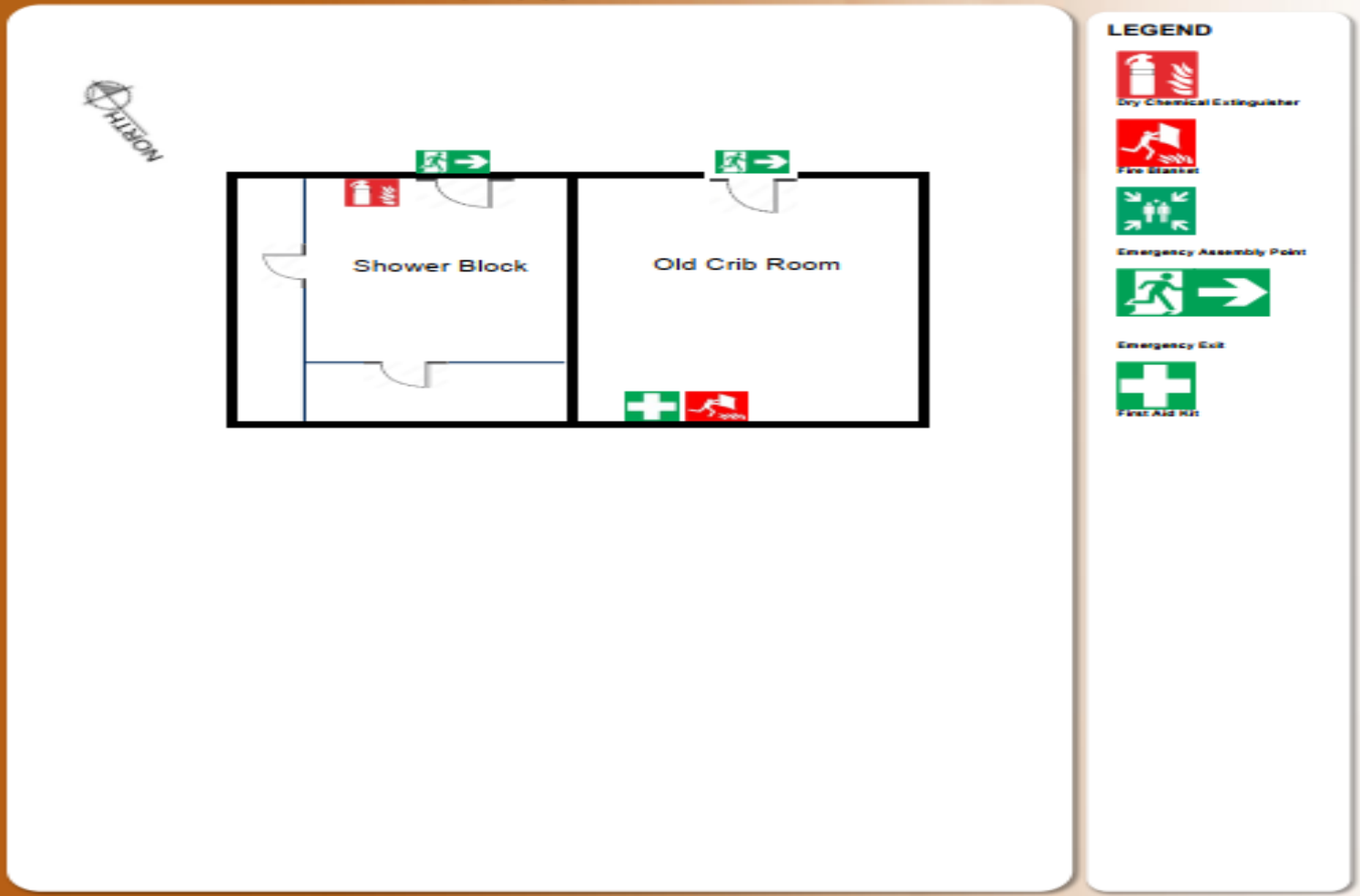
On hearing the evacuation alarm or when directed by your Warden:

- evacuate the building via the nearest safe exit
- proceed to the assembly area, or as directed by your Warden/ Emergency Services
- remain at the assembly area until directed by your Warden/ Emergency Services
- do not re-enter the building until instructed by your Warden/ Emergency Services

Diagram 2 Issued: 19 December 2016 Validation: 13 September 2022 Version: 02
Review ; 21 August 2023

Evacuation Diagram Waste Facility – Crib Room & Shower Block

NOT TO SCALE



LEGEND

Dry Chemical Extinguisher

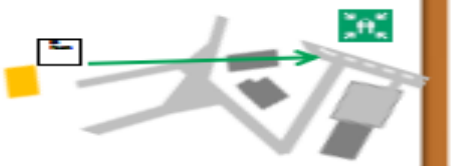
Fire Blanket

Emergency Assembly Point

Emergency Exit

First Aid Kit

ASSEMBLY AREA



EMERGENCY INFORMATION

000 EMERGENCY

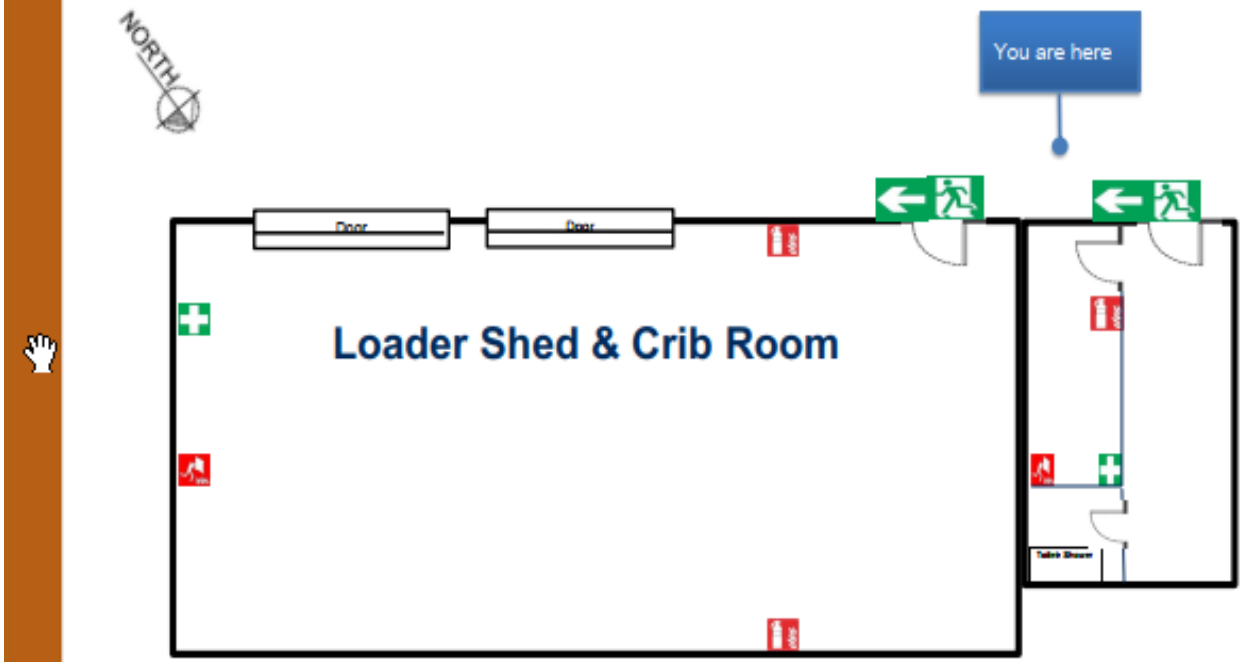
- Police, Fire or Ambulance 000

On hearing the evacuation alarm or when directed by your Warden:

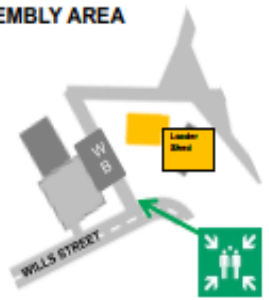
- evacuate the building via the nearest safe exit
- proceed to the assembly area, or as directed by your Warden/ Emergency Services
- remain at the assembly area until directed by your Warden/ Emergency Services
- do not re-enter the building until instructed by your Warden/ Emergency Services

Evacuation Diagram Waste Facility

NOT TO SCALE



ASSEMBLY AREA



EMERGENCY INFORMATION

000 EMERGENCY

In case of emergency contact:

- **Police, Fire or Ambulance 000**

On hearing the evacuation alarm or when directed by a BHCC Officer or Warden:

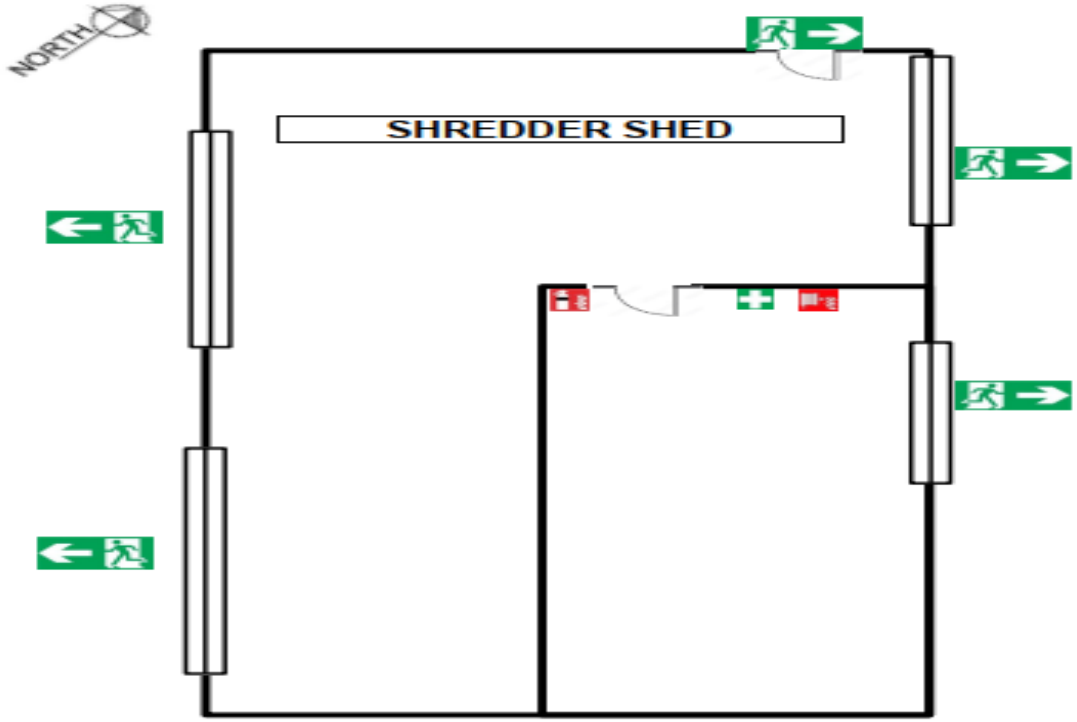
- evacuate the building via the nearest safe exit.
- proceed to the assembly area, or as directed by your Warden/ Emergency Services
- remain at the assembly area until directed by your Warden/ Emergency Services
- do not re-enter the building until instructed by your Warden / Emergency Services

LEGEND

Diagram 1 Issued: 19 December 2016 Validation: 13 September 2022 Version: 02
Reviewed: 21 August 2023 Version: 03

Evacuation Diagram - Waste Facility Shredder Shed

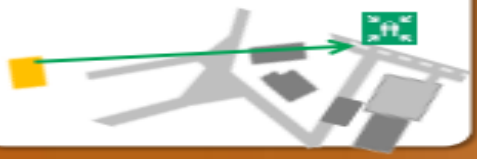
NOT TO SCALE



LEGEND

- CO^2 Extinguisher
- Fire Hose Reel
- Assembly Area
- Emergency Exit
- First Aid Kit

ASSEMBLY AREA



EMERGENCY INFORMATION

000 EMERGENCY

- Police, Fire or Ambulance 000

On hearing the evacuation alarm or when directed by your Warden:

- evacuate the building via the nearest safe exit
- proceed to the assembly area, or as directed by your Warden/ Emergency Services
- remain at the assembly area until directed by your Warden/ Emergency Services
- do not re-enter the building until instructed by your Warden/ Emergency Services

Work Health and Safety Act 2011

35. Notifiable Incidents

a) the death of a person, or

b) a serious injury or illness of a person,

c) a dangerous incident.

36. Serious Injury or Illness

a) immediate treatment as an in-patient in a hospital, or

b) immediate treatment for—the amputation of any part of his or her body, or

c) a serious head injury,

d) a serious eye injury

e) a serious burn

f) the separation of his or her skin from an underlying tissue such as degloving or scalping

g) a spinal injury

h) he loss of a bodily function

i) serious lacerations

j) medical treatment within 48 hours of exposure to a substance

k) any other injury or illness prescribed by the regulations.

l) but does not include an illness or injury of a prescribed kind.

37. Dangerous Incident an incident in relation to a workplace that exposes a worker or any other person.

a) an uncontrolled escape, spillage, or leakage of a substance

b) an uncontrolled implosion, explosion, or fire

c) an uncontrolled escape of gas or steam

d) an uncontrolled escape of a pressurised substance

e) electric shock

f) the fall or release from a height of any plant, substance, or thing

g) the collapse, overturning, failure, or malfunction of, or damage to, any plant that is required to be authorised for use in accordance with the regulations.

h) the collapse or partial collapse of a structure

i) the collapse or failure of an excavation or any shoring supporting an excavation.

j) the inrush of water, mud, or gas in workings, in an underground excavation or tunnel

k) the interruption of the main system of ventilation in an underground excavation or tunnel

l) any other event prescribed by the regulations but does not include an incident of a prescribed kind.

38. Duty to notify of notifiable incidents.

A person who conducts a business or undertaking must ensure that the regulator is notified immediately after becoming aware that a notifiable incident arising out of the conduct of the business or undertaking has occurred. The notice must be given in accordance with this section and by the fastest possible means.

39. Duty to preserve incident sites.

The person with management or control of a workplace at which a notifiable incident has occurred must ensure so far as is reasonably practicable, that the site where the incident occurred is not disturbed until an inspector arrives at the site or any earlier time that an inspector directs.

Site includes any plant, substance, structure, or thing associated with the notifiable incident.

Subsection (1) does not prevent any action.

(a) to assist an injured person, or

(b) to remove a deceased person, or

(c) that is essential to make the site safe or to minimise the risk of a further notifiable incident, or

(d) that is associated with a police investigation, or

(e) for which an inspector or the regulator has given permission.

APPENDIX 4

Telephone Bomb Threat Checklist			
WHAT TIME was the call received?			
WHAT DID the caller say?			
WHERE exactly is it?			
WHEN will it explode?			
WHAT does it look like?			
WHAT will make it explode?			
DID you place the bomb?			
WHY did you place the bomb?			
WHO are you?			
How did the caller sound?			
Angry		Drug/Alcohol Affected	
Calm			
Irrational		Abusive	
What can you remember about the caller?			
Sex			
Nationality			
Age			
Voice			
What else could you hear?			
Background noise			
Mobile phone/pay phone, etc.			
Notes			

Waste Management Facility Emergency Response Procedure V1			
Date	April 23, 2021	David Baker, Kathy Graham, Scott Howe	
Review Date	August 24, 2024	Rod Squire, Lyle Maguire, Chris Manoel, Wade Nilsen, Cathryn Horne	
Hard Copies	Waste Facility – Weighbridge and Crib Room FR NSW – Weighbridge Waste Facility Personnel ECO Personnel/Warden		
Electronic Copy	Intranet – Documents – Risk Management Emergency Response Procedure – Waste Facility		
Communication	Waste Facility Manager Waste Facility Coordinator/Leading Hand		
Approval	Waste and stainability Manager Marisa Pickett	Signature 	Date 26 November 2024

3.3. ATTACHMENT C - ASBESTOS MANAGEMENT PLAN

ASBESTOS MANAGEMENT PLAN –
BROKEN HILL WASTE MANAGEMENT FACILITY (BHWMF)

1. INTRODUCTION

In Australia, asbestos was gradually phased out of building materials in the 1980s and the supply and installation of asbestos containing goods has been prohibited since 31 December 2003. However asbestos legacy materials still exist in many homes, buildings and other assets and infrastructure. It is estimated that one in three Australian homes contains asbestos.

Where material containing asbestos is in a non-friable form (that is, it cannot be crushed by hand into a powder), undisturbed and painted or otherwise sealed, it may remain safely in place. However, where asbestos containing material is broken, damaged, disturbed, or mishandled, fibres can become loose and airborne posing a risk to health. Breathing in dust containing asbestos fibres can cause asbestosis, lung cancer and mesothelioma.

It is often difficult to identify the presence of asbestos by sight. Where a material cannot be identified or is suspected to be asbestos, it is best to assume that the material is asbestos and take appropriate precautions.

Broken Hill City Council acknowledges the serious health hazard of exposure to asbestos and acknowledges it has an important dual role in minimising exposure to asbestos, as far as is reasonably practicable, for residents and the public within the Local Government Area (LGA) and for workers (employees and other persons) in Council workplaces.

The purpose of this asbestos management plan is to outline procedures for the identification, handling, removal, and disposal of asbestos-containing materials (ACMs) within the Broken Hill Waste Management Facility. This plan is designed to comply with the guidelines set forth by the New South Wales (NSW) Environmental Protection Agency and to ensure the health and safety of workers, visitors, and the surrounding environment.

2. DEFINITIONS

Airborne Asbestos:

Any fibres of asbestos small enough to be made airborne. For the purposes of monitoring airborne asbestos fibres, only respirable fibres are counted.

Asbestos:

The asbestiform varieties of mineral silicates belonging to the serpentine or amphibole groups of rock-forming minerals, including actinolite asbestos, grunerite (or amosite) asbestos (brown), anthophyllite asbestos, chrysotile asbestos (white), crocidolite asbestos (blue) and tremolite asbestos.

Asbestos containing material (ACM):

Any material or thing that, as part of its design, contains asbestos. Asbestos contaminated dust or debris (ACD) Dust or debris that has settled within a workplace and is (or assumed to be) contaminated with asbestos.

Asbestos removalist:

A person conducting a business or undertaking who conducts asbestos removal work.

Asbestos removal work:

Work involving the removal of asbestos or ACM Class A asbestos removal work or Class B asbestos removal work.

Competent person:

A person who has acquired, through training, qualification or experience, the knowledge, and skills to conduct the task.

Exposure standard:

Asbestos is a respirable fibre level of 0.1 fibres/ml of air measured in a person's breathing zone and expressed as a time weighted average fibre concentration calculated over an eight-hour working day and measured over a minimum period of four hours.

Friable asbestos:

Material that is in a powder form or that can be crumbled, pulverised, or reduced to a powder by hand pressure when dry, and contains asbestos.

Non-friable asbestos:

Material containing asbestos that is not friable asbestos, including material containing asbestos fibres reinforced with a bonding compound.

3. LEGISLATIVE REQUIREMENTS

- NSW Work Health and Safety Act 2011.
- NSW Work Health and Safety Regulations 2011.
- Code of Practice – How to Safely Remove Asbestos 2011.
- Code of Practice – How to Manage and Control Asbestos in the Workplace 2011.

4. OBJECTIVE

- To identify and assess the presence of asbestos /ACMs within the Broken Hill Waste Management Facility.
- To establish procedures for the safe handling, removal, and disposal of asbestos/ACMs.
- To minimise the risk of asbestos exposure to workers, visitors, and the public.
- To comply with all relevant legislation and regulations pertaining to asbestos management.

5. RESPONSIBIITES

- General Manager: Overall responsibility of the Broken Hill City Council
- Waste and Sustainability Manager: Responsible for the implementation and maintenance of the asbestos management plan and reporting to Safe Work NSW.
- Waste Services Coordinator: Responsible for overseeing asbestos-related activities, including inspections, training, and record-keeping.
- Workers: Responsible for adhering to safe work practices and reporting any suspected ACMs to the Waste Services Coordinator.

3.1 Responsibility to workers

Council is committed to fulfilling its responsibilities to workers under the NSW Work Health and Safety Act 2011 and NSW Work Health and Safety Regulation 2017 and maintaining a safe work environment through the following actions.

- Education, training, and information for workers
- Health monitoring for workers
- Procedures for identifying and managing asbestos containing materials in Council premises.

The Broken Hill City Council is committed to working collaboratively with other government agencies and other relevant stakeholders to respond to asbestos issues.

6. IDENTIFICATION AND ASSESSMENT

- Conduct a thorough inspection of the facility to identify potential Asbestos.
- Keep records of Asbestos locations, condition, and any previous asbestos-related work in the asbestos risk register. *(Located in Content Manager folder 12/180)*

- Assess the risk of asbestos exposure based on the condition and accessibility of Asbestos.
- If unsure or whether it is asbestos always assume it is and manage accordingly.
- Licensed Asbestos removalist can assist in identifying materials.

Table 1

TYPE OF LICENCE	WHAT ASBESTOS CAN BE REMOVED?
Class A	Can remove an amount or quantity of asbestos or ACM, including: ➢ Any amount of friable asbestos or ACM. ➢ Any amount of ACD. ➢ Any amount of non-friable asbestos or ACM.
Class B	Can remove: ➢ Any amount of non-friable asbestos or ACM, *NOTE: A Class B licence is required for removal of more than 10m2 (square metres) of non-friable asbestos or ACM, but the licence holder can also remove up to 10m2 of non-friable asbestos or ACM.* ➢ ACD associated with the removal of non-friable asbestos or ACD. *NOTE: A Class B licence is required for removal of ACD associated with the removal or more than 10m2 of non-friable asbestos or ACM, but the licence holder can also remove ACD associated with removal of up to 10m2 of non-friable asbestos or ACM.*
No licence required	Can remove: ➢ Up to 10m2 or non-friable asbestos or ACM. ➢ ACD that is: - Associated with the removal of less than 10 m2 of non-friable asbestos or ACM. - Not associated with the removal of friable or non-friable asbestos and is only a minor contamination.

6.1 LICENCED ASBESTOS REMOVER OBLIGATIONS

- After asbestos removal has taken place a clearance inspection must be carried by an independent competent person or independent licenced asbestos assessor (depending on class of asbestos), followed by the issue of a clearance certificate before the workplace can be re occupied.

7. CONTROL MEASURES

- Implement controls to minimize the disturbance and spread of asbestos fibers. *Refer to Safe Work Procedure (SWP)*

- Provide personal protective equipment (PPE) to workers involved in asbestos-related activities. *Safe work Procedure (SWP)*
- Establish decontamination procedures for workers and equipment after handling ACMs. *Emergency response plans located in each building.*

8. TRAINING AND EDUCATION

- Provide training to workers on asbestos awareness, identification, and safe handling practices. *Refer to training plan in Vault.*
- Ensure all relevant personnel are familiar with emergency procedures in the event of asbestos exposure or release.

9. WORK PROCEDURE and DISPOSAL

Weighbridge

- *Customer notifies staff or staff identifies Asbestos is onboard.*
  - *If Asbestos is not appropriately wrapped customer will be turned away with instructions to contact Safe work for advice on handling and disposal.*
  - *If customer has been pre-approved entry to the facility for disposal of Asbestos, at the weighbridge they will advise staff of what is onboard.*
- *Weighbridge staff will notify the loader driver that a vehicle has entered the facility to drop off Asbestos.*
- *Weighbridge staff will direct the vehicle to the designated Asbestos pit (pit is fully lined a per EPA regulations)*
- *Asbestos pit is sectioned off to the public to avoid incidents occurring.*
- *Once Asbestos has been placed into the Asbestos pit by the customer the loader driver will cover with 500ml of dirt/soil.*
  - *It is recommended Asbestos is slid off the vehicle to avoid the bags breaking.*
  - *Care is also taken when covering to ensure no breaking or tearing of wrapped material.*

Illegal dumping at the waste facility *(Asbestos is noticed on the tip face)*

- *Staff to notify Weighbridge staff that the area is contaminated and to close that area of the facility. Staff will section off contaminated area.*
- *Staff to notify Waste Services Coordinator for direction.*
- *Waste services Coordinator/staff will wear full PPE while evaluating the amount of Asbestos.*
- *Site to be covered with water to avoid any chance of Asbestos becoming airborne.*

  - *Less than 10m2 Asbestos.*

- *Staff will follow the procedure for disposal of Asbestos: Full PPE (Mask, gloves, coveralls,)*
- *Asbestos will be double bagged with 200-micron plastic and tape or 200-micron plastic bags. Ensuring no breakage.*
- *Asbestos is taken to the Asbestos Pit for disposal and covered with 500ml of Soil/dirt. Removal of PPE as per SafeWork Australia recommendations.*

  - *More than 10m2 Asbestos.*

  - *Waste Services Coordinator will contact a licenced contractor to remove the Asbestos.*
  - *Contractor will supply the Broken Hill City Council with a copy of their public liability insurance, Asbestos license, EPA consignment notice, Asbestos removal*

Control plan, notice of intent from SafeWork NSW and once the job has completed, they will provide a Visual Clearance Certificate.
- *Contractor will then dispose of the Asbestos into the Asbestos pit.*
- *Staff will cover with 500ml of Soil/Dirt*

10. EMERGENCY RESPONSE TO AN INCIDENT

- You must notify SafeWork NSW 5 calendar days prior to commencing licensed asbestos removal work in NSW.

    - Asbestos notification requirements apply to:

        - removal of greater than 10m^2 of non-friable asbestos
        - removal of friable asbestos.
        - Refer to table 1 for class of licence on who can remove Asbestos.

    - Lodge your request to SafeWork NSW: Online Licensing and Notification System

- Where asbestos must be removed immediately, the licensed asbestos removalist must phone us on 13 10 50 and lodge the notification electronically using the asbestos and demolition online notification system within 24 hours of the telephone notification. See table 1 for who can remove Asbestos.

- In the event of an asbestos incident at the Broken Hill Waste Management Facility procedure is outlined in the Safe Work Management plan.

11. RECORD KEEPING

- Maintain detailed records of asbestos inspections, assessments, and removal activities. *Content Manager 12/148*
- Retain documentation of worker training, equipment calibration, and waste disposal manifests.

12. REVIEW AND REVISION

- Regularly review and update the asbestos management plan to reflect changes in legislation, technology, or facility operations.
- Conduct periodic audits to ensure compliance with the plan and identify areas for improvement.

3.4. ATTACHMENT D - BHWMF SURFACE WATER MANAGEMENT PLAN

SURFACE WATER MANAGEMENT PLAN

BROKEN HILL LANDFILL

PREPARED FOR:

BROKEN HILL CITY COUNCIL

JUNE 2016

GEOLYSE

POSTAL ADDRESS PO BOX 1963 ORANGE NSW 2800
LOCATION 154 PEISLEY STREET ORANGE NSW 2800
TELEPHONE 02 6393 5000 **FACSIMILE** 02 6393 5050
EMAIL ORANGE@GEOLYSE.COM **WEB SITE** WWW.GEOLYSE.COM

Report Title:	*Surface Water Management Plan*
Project:	*Broken Hill Landfill*
Client:	*Broken Hill City Council*
Report Ref.:	*216074_REO_001A Surface Water Management.docx*
Status:	*Final*
Issued:	*30 June 2016*

Geolyse Pty Ltd and the authors responsible for the preparation and compilation of this report declare that we do not have, nor expect to have a beneficial interest in the study area of this project and will not benefit from any of the recommendations outlined in this report.

The preparation of this report has been in accordance with the project brief provided by the client and has relied upon the information, data and results provided or collected from the sources and under the conditions outlined in the report.

All information contained within this report is prepared for the exclusive use of Broken Hill City Council to accompany this report for the land described herein and are not to be used for any other purpose or by any other person or entity. No reliance should be placed on the information contained in this report for any purposes apart from those stated therein.

Geolyse Pty Ltd accepts no responsibility for any loss, damage suffered or inconveniences arising from, any person or entity using the plans or information in this study for purposes other than those stated above.

TABLE OF CONTENTS

DRAWINGS

PLATES

No table of figures entries found.

TABLES

FIGURES

Introduction

1.1 BACKGROUND

Broken Hill City Council (Council) own and operate a landfill at Broken Hill which is licenced by the Environment Protection Authority (EPA), Environment Protection Licence 5898. Following a waste audit conducted at the site in September 2015 Council have commissioned Geolyse to provide an update to the Landfill Environmental Management Plan and associated documents, including preparation of a Surface Water Management Plan (SWMP).

The SWMP will review how surface water is currently managed on the site, check that the existing surface water features are adequately sized and provide recommendations to rectify any issues identified.

Surface Water Management Study

2.1 SITE INSPECTION

A site inspection was undertaken of the Broken Hill landfill on the 17th March 2016. The site inspection reviewed the clean water diversion system, the dirty water system, the active filling area for signs of leachate release, and completed filling areas for signs of rehabilitation.

The weather was clear and sunny during the inspection.

2.2 CLEAN WATER DIVERSION SYSTEM

The landfill is located approximately 3km west of the city of Broken Hill between the Barrier Highway and the Adelaide-Broken Hill Railway. The landfill is located on a relatively elevated position with some small catchments falling towards the site. A natural watercourse runs parallel to the south east boundary which drains in a south westerly direction. A second natural watercourse commences at the north western corner of the site and drains to the west of the site.

Clean water diversion drains have been installed at several locations within and external to the site (see **216074_01A_C001**) and are in good condition.

2.2.1 HYDROLOGIC ASSESSMENT

To determine the peak flows from the clean water catchments upstream of the landfill site an assessment was undertaken of the catchments using aerial photography and topographic mapping available through the NSW Government-Land and Property Information 'SIX Viewer'. The catchment areas were determined using the topographic maps and the catchment characteristics were assessed using the aerial photography and the site inspection.

The catchments draining towards the landfill site are relatively small with slopes of approximately 2%. The catchment boundaries can be seen in **Figures 1 to 3** below.

Figure 1: North Eastern Clean Water Upstream Catchment Extents (LPI)

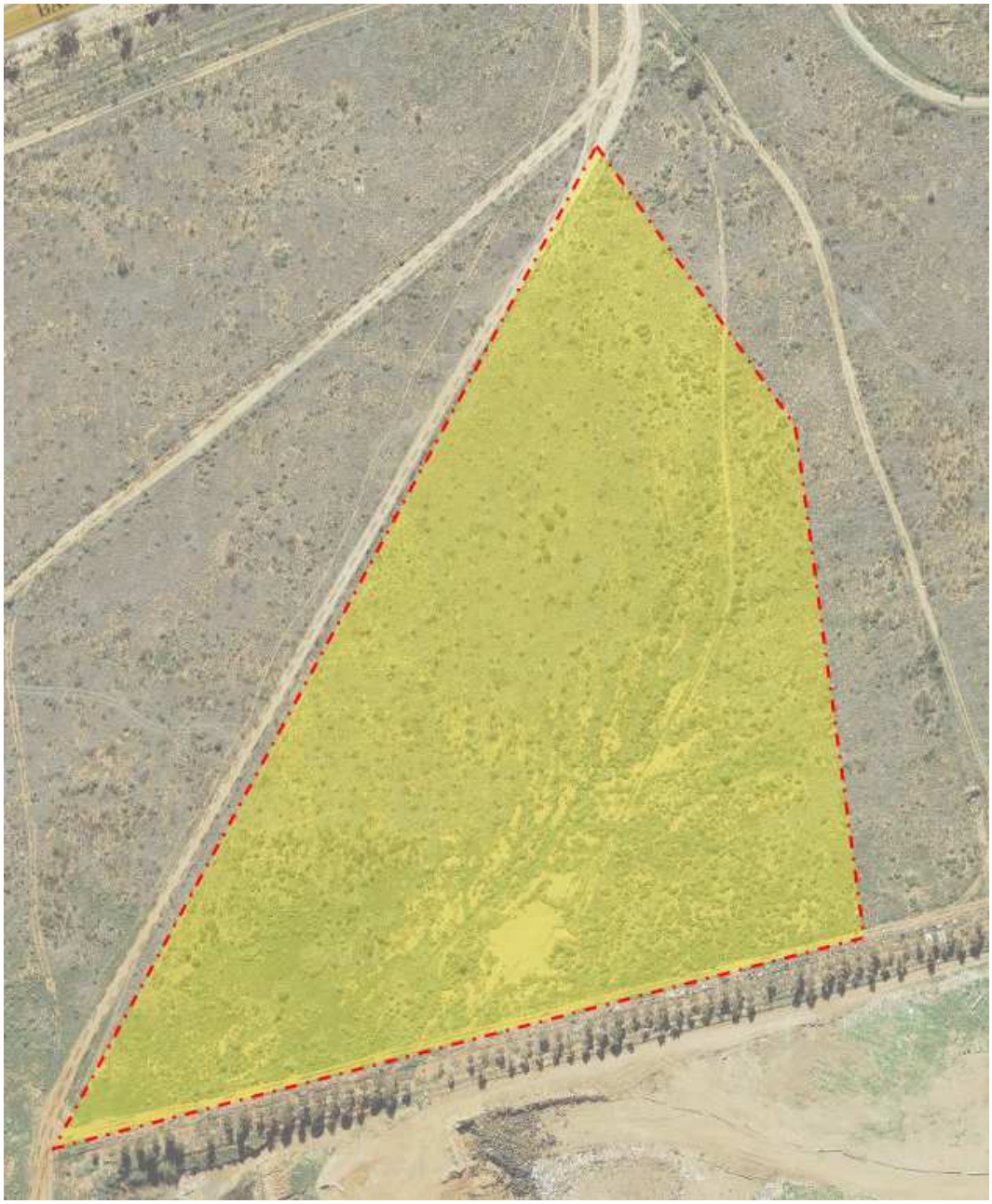


Figure 2: Northern Clean Water Upstream Catchment Extents (LPI)

Figure 3: Western Clean Water Upstream Catchment Extents (LPI)

The hydrologic assessment used XP-RAFTS to determine peak flows for each catchment draining towards the landfill. XP-RAFTS requires the following information for each catchment being modelled:

- Catchment/sub-catchment area (ha);
- Impervious Percentage (%);
- Vectored Catchment Slope (%); and
- Manning's 'n' Roughness Coefficient.

Catchment/sub-catchment areas were calculated using the area measuring tool within the NSW Government-Land and Property Information SIX Viewer software.

The catchments were assumed to be 0% impervious. The vectored slope for each sub-catchment was calculated using the topographic mapping within SIX Viewer.

A Manning's 'n' Roughness Coefficient for the sub-catchments was determined from aerial photography within SIX Viewer and site inspection of the catchments. Generally the following Manning's 'n' value was adopted for the catchments:

- Open Pasture -0.035.

XP-RAFTS models initial and continuing rainfall losses for a catchment. As the entire catchment is rural the initial and continuing losses adopted were 25 mm and 2.5 mm/hr.

A summary of the sub-catchment parameters used in the XP-RAFTS model is provided within **Table 2.1** below.

Table 2.1 – XP RAFTS Catchment Parameters

Catchment	Area (ha)	Vectored Slope (%)
Northern Eastern	12.38	2
Northern	3.62	2
Western	1.74	2

Calibration of the model has not been completed as no flooding level information was available.

A range of storm event durations from 15 minutes to 24 hours was run for the 20 year ARI event (as specified in Table 6.1 of "Managing Urban Stormwater: Soils and Construction" Volume 2B Waste Landfills, (Landcom, 2008)). The calculated 20 year ARI Peak flow for each catchment is shown below in **Table 2.2**.

Table 2.2 – Calculated Peak Flows

Catchment	Peak 1 in 20 year ARI flow (m^3/s)
Northern Eastern	0.37
Northern	0.14
Western	0.07

2.2.2 HYDRAULIC ASSESSMENT

The calculated peak flows above are the flows at the outlet of each of the catchments and hence the clean water drains at the upper end will only be conveying a fraction of the calculated flows. However, for the purposes of this assessment a conservative approach was taken assuming that the clean water diversion drains will need to convey the calculated flows along their entire length.

The clean water diversion drains vary in shape and grade along their lengths and exact measurements of the dimensions of the drains were not taken during the site inspection. Available survey information was used to estimate the smallest cross sectional area of each drain. The estimated channel dimensions were used to check their capacity against the expected flows calculated above.

The hydraulic software package OpenChan was used to determine the capacity of each critical section of each drain. The shape of each drain was modelled using the Trapezoidal channel option, with base width, side slope, depth, longitudinal grade and Mannings 'n' roughness coefficient parameters included in the model. The northern and western drains are essentially a 0.5m high bank, however were modelled conservatively as trapezoidal channels. A Mannings 'n' roughness coefficient of 0.025 was adopted for the channels. The results of the hydraulic modelling are shown in **Table 2.3** below.

Table 2.3 – Hydraulic modelling results

Channel	Dimensional Parameters	Capacity at full depth (m^3/s)	Velocity at full depth (m/s)
Northern Eastern	1m base width, 1 in 8 side slopes, 0.5m deep, 2% slope	5.99	2.4
Northern	5m base width, 1 in 3 side slopes, 0.3m deep, 2% slope	4.04	2.3
Western	5m base width, 1 in 3 side slopes, 0.3m deep, 2% slope	4.04	2.3

The hydraulic modelling showed that the clean water diversion drains have sufficient capacity to convey the calculated 1 in 20 year ARI peak flows along their length. The hydraulic modelling showed that velocities at full depth were above those specified in Table 5.2 of "Managing Urban Stormwater: Soils and Construction" Volume 1, Fourth Edition (Landcom, 2004). As a result it is recommended that Rock Check Dams (SD5-4 "Managing Urban Stormwater: Soils and Construction" Volume 1, Fourth Edition (Landcom, 2004) and/or other alternate check dam system be installed in the bare soil areas of the drains to reduce velocities.

2.2.3 SEPARATION FROM WASTE DISPOSAL AREAS

The clean water diversion drains are separated from waste disposal areas via earth embankments or in the case of the north eastern drain the property boundary fence.

During the site inspection it was evident that some areas had windblown gross pollutants within the clean water diversion drains. No evidence was apparent of dirty water or leachate discharging into the clean water diversion drains. It is recommended that all gross pollutants be removed from the clean water diversion drains and only clean fill be used to create the earth embankments separating the clean water diversion drains and dirty areas.

2.3 DIRTY WATER SYSTEM

2.3.1 COLLECTION AND TRANSPORT SYSTEM

The recent survey of the site shows that the dirty water collection and transport system is relatively informal however the site has been shaped generally to drain the previously filled areas and currently exposed areas of the site to the on-site dams/sedimentation basins.

2.3.2 TREATMENT AND DISCHARGE SYSTEM

The existing dams on the site act as Type D sedimentation basins, albeit with no formal discharge outlets. Council staff advised that the dams/basins never fill and captured water simply evaporates due to the significant rainfall deficit at the site (mean annual rainfall 227 mm, mean annual evaporation 2,592 mm (Broken Hill Stephens Creek Reservoir BOM station 047031)).

The volume of the sedimentation basins required for Catchment 1 (29.5 ha) and Catchment 2 (24.9 ha) are 3,345 m^3 and 2,824 m^3 respectively using the formulae within Section 6.3.4 of "Managing Urban Stormwater: Soils and Construction" Volume 1, Fourth Edition (Landcom, 2004) (using the 90th percentile rainfall depth for Broken Hill of 21.6 mm, Cv = 0.35, and 50% of settling zone capacity for sediment storage zone).

The surface area of Dam 1 is 4,400 m^2 and Dam 2 is 2,400 m^2 , meaning that depths of 0.76 m and 1.18 m are required respectively. The available LiDAR data shows that the depths of the two dams are at least this deep and therefore have adequate capacity for their respective catchments. Site survey will confirm the depths of the dams.

It is recommended that water within the basin be either reused for dust suppression and watering of revegetated areas or treated with flocculants and discharged to maintain adequate storage within the basin for future rainfall events.

2.4 LEACHATE

Several active filling areas exist within the site and therefore separation of leachate from dirty water is not currently being achieved. It is recommended that the active filling area be localised to a single location and earth bunding be used to ensure leachate does not mix with dirty water. Leachate is to be collected and spread over the landfill area as required.

2.5 RECOMMENDATIONS

The following recommendations are made as a result of the Surface Water Management Study for the Broken Hill Landfill:

- Clean water diversion drains be maintained to ensure separation of clean water;
- Rock check dams or other check dams be installed in the bare earth clean water diversion drains;
- Rock check dams or other check dams be installed in any drains on site than exceed 5% longitudinal grade;
- All gross pollutants be removed from clean water diversion drains;
- Only clean fill be used to create earth embankments separating clean water diversion drains from dirty water areas;
- Collected water within the sedimentation basins be either reused on site or treated with flocculants and discharged following each rainfall event to ensure adequate capacity within the basin is maintained for future rainfall events;
- Leachate to be collected and spread over the landfill as required; and
- Any currently exposed areas no longer in use should be stabilised, capped with suitable material and revegetated as soon as practical.

References

Landcom, 2004. Managing Urban Stormwater- Soils and Construction, Volume 1, Fourth Edition.

Landcom, 2008. Managing Urban Stormwater- Soils and Construction, Volume 2B- Waste Landfills

Drawings

THIS PLAN IS PREPARED FROM A FIELD SURVEY FOR THE PURPOSE OF DESIGNING NEW CONSTRUCTIONS ON THE LAND AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.

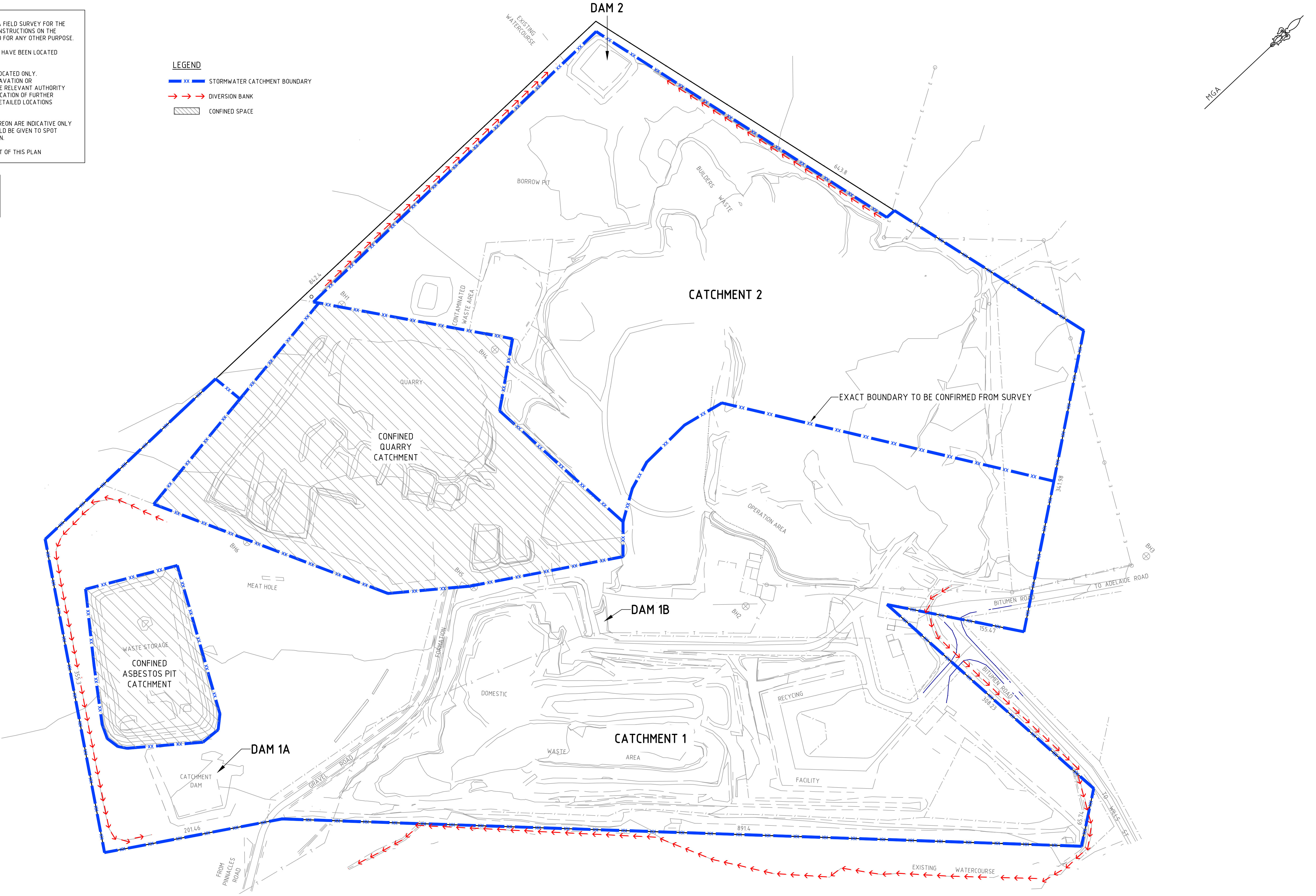
SOME SERVICES SHOWN HEREON HAVE BEEN LOCATED BY FIELD SURVEY.

VISIBLE SERVICES HAVE BEEN LOCATED ONLY. PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON THE SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.

CAUTION: CONTOURS SHOWN HEREON ARE INDICATIVE ONLY PREFERENCE SHOULD BE GIVEN TO SPOT HEIGHTS AS SHOWN.

THIS NOTE IS AN INTEGRAL PART OF THIS PLAN

www.dialbeforeyoudig.com.au DIAL 1100 BEFORE YOU DIG



REV.	DATE	DFTD.	APPD.	DETAILS
A	12/05/2016	BH	AW	ISSUED FOR REVIEW

	FILE	INITIALS	DATE
SURVEY	-	-	-
DESIGN	-	-	-
DRAINS/ HEC-RAS MODELLING	-	-	-
ENGINEERING/ SURVEYING APPROVAL		AW	12/05/2016

DRAWING SCALE

SCALE 1:2000 (A1)

0 50 100 150 200

0 50 100 150 200

SCALE 1:4000 (A3)

DO NOT SCALE FROM THESE DRAWINGS. ALL MEASUREMENTS SHALL BE CONFIRMED ON SITE AND WITH GEOLYSE PTY. LTD. PRIOR TO CONSTRUCTION

APPROVAL AUTHORITY: BROKEN HILL CITY COUNCIL

CLIENT: BROKEN HILL CITY COUNCIL

PROJECT: BROKEN HILL WASTE MANAGEMENT FACILITY LANDFILL ENVIRONMENTAL MANAGEMENT PLAN

GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800
Ph. (02) 6393 5000
Fx. (02) 6393 5050
orange@geolyse.com
www.geolyse.com

DRAWING: STORMWATER CATCHMENT AREAS

PROJECT NUMBER 216074 | DRAWING FILE 216074_01A_C001.dwg | ORIGINAL A1

SURVEY MARK - | R.L. - | DATUM A.H.D.

IMAGE SOURCE -

STATUS FOR REVIEW | SHEET C001 OF C001 | SET 01A

3.5. ATTACHMENT E - BHWMF LITTER CONTROL PLAN (BHCC, 2016)

Broken Hill City Council

Litter Control Plan

Broken Hill Waste Management Facility

Broken Hill Waste Management Facility
Wills Street
Broken Hill

Litter Control Plan

Broken Hill Waste Management Facility
Wills St
Broken Hill

Revision History				
No.	Issue Date	Revision Notes	Prepared By	Approved By
1	Sept 2015	Draft provided	Robert Bailey Consulting	
2	February 2016	Updated draft for implementation	Environment, Waste and Recycling Specialist	

Contents

1.0 Background

Council operates the Broken Hill Waste Facility using day labour and is responsible for the control of any litter that may be generated from the various waste activities undertaken at the Facility. Council is also broadly responsible for filling and managing the landfill, operating the weighbridge, controlling the Community Recycling Centre (CRC), for organics processing and for traffic management. The site is required to be operated in accordance with the Landfill Environmental Management Plan (LEMP) and in compliance with the conditions of the Environmental Protection Licence (EPL).

Part O5.6 of the Environment Protection Licence (EPL) states *"The licensee must implement the litter management program specified in section 5.3 of the LEMP."* In keeping with its legislative obligations Council is adopting a more proactive approach to litter management at the Waste Facility in accordance with guidance provided under this Litter Control Plan.

The site currently operates multiple and separate activity areas for mixed solid waste which are difficult to control and are inefficient through duplication. These activity areas include active tipping area for kerbside collected residual waste (former quarry), the active tipping area for commercial/industrial wastes and the self-haul domestic waste drop off area. Over the next 18 months (Jan 2016 – June 2017) the number of active areas will be reduced, as part of the upgrades to the Waste Management Facility.

2.0 Introduction

In a waste management context, litter can be described as any material or substance that detracts from the visual amenity of an area or represents a nuisance to the community in the vicinity of the waste facility. Litter generally consists of paper and plastics that escape from controlled environments and become distributed around, and outside, the facility.

For the Broken Hill Waste Facility, the sources of litter production can be attributed to a number of factors, but the more consistent sources of litter include uncovered loads of waste material entering the site or being transported within the site, operations at the active landfill tipping faces, waste transfer activities and at resource recovery areas.

Actions to control litter fall into two main categories, proactive and reactive. Although it is desirable to prevent litter from occurring, the reality is that not all litter is preventable and that actions must be undertaken to respond to litter occurrences. This litter control plan recognises that litter is a factor in the management of waste facilities and has established actions to respond to litter events.

Litter managed poorly can result in unwanted consequences including -

- Complaints from adjoining neighbours
- An improvement notice from the EPA
- Council not meeting his legislative obligations and reflecting poorly on performance
- Opposition from neighbours on any proposed expansion of the landfill

operations or changes to existing activities and practices
- Increased risk of fire where litter accumulates
- Poor aesthetics that are construed as overall poor site management
- Increased operating costs

3.0 Purpose

This Litter Control Plan has been prepared to identify best management practices and offer guidance for the facility supervisor and staff for compliance with regulatory requirements for the management of litter. Although regulatory compliance is the predominant objective of this plan, Council should also strive to maintain high standards in its operations of the Waste Facility and therefore has adopted actions identified in the Litter Control Plan to ensure these standards are achieved and maintained.

4.0 Litter and the EPA "Environmental Guidelines: Solid Waste Landfills"

The Environment Protection Authority (EPA) has prepared a document entitled "Environmental Guidelines: Solid Waste Landfills" the purpose of which is to provide a consistent and environmentally responsible approach to managing landfills across NSW. The EPA has selected a performance based approach to achieving best environmental outcomes rather than prescribing actions and offers flexibility for operators in delivering the required performance standards.

These Guidelines have established benchmark techniques for the operation of landfills that are suitable for achieving the environmental goals contained within the Guidelines. Litter falls within the environmental goal of "preventing degradation of local amenity". The Guidelines state that local amenity should not be degraded by litter and windblown litter is a nuisance to the community and should generally be controlled.

In the preparation of its Landfill Environmental Management Plan (LEMP) Broken Hill City Council has adopted the benchmark techniques contained within the "Environmental Guidelines: Solid Waste Landfills".

The Guidelines suggest that litter should generally be controlled by the following techniques -

- The occupier should introduce procedures that prevent the unnecessary proliferation of litter. Such procedures might include continuous compaction of waste material, and use of litter fences, and the occupier is responsible for ensuring that all wind-blown litter that leaves the site is retrieved.
- All litter fences, perimeter fences and gates should be inspected daily and cleared of litter on a daily basis, or as required.
- Entry and exit signs need to advise transport operators that they can be fined for any litter on public roads resulting from their improper transportation of waste.

- All litter that leaves the site should be retrieved on a daily basis.

It is important to remember that the landfill operation at the Broken Hill Waste Facility is not the only activity within that site that has the potential to produce litter and additional measures need to be implemented in a comprehensive litter control plan.

5.0 Control Measures

Best management practices in the control of litter require a broad spectrum approach in identifying the potential sources of litter, determining control measures, responding to litter events, establishing standards and monitoring performance. The following list proposes control measures in the management of litter at the Broken Hill Waste Facility -

1. Confine the working face of the active fill area. Management of the daily working face should be kept to the smallest practical area with immediate compaction of the placed waste material to minimize the impacts of wind. The current practice of having three active waste placement areas should be consolidated into just one area. During periods of high wind events, clean fill is to be used to cover the compacted waste as a litter control action. Equally, at the end of the day's operations, clean fill is to be used to cover any exposed waste.
2. Use litter fences and screens. Moveable litter fences are usually constructed of pipe frames with chain link in-fills and dimensions of each panel about 3.0 m x 2.0 m. The higher the fence the more efficient it becomes in trapping windblown litter. Moveable litter fences can be erected around the active tipping area and re-located as the tipping face changes.
3. Maintain short pushing distances when placing waste material. Pushing short means that the waste unloading or tipping areas are kept as close as possible to the working face of the landfill. In this manner, the distance that plant operators will have to travel while pushing the waste into place and compacting is minimized. This practice will minimize the wind exposure that the uncovered waste will receive as it is being placed. Plant operators are to ensure that the unloading platform migrates as waste is placed and incoming vehicles are unloading as close as possible to the working face.
4. Cover waste more frequently during periods of high wind. Selective placement of small amounts of cover material can effectively reduce wind dispersal of litter and can save significant amounts of time and cost when compared with litter clean up. Cover material placed for the sole purpose of litter control does not have a minimum thickness requirement and can therefore be placed in a manner that does not consume unnecessarily large volumes of landfill air space in achieving its objective.
5. Restrict waste placement during periods of high wind. It is unlikely that all waste receivals at the landfill can be restricted during high wind events, but activities such as taking bins from the transfer station (to be constructed in the near term) can be delayed, restricting simultaneous arrivals at the tipping face can be managed and reducing the size of the active tipping area can all contribute to better performance.
6. Undertake routine litter inspections and pick-ups. Preventative litter control

programs will not eliminate all litter problems. For this reason, best practice will require that site operators conduct and document routine litter inspections and remove litter from on-site and off-site areas of accumulation. Litter inspections are to be conducted and recorded in keeping with the Broken Hill Waste Facility environmental monitoring program which requires weekly inspections and corresponding actions in collecting any litter identified within and outside of the site. This includes the road reserve up to two kilometres on either side of the site entrance. Depending on wind conditions and waste types, inspections and litter removal may need to be carried out more frequently. Litter inspection and removal efforts are to focus on likely accumulation areas such as fence lines, borrow pits, drainage swales, culverts, vegetated side slopes and timbered areas of beyond the site boundaries.

7. Use of portable (skid-mounted) litter fences. These may be provided for deployment downwind as close as practical to the working area and, where practical, semipermanent fencing may be provided around the current filling stage as an additional barrier to the migration of litter off-site when litter has not been contained by the portable litter fences. Litter fences and litter screens should be trialled and their effectiveness appraised as part of the implementation of the litter control plan.
8. Cover transfer bins. Waste bins (or tip truck) transported from the proposed transfer station to the active tipping area are to have covers applied or be fitted with hydraulically operated lids to prevent the discharge of litter during the transfer phase.
9. Litter collection. The most common form of litter collection is by hand picking using extending grips and bags for the placement of the collected litter. Should this be the preferred means of litter collection, then Safe Work Method Statements (SWMS) are to be prepared for this activity in conjunction with Standard Operating Procedures (SOPs) and appropriate staff training.
10. Record keeping. Litter can be notorious in re-appearing and it would be good practice for the site operator to take photos after litter has been collected between routine collections to be able to demonstrate the commitment to litter management is being undertaken.
11. Placement of intermediate cover. Intermediate cover is required to be placed over compacted waste at a minimum depth of 300 mm to surfaces that will be exposed for more than 90 days. Ensuring immediate cover is placed and compacted as required will assist in ensuring previous filled areas of the landfill do not result in waste being exposed and litter generated.
12. Responding to weather events. Although the frequency of inspecting the site and collecting litter has been determined as a weekly event, in times of extreme weather where wind can cause an increase in the generation of litter, it will be the responsibility of the site operator to arrange for the undertaking of additional litter collection activities as required.
13. Establishment of buffer zones. Long term management of the landfill site should see cleared buffer zones created about the perimeter of the site to facilitate vehicular access for the collection of windblown litter. This matter should be addressed and actioned.

14. Tool Box talks. Tool box talks provide an important means to discuss work, health and safety matters associated with the operation of the waste facility. It is the forum whereby operational matters such as litter control can be a standing agenda item and measures put in place to ensure litter is addressed in a formal manner. Tool box talks should be programmed as a weekly activity at the Broken Hill Waste Facility and should include litter control in routine discussions. A standard tool box talk pro-forma can be found on page 11 of this document.

6.0 Monitoring and Reporting

1. Monitoring and reporting should form part of the Council's overall management processes and litter control and are to be included in the standard reports presented to Council's Environment, Waste and Recycling Specialist Officer.
2. Litter control is to be a standing agenda item at the site tool box meetings and responsibilities apportioned to staff and actions determined at each meeting.
3. Council has put in place a Landfill Environment Management Plan (LEMP) that requires the conducting of routine inspection of the site and site activities and to check that measures are enacted to mitigate any potential environmental incident. Litter control is included in the LEMP and is to be reported in the format and timeframes as required.

7.0 Action Table – Litter Control

Location	Action	Responsibility	Timing	Comment
Gatehouse	Inspect all incoming loads to ensure waste material is being covered during transportation to the site Ensure "cover your load" signage is visible	Gatehouse operator	For all incoming vehicles	To be undertaken in accordance with the SOP
Transfer Station (future)	Ensure transfer bins (or tip truck) are covered or lids secured in the down position during transportation to the landfill tipping face	Transfer station attendant	During transportation of transfer bins	
Active Tipping Area	Consolidate all mixed solid waste disposal to one active tipping area	Site supervisor	Ongoing	
	Confine the working face of the active fill	Plant operator	Daily	
	Use litter fences and screens	Site supervisor	As determined by the site supervisor	
	Maintain short pushing distances when placing waste material	Plant operator	Daily	
	Compact waste using the "four pass" technique on grades of	Plant operator	Daily	

	Cover waste more frequently during periods of high wind	Plant operator	As determined by the plant operator	
	Restrict waste placement during periods of high wind	Site supervisor	As determined by the site supervisor	
Filled and covered areas of the landfill	Placement and compaction of intermediate cover to 300mm depth	Site supervisor	Where surfaces will be exposed for more than 90 days	
Overall site, including drainage swales, embankments, fence lines, adjoining properties, internal roads, resource recovery activity areas, transfer station	Undertake routine litter inspections and pick-ups	Site supervisor	Weekly, or after severe wind events	
Road Reserve	Undertake routine litter inspections and pick-ups	Site supervisor	Weekly	To be undertaken in accordance with SOPs and SWMS
On site	Tool Box talks	Site supervisor	Weekly	With relevant staff. Records to be kept, including proposed actions and responsibilities
	Landfill Environmental Management Plan	Site supervisor	As prescribed in the LEMP	

BROKEN HILL CITY COUNCIL

BROKEN HILL CITY COUNCIL – TOOLBOX MEETING RECORD

INFRASTRUCTURE and ENVIRONMENT DEPARTMENT

Date		Project	Monthly Toolbox	Location	Waste Management facility
Sustainability and Waste Department		Conducted By:		Position:	

ACKNOWLEDGEMENT OF COUNTRY

We acknowledge the traditional owners of the land upon which we meet today, the land of the Wilyakali people, and pay our respects to their elders; past, present and emerging.

TOPICS RAISED	OUTCOMES / ACTION REQUIRED
WHS ISSUES –	

BROKEN HILL
CITY COUNCIL

BROKEN HILL CITY COUNCIL – TOOLBOX MEETING RECORD

INFRASTRUCTURE and ENVIRONMENT DEPARTMENT

SIGN IF IN ATTENDANCE	SIGN IF IN ATTENDANCE	SIGN IF IN ATTENDANCE	SIGN IF IN ATTENDANCE

3.6. ATTACHMENT F - ENVIRONMENTAL MONITORING PLAN AND CHECKLIST

Broken Hill Waste Management Facility
Landfill Environmental Management Plan (LEMP) Version 3.0, February 2019
Environmental Monitoring Plan and Checklist #1

Groundwater / Leachate

Date of Monitoring: ____________ Weather: ____________ Sampled by: ____________

	Time	Standing Water Level	Purging			Volume Water Removed	Description	# Sample Containers Filled					Initials
			Well Dry	or	Parameters Stable*			Metals (Filtered)	Cations / Anions / pH / EC / Hardness	Nutrients	Phenols	TOC	
BH1			☐		☐								
BH2			☐		☐								
BH3			☐		☐								
BH4			☐		☐								
BH5			☐		☐								
BH6			☐		☐								
LW1			*Water level gauging only. Pump out to evaporation basin required if water column height greater than 1.30 m.*										

Laboratory: ____________ Sent on: ____________ Courier & Consignment #: ____________

Date of Monitoring: ____________ Weather: ____________ Sampled by: ____________

	Time	Standing Water Level	Purging			Volume Water Removed	Description	# Sample Containers Filled					Initials
			Well Dry	or	Parameters Stable*			Metals (Filtered)	Cations / Anions / pH / EC / Hardness	Nutrients	Phenols	TOC	
BH1			☐		☐								
BH2			☐		☐								
BH3			☐		☐								
BH4			☐		☐								
BH5			☐		☐								
BH6			☐		☐								
LW1			*Water level gauging only. Pump out to evaporation basin required if water column height greater than 1.30 m.*										

Laboratory: ____________ Sent on: ____________ Courier & Consignment #: ____________

Date of Monitoring: ____________ Weather: ____________ Sampled by: ____________

	Time	Standing Water Level	Purging			Volume Water Removed	Description	# Sample Containers Filled					Initials
			Well Dry	or	Parameters Stable*			Metals (Filtered)	Cations / Anions / pH / EC / Hardness	Nutrients	Phenols	TOC	
BH1			☐		☐								
BH2			☐		☐								
BH3			☐		☐								
BH4			☐		☐								
BH5			☐		☐								
BH6			☐		☐								
LW1			*Water level gauging only. Pump out to evaporation basin required if water column height greater than 1.30 m.*										

Laboratory: ____________ Sent on: ____________ Courier & Consignment #: ____________

** Water quality parameters (pH, conductivity, and temperature) are recorded after purging every 3 litres of groundwater (or 1 litre if purging by 'low-flow'), and are considered to have stabilised when successive measurements are within +/- 10% for all parameters.*

Broken Hill Waste Management Facility
Landfill Environmental Management Plan (LEMP) Version 3.0, February 2019
Environmental Monitoring Plan and Checklist #2

Weekly Checklist

Checklist Completed By: _____ **Date:** _____ **Weather:** _____

Litter Inspections	**Cleanup Required**	
Depot Road / Wills Street	Y ☐	N ☐
Site Entrance	Y ☐	N ☐
Perimeter Fence	Y ☐	N ☐

Surface Water Management

Dam 1A Head Space _____ m *(pump out required if less than 0.76 m)*

Dam 2 Head Space _____ m *(pump out required if less than 1.18 m)*

Locations Where Water Pooling _____

Waste Area Inspections	**Contamination Requiring Transfer**		**Daily Cover Applied**		**Adequate Capacity***	
Animal Burial	Y ☐	N ☐	Y ☐	N ☐	Y ☐	N ☐
Asbestos Cell	Y ☐	N ☐	Y ☐	N ☐	Y ☐	N ☐
Municipal Waste	Y ☐	N ☐	Y ☐	N ☐	Y ☐	N ☐
Public Waste Drop-Off	Y ☐	N ☐	Y ☐	N ☐	Y ☐	N ☐
Recycling Facility	Y ☐	N ☐	N/A		Y ☐	N ☐
Building / Demolition Waste	Y ☐	N ☐			Y ☐	N ☐
Green Waste	Y ☐	N ☐			Y ☐	N ☐
Cardboard	Y ☐	N ☐			Y ☐	N ☐
Steel / Scrap Metal	Y ☐	N ☐			Y ☐	N ☐
Tyres	Y ☐	N ☐			Y ☐	N ☐
Grease Trap / Septic Waste	Y ☐	N ☐			Y ☐	N ☐

** Discuss in 'Other Comments' methodology to address insufficient storage*

Pest Control			**Comments**
Evidence of:			
Noxious Weeds	Y ☐	N ☐	
Vermin	Y ☐	N ☐	

Security and Access			**Comments**
Perimeter Fence Inspected	Y ☐	N ☐	
Locks on all Gates and Compounds	Y ☐	N ☐	
Signs at Entry Visible	Y ☐	N ☐	
Site Roadway Signposts	Y ☐	N ☐	
Access Roads Trafficable	Y ☐	N ☐	
Dust Suppression Required	Y ☐	N ☐	

Other Comments

3.7. ATTACHMENT G - OPERATIONAL CONTROL FORMS

3.7.1. Form 3.13a – LEMP Review Record

Form 3.13a – LEMP Review Record

LEMP REVIEW[1]

Review Date	Amended (Y/N)	Version #	Sign-Off
May 2016	Y	Version 2	
___ 2021			
___ 2026			

OPERATIONAL CONTROL REVIEW[2]

Operational Control Reference		Review Summary							
		__/__ 2017	__/__ 2018	6 / 2 2019	__/__ 2020	__/__ 2021	__/__ 2022	__/__ 2023	__/__ 2024
3.1	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.2	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.3	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.4	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.5	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.6	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.7	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.8	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.9	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.10	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.11	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.12	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.13	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.14	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.15	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____
3.16	Reviewed by: Revision Ref:	_____ _____	_____ _____	Geolyse 3.0	_____ _____	_____ _____	_____ _____	_____ _____	_____ _____

STATUTORY REVIEW[3]

Statutory Article		Review Summary														
		__/__ 2016	__/__ 2017	__/__ 2017	__/__ 2018	__/__ 2018	6 / 2 2019	__/__ 2019	__/__ 2020	__/__ 2020	__/__ 2021	__/__ 2021	__/__ 2022	__/__ 2022	__/__ 2023	__/__ 2023
EPL 5898	Article Amended (Y/N):	____	____	____	____	____	Y	____	____	____	____	____	____	____	____	____
	LEMP requires update:	____	____	____	____	____	Y	____	____	____	____	____	____	____	____	____
POEO Act (1997)	Article Amended (Y/N):	____	____	____	____	____	N	____	____	____	____	____	____	____	____	____
	LEMP requires update:	____	____	____	____	____	N	____	____	____	____	____	____	____	____	____
POEO (Waste) Regulation 2014	Article Amended (Y/N):	____	____	____	____	____	N	____	____	____	____	____	____	____	____	____
	LEMP requires update:	____	____	____	____	____	N	____	____	____	____	____	____	____	____	____
Environmental Guidelines: Solid Waste Landfills (2nd Ed., 2016)	Article Amended (Y/N):	____	____	____	____	____	N	____	____	____	____	____	____	____	____	____
	LEMP requires update:	____	____	____	____	____	N	____	____	____	____	____	____	____	____	____
Other (Specify): _____	Article Amended (Y/N):	____	____	____	____	____	N/A	____	____	____	____	____	____	____	____	____
	LEMP requires update:	____	____	____	____	____	N/A	____	____	____	____	____	____	____	____	____

Notes:

1 – LEMP requires review every five (5) years

2 – Operational Controls (LEMP Section 3) require review annually

3 – Statutory articles require review every six (6) months

All revisions and amendments to the LEMP are required to be recorded on the Updates Register (**Form 3.13b**).

3.7.7. **Form 3.13b –** LEMP UPDATE REGISTER

Form 3.13b – LEMP Updates Register

UPDATES REGISTER			
Section of LEMP	**Latest Version No.**	**Date Issued**	**Sign-Off**
Entire Document	Version 2	May 2016	
Entire Document	Version 3	February 2019	

3.7.3. Form 3.14a – Pollution Incident Report Form

Form 3.14a – Pollution Incident Report Form *Page 1 of 2*

INCIDENT NO:	TIME:
DATE:	DURATION OF INCIDENT:

NATURE OF INCIDENT:

TEMPERATURE: .....°C **WIND DIRECTION & SPEED:** .....KM/HR

RELATIVE HUMIDITY: ..... % **RAINFALL SINCE 9AM:**.....MM

FIRE DANGER RATING: .....

THE LOCATION OF THE PLACE WHERE POLLUTION IS OCCURRING OR IS LIKELY TO OCCUR:

THE NATURE, THE ESTIMATED QUANTITY OR VOLUME AND THE CONCENTRATION OF ANY POLLUTANTS INVOLVED (IF KNOWN):

THE CIRCUMSTANCES IN WHICH THE INCIDENT OCCURRED, INCLUDING THE CAUSE OF THE INCIDENT (IF KNOWN):

THE CORRECTIVE ACTION TAKEN OR PROPOSED TO BE TAKEN TO DEAL WITH THE INCIDENT AND ANY RESULTING POLLUTION OR THREATENED POLLUTION (IF KNOWN):

Form 3.14a – Pollution Incident Report Form *Page 2 of 2*

HAS COUNCIL BEEN NOTIFIED?	YES	NO
HAS ENVIRONMENT PROTECTION AUTHORITY (EPA) BEEN NOTIFIED?	YES	NO
HAS NSW MINISTRY OF HEALTH (VIA PUBLIC HEALTH UNITS) BEEN NOTIFIED?	YES	NO
HAS WORKCOVER NSW BEEN NOTIFIED?	YES	NO
HAS LOCAL FIRE AND RESCUE NSW BEEN NOTIFIED?	YES	NO

HAS EPA DIRECTED COUNCIL TO NOTIFY NEIGHBOURS?	YES	NO
IF NOT, HAS COUNCIL VOLUNTARILY NOTIFIED NEIGHBOURS?	YES	NO

Signature: ..... **Date:** .....

Signature: .....
General Manager (or Delegate), Broken Hill City Council

Date: .....

3.7.4. Form 3.14b – PIRMP Testing and Updates Register

Form 3.14b – PIRMP Testing and Updates Register

Date	Routine Testing	Routine Update	Post Incident Updates	4 New Copies Distributed?
March 2013		Contact Details and content check and placed on website	n/a	Trimmed electronically and copy provided for landfill
September 2014		Contact Details and content check	n/a	
October 2014		Placed on web site	n/a	Trimmed electronically and copy provided for landfill
September and October 2015	Training of all waste staff completed Oct 20, 2015, including testing with scenarios. Training run by Geolyse Pty Ltd	Content of document updated to reflect changes at the facility, contact numbers checked and updated as required	n/a	Trimmed and updated copies provided for landfill. Senior staff notified that updated copies are now available.
February 2019		Contact Details Content Check & corresponding amendments.	n/a	

3.7.5. Form 3.14c – Staff Training Register

Form 3.14c - Staff Training Register

Date	Staff Member	Brief Description of Training Task

3.7.6. Form 3.15a – Complaints Register

Form 3.15a – Complaints Register

COMPLAINTS REGISTER

Complaint No.	Weather Conditions	Date	Nature of Complaint

3.7.7. Form 3.15b – Pollution Complaint

Form 3.15b – Pollution Complaint

DATE:	TIME:

COMPLAINT NO:

HOW COMPLAINT WAS LODGED:

COMPLAINT DETAILS:

NATURE OF COMPLAINT:

CAUSE:

CORRECTIVE ACTION:

FOLLOW-UP ACTION REQUIRED?

SIGNATURE:	DATE:

4. Drawings

THIS PLAN IS PREPARED FROM A FIELD SURVEY FOR THE PURPOSE OF DESIGNING NEW CONSTRUCTIONS ON THE LAND AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.

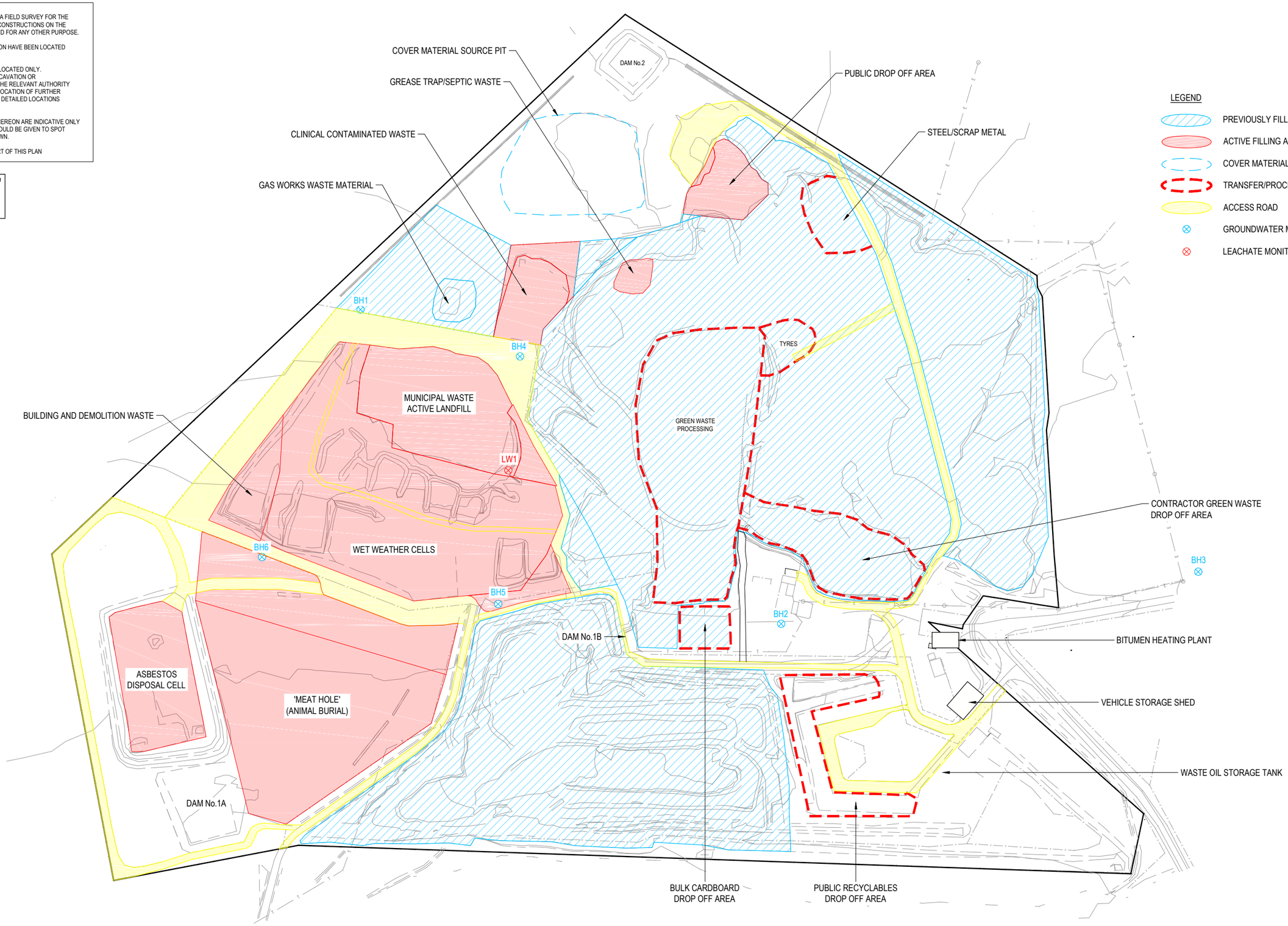
SOME SERVICES SHOWN HEREON HAVE BEEN LOCATED BY FIELD SURVEY.

VISIBLE SERVICES HAVE BEEN LOCATED ONLY. PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON THE SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.

CAUTION: CONTOURS SHOWN HEREON ARE INDICATIVE ONLY PREFERENCE SHOULD BE GIVEN TO SPOT HEIGHTS AS SHOWN.

THIS NOTE IS AN INTEGRAL PART OF THIS PLAN

www.dialbeforeyoudig.com.au
DIAL 1100 BEFORE YOU DIG



GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800
orange@geolyse.com
www.geolyse.com
Ph. (02) 6393 5000
Fx. (02) 6393 5050

REV.	DATE	DFTD.	APPD.	DETAILS
A	21/06/2016	BH	BS	ISSUED FOR REVIEW

DRAWING SCALE

SCALE 1:2000 (A1)

0 50 100 150 200

SCALE 1:4000 (A3)

0 50 100 150 200

DO NOT SCALE FROM THESE DRAWINGS. ALL MEASUREMENTS SHALL BE CONFIRMED ON SITE AND WITH GEOLYSE PTY. LTD. PRIOR TO CONSTRUCTION

APPROVAL AUTHORITY: BROKEN HILL CITY COUNCIL

CLIENT: BROKEN HILL CITY COUNCIL

PROJECT: BROKEN HILL WASTE MANAGEMENT FACILITY LANDFILL ENVIRONMENTAL MANAGEMENT PLAN

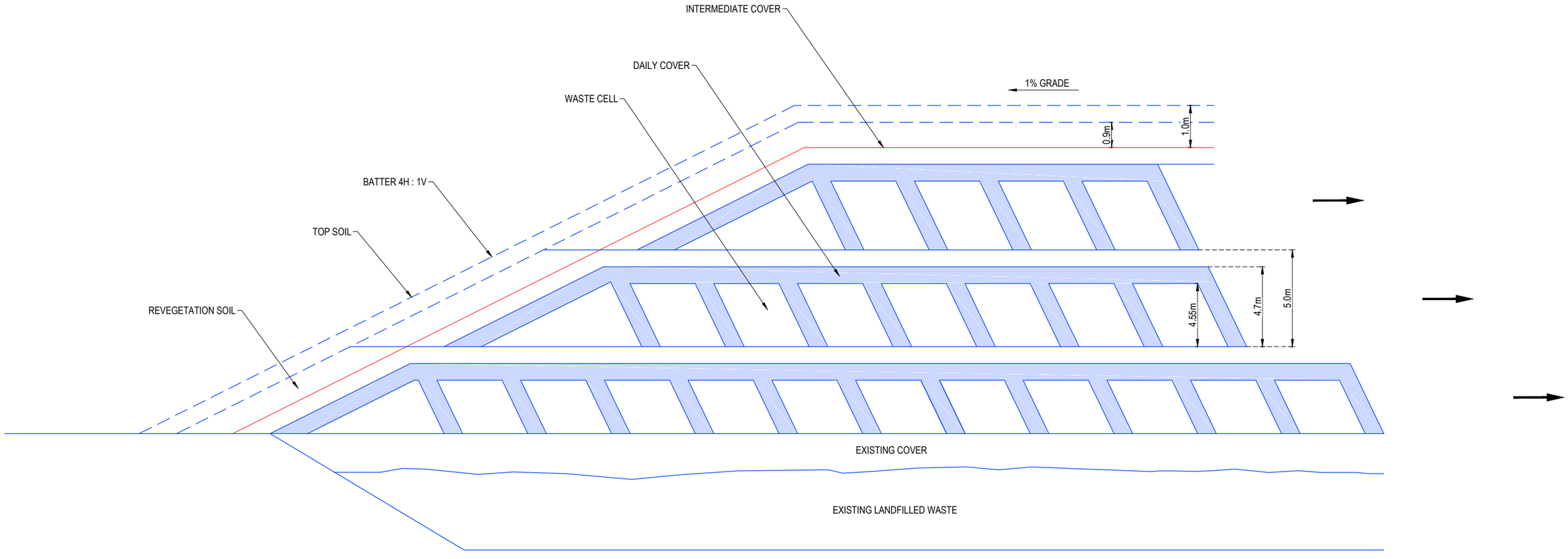
DRAWING: SITE LAYOUT AND FILLING AREAS

PROJECT NUMBER 216074 | DRAWING FILE 216074_02A_EV01-EV02.dwg | ORIGINAL A1

DATA SOURCE -

IMAGE SOURCE -

STATUS FOR REVIEW | SHEET EV01 OF EV02 | SET 02A



CONCEPT DESIGN
NOT FOR CONSTRUCTION

GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800
orange@geolyse.com
www.geolyse.com
Ph. (02) 6393 5000
Fx. (02) 6393 5050

REV.	DATE	DFTD.	APPD.	DETAILS
A	21/06/2016	BH	BS	ISSUED FOR REVIEW

DRAWING SCALE: NOT TO SCALE

DO NOT SCALE FROM THESE DRAWINGS. ALL MEASUREMENTS SHALL BE CONFIRMED ON SITE AND WITH GEOLYSE PTY. LTD. PRIOR TO CONSTRUCTION

APPROVAL AUTHORITY: BROKEN HILL CITY COUNCIL

CLIENT: BROKEN HILL CITY COUNCIL

PROJECT: BROKEN HILL WASTE MANAGEMENT FACILITY LANDFILL ENVIRONMENTAL MANAGEMENT PLAN

DRAWING: FILLING AND CAPPING SCHEMATIC

PROJECT NUMBER 216074 | DRAWING FILE 216074_02A_EV01-EV02.dwg | ORIGINAL A1

DATA SOURCE -

IMAGE SOURCE -

STATUS FOR REVIEW | SHEET EV02 OF EV02 | SET 02A

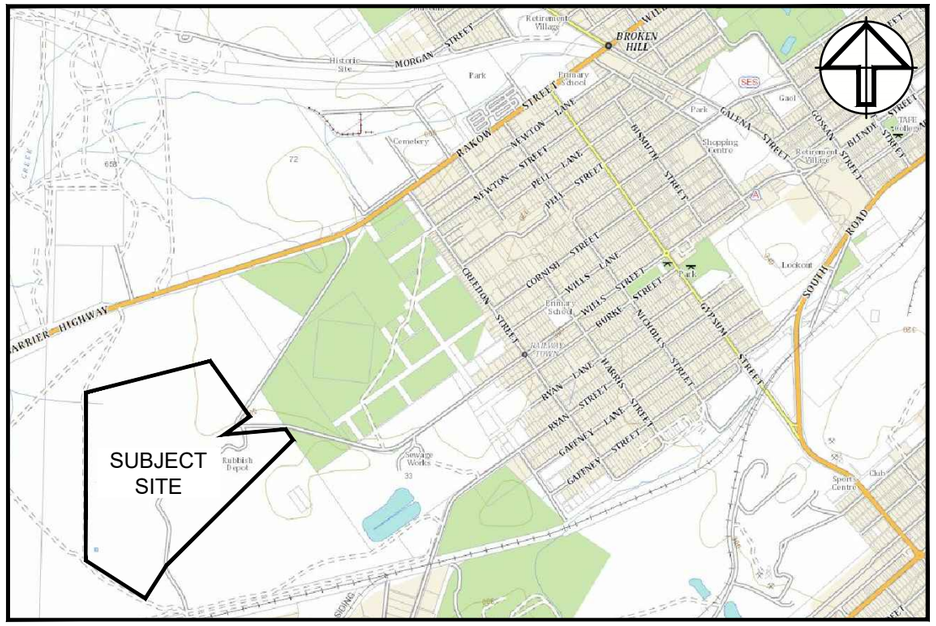
BROKEN HILL WASTE MANAGEMENT FACILITY

DEPOT ROAD, BROKEN HILL

BROKEN HILL CITY COUNCIL

CONCEPTUAL LANDFILL EXPANSION STAGING PLANS

SCHEDULE OF DRAWINGS	
DRAWING	TITLE
EV01	TITLE SHEET
EV02	EXISTING SITE LAYOUT
EV03	CONCEPTUAL LIFT 1 LAYOUT
EV04	CONCEPTUAL LIFT 2 LAYOUT
EV05	CONCEPTUAL LIFT 3 LAYOUT
EV06	CONCEPTUAL LANDFILL TYPICAL SECTIONS



SITE LOCALITY

NOT TO SCALE

GEOLYSE

ORANGE

154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800

orange@geolyse.com
www.geolyse.com

Ph. (02) 6393 5000
Fx. (02) 6393 5050

REV.	DATE	DFTD.	APPD.	DETAILS
A	23/06/16	AJD	BS	ISSUED FOR REVIEW

DRAWING SCALE

DO NOT SCALE FROM THESE DRAWINGS. ALL MEASUREMENTS SHALL BE CONFIRMED ON SITE AND WITH GEOLYSE PTY. LTD. PRIOR TO CONSTRUCTION

APPROVAL AUTHORITY: BROKEN HILL CITY COUNCIL

CLIENT: BROKEN HILL CITY COUNCIL

PROJECT: BROKEN HILL WASTE MANAGEMENT FACILITY

DRAWING: TITLE SHEET

PROJECT NUMBER 216074 | DRAWING FILE 216074_03A_EV01-EV06.dwg | ORIGINAL A1

DATA SOURCE

IMAGE SOURCE LPI TOPOGRAPHIC MAP SERIES | SET 03

STATUS FOR REVIEW | SHEET EV01 OF EV06

NOTES:

1. THIS PLAN IS PREPARED FROM A COMBINATION OF FIELD SURVEY PREPARED BY GRAHAM F. HOWE (DRAWING REF: C88-M15, DATED 30/06/2015) AND LIDAR SURFACE DATA OBTAINED FROM NEW SOUTH WALES LAND AND PROPERTY INFORMATION (LPI). THE FIELD SURVEY DATA HAS BEEN ALIGNED TO LPI SCIMS PM 83690 AND PM 83691 TO MERGE WITH THE LIDAR SURFACE DATA. THIS PLAN SHALL BE USED FOR CONCEPTUAL DESIGN PURPOSES ONLY AND SHALL NOT BE USED FOR ANY OTHER PURPOSE.
2. VISIBLE SERVICES HAVE BEEN LOCATED ONLY. THE RELEVANT AUTHORITIES SHOULD BE CONTACTED FOR THE LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.
3. CONTOUR INTERVAL 0.5m.
4. THESE NOTES ARE AN INTEGRAL PART OF THIS PLAN.

LEGEND:

- EXISTING FENCE
- EXISTING EASEMENT
- EXISTING BANK
- EXISTING DRAINAGE LINE
- EXISTING ELECTRICITY
- EXISTING TELECOMMUNICATIONS
- EXISTING WATER

GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800
orange@geolyse.com
www.geolyse.com
Ph. (02) 6393 5000
Fx. (02) 6393 5050

REV.	DATE	DFTD.	APPD.	DETAILS
A	23/06/16	AJD	BS	ISSUED FOR REVIEW

DRAWING SCALE

SCALE 1:2500 (A1)

0 50 100 150 200

0 50 100 150 200

SCALE 1:5000 (A3)

DO NOT SCALE FROM THESE DRAWINGS. ALL MEASUREMENTS SHALL BE CONFIRMED ON SITE AND WITH GEOLYSE PTY. LTD. PRIOR TO CONSTRUCTION

APPROVAL AUTHORITY: BROKEN HILL CITY COUNCIL

CLIENT: BROKEN HILL CITY COUNCIL

PROJECT: BROKEN HILL WASTE MANAGEMENT FACILITY

DRAWING: EXISTING SITE LAYOUT

PROJECT NUMBER 216074	DRAWING FILE 216074_03A_EV01-EV06.dwg	ORIGINAL A1
DATA SOURCE MULTIPLE		
IMAGE SOURCE		SET 03
STATUS FOR REVIEW	SHEET EV02 OF EV06	

NOTES:

1. THIS PLAN IS PREPARED FROM A COMBINATION OF FIELD SURVEY PREPARED BY GRAHAM F. HOWE (DRAWING REF: C88-M15, DATED 30/06/2015) AND LIDAR SURFACE DATA OBTAINED FROM NEW SOUTH WALES LAND AND PROPERTY INFORMATION (LPI). THE FIELD SURVEY DATA HAS BEEN ALIGNED TO LPI SCIMS PM 83690 AND PM 83691 TO MERGE WITH THE LIDAR SURFACE DATA. THIS PLAN SHALL BE USED FOR CONCEPTUAL DESIGN PURPOSES ONLY AND SHALL NOT BE USED FOR ANY OTHER PURPOSE.
2. VISIBLE SERVICES HAVE BEEN LOCATED ONLY. THE RELEVANT AUTHORITIES SHOULD BE CONTACTED FOR THE LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.
3. CONTOUR INTERVAL 0.5m.
4. ALL VOLUMES AND LEVELS SHOWN ARE CONCEPTUAL ONLY AND ARE SUBJECT TO DETAILED ENGINEERING DESIGN.
5. THESE NOTES ARE AN INTEGRAL PART OF THIS PLAN.

7300
DP 1179131

6667
DP 822054

7301
DP 1179131

EXISTING BORROW PIT (TO REMAIN)

DEPOT ROAD

ROAD

BITUMEN

EXISTING DAM (TO REMAIN)

EXISTING WASTE STORAGE DAM (TO REMAIN)

CONCEPTUAL LIFT 1
(NS+5m AT SOUTHERN CORNER)
CAPPING LEVEL R.L. 295.000
TOTAL FILLING VOLUME
247735m³
APPROXIMATE LIFE 2.5 YEARS
AT 95000m³ PER YEAR

EXISTING CATCHMENT DAM (TO REMAIN)

EXISTING RECYCLING FACILITY (TO REMAIN)

BITUMEN ROAD

WILLS STREET

7304
DP 1179131

101
DP 757298

2076
DP 757298

7305
DP 1179131

7306
DP 1179131

7300
DP 1179131

LEGEND:

- EXISTING LIMITS OF FILLING
- EXISTING FENCE
- EXISTING EASEMENT
- EXISTING BANK
- EXISTING DRAINAGE LINE
- EXISTING ELECTRICITY
- EXISTING TELECOMMUNICATIONS
- EXISTING WATER

GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800
orange@geolyse.com
www.geolyse.com
Ph. (02) 6393 5000
Fx. (02) 6393 5050

REV.	DATE	DFTD.	APPD.	DETAILS
A	23/06/16	AJD	BS	ISSUED FOR REVIEW

DRAWING SCALE

SCALE 1:2500 (A1)

0 50 100 150 200

SCALE 1:5000 (A3)

0 50 100 150 200

DO NOT SCALE FROM THESE DRAWINGS. ALL MEASUREMENTS SHALL BE CONFIRMED ON SITE AND WITH GEOLYSE PTY. LTD. PRIOR TO CONSTRUCTION

APPROVAL AUTHORITY: BROKEN HILL CITY COUNCIL

CLIENT: BROKEN HILL CITY COUNCIL

PROJECT: BROKEN HILL WASTE MANAGEMENT FACILITY

DRAWING: CONCEPTUAL LIFT 1 LAYOUT

PROJECT NUMBER 216074 | DRAWING FILE 216074_03A_EV01-EV06.dwg | ORIGINAL A1
DATA SOURCE INTERNAL
IMAGE SOURCE | SET 03
STATUS FOR REVIEW | SHEET EV03 OF EV06

NOTES:

1. THIS PLAN IS PREPARED FROM A COMBINATION OF FIELD SURVEY PREPARED BY GRAHAM F. HOWE (DRAWING REF: C88-M15, DATED 30/06/2015) AND LIDAR SURFACE DATA OBTAINED FROM NEW SOUTH WALES LAND AND PROPERTY INFORMATION (LPI). THE FIELD SURVEY DATA HAS BEEN ALIGNED TO LPI SCIMS PM 83690 AND PM 83691 TO MERGE WITH THE LIDAR SURFACE DATA. THIS PLAN SHALL BE USED FOR CONCEPTUAL DESIGN PURPOSES ONLY AND SHALL NOT BE USED FOR ANY OTHER PURPOSE.
2. VISIBLE SERVICES HAVE BEEN LOCATED ONLY. THE RELEVANT AUTHORITIES SHOULD BE CONTACTED FOR THE LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.
3. CONTOUR INTERVAL 0.5m.
4. ALL VOLUMES AND LEVELS SHOWN ARE CONCEPTUAL ONLY AND ARE SUBJECT TO DETAILED ENGINEERING DESIGN.
5. THESE NOTES ARE AN INTEGRAL PART OF THIS PLAN.

7300
DP 1179131

6667
DP 822054

7301
DP 1179131

EXISTING BORROW PIT (TO REMAIN)

CONCEPTUAL LIFT 2
(NS+10m AT SOUTHERN CORNER)
CAPPING LEVEL R.L. 300.000
TOTAL FILLING VOLUME 1451535m³
APPROXIMATE LIFE 15 YEARS AT 95000m³ PER YEAR

DEPOT ROAD

ROAD

BITUMEN

EXISTING DAM (TO REMAIN)

EXISTING WASTE STORAGE DAM (TO REMAIN)

EXISTING CATCHMENT DAM (TO REMAIN)

EXISTING RECYCLING FACILITY (TO REMAIN)

BITUMEN ROAD

WILLS STREET

7304
DP 1179131

101
DP 757298

2076
DP 757298

7305
DP 1179131

7306
DP 1179131

7300
DP 1179131

LEGEND:

- EXISTING LIMITS OF FILLING
- EXISTING FENCE
- EXISTING EASEMENT
- EXISTING BANK
- EXISTING DRAINAGE LINE
- EXISTING ELECTRICITY
- EXISTING TELECOMMUNICATIONS
- EXISTING WATER

GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800
orange@geolyse.com
www.geolyse.com
Ph. (02) 6393 5000
Fx. (02) 6393 5050

REV.	DATE	DFTD.	APPD.	DETAILS
A	23/06/16	AJD	BS	ISSUED FOR REVIEW

DRAWING SCALE

SCALE 1:2500 (A1)

0 50 100 150 200

SCALE 1:5000 (A3)

0 50 100 150 200

DO NOT SCALE FROM THESE DRAWINGS. ALL MEASUREMENTS SHALL BE CONFIRMED ON SITE AND WITH GEOLYSE PTY. LTD. PRIOR TO CONSTRUCTION

APPROVAL AUTHORITY: BROKEN HILL CITY COUNCIL

CLIENT: BROKEN HILL CITY COUNCIL

PROJECT: BROKEN HILL WASTE MANAGEMENT FACILITY

DRAWING: CONCEPTUAL LIFT 2 LAYOUT

PROJECT NUMBER 216074 | DRAWING FILE 216074_03A_EV01-EV06.dwg | ORIGINAL A1

DATA SOURCE INTERNAL

IMAGE SOURCE | SET 03

STATUS FOR REVIEW | SHEET EV04 OF EV06

NOTES:

1. THIS PLAN IS PREPARED FROM A COMBINATION OF FIELD SURVEY PREPARED BY GRAHAM F. HOWE (DRAWING REF: C88-M15, DATED 30/06/2015) AND LIDAR SURFACE DATA OBTAINED FROM NEW SOUTH WALES LAND AND PROPERTY INFORMATION (LPI). THE FIELD SURVEY DATA HAS BEEN ALIGNED TO LPI SCIMS PM 83690 AND PM 83691 TO MERGE WITH THE LIDAR SURFACE DATA. THIS PLAN SHALL BE USED FOR CONCEPTUAL DESIGN PURPOSES ONLY AND SHALL NOT BE USED FOR ANY OTHER PURPOSE.
2. VISIBLE SERVICES HAVE BEEN LOCATED ONLY. THE RELEVANT AUTHORITIES SHOULD BE CONTACTED FOR THE LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.
3. CONTOUR INTERVAL 0.5m.
4. ALL VOLUMES AND LEVELS SHOWN ARE CONCEPTUAL ONLY AND ARE SUBJECT TO DETAILED ENGINEERING DESIGN.
5. THESE NOTES ARE AN INTEGRAL PART OF THIS PLAN.

7300
DP 1179131

6667
DP 822054

7301
DP 1179131

EXISTING BORROW PIT (TO REMAIN)

EV06 6

EV06 5

CONCEPTUAL LIFT 3
(NS+15m AT SOUTHERN CORNER)
CAPPING LEVEL R.L. 305.000
TOTAL FILLING VOLUME 1671395m³
APPROXIMATE LIFE 17.5 YEARS AT 95000m³ PER YEAR

DEPOT ROAD

ROAD

BITUMEN

EXISTING DAM (TO REMAIN)

EXISTING WASTE STORAGE DAM (TO REMAIN)

EV06 5

EXISTING CATCHMENT DAM (TO REMAIN)

EV06 6

EXISTING RECYCLING FACILITY (TO REMAIN)

BITUMEN ROAD

WILLS STREET

7304
DP 1179131

101
DP 757298

2076
DP 757298

7305
DP 1179131

7306
DP 1179131

7300
DP 1179131

LEGEND:

- EXISTING LIMITS OF FILLING
- EXISTING FENCE
- EXISTING EASEMENT
- EXISTING BANK
- EXISTING DRAINAGE LINE
- EXISTING ELECTRICITY
- EXISTING TELECOMMUNICATIONS
- EXISTING WATER

GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800
orange@geolyse.com
www.geolyse.com
Ph. (02) 6393 5000
Fx. (02) 6393 5050

REV.	DATE	DFTD.	APPD.	DETAILS
A	23/06/16	AJD	BS	ISSUED FOR REVIEW

DRAWING SCALE

SCALE 1:2500 (A1)

0 50 100 150 200

0 50 100 150 200

SCALE 1:5000 (A3)

DO NOT SCALE FROM THESE DRAWINGS. ALL MEASUREMENTS SHALL BE CONFIRMED ON SITE AND WITH GEOLYSE PTY. LTD. PRIOR TO CONSTRUCTION

APPROVAL AUTHORITY: BROKEN HILL CITY COUNCIL

CLIENT: BROKEN HILL CITY COUNCIL

PROJECT: BROKEN HILL WASTE MANAGEMENT FACILITY

DRAWING: CONCEPTUAL LIFT 3 LAYOUT

PROJECT NUMBER 216074 | DRAWING FILE 216074_03A_EV01-EV06.dwg | ORIGINAL A1

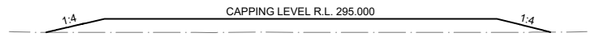
DATA SOURCE INTERNAL

IMAGE SOURCE

STATUS FOR REVIEW | SHEET EV05 OF EV06 | SET 03

NOTES:

1. THIS PLAN IS PREPARED FROM A COMBINATION OF FIELD SURVEY PREPARED BY GRAHAM F. HOWE (DRAWING REF: C88-M15, DATED 30/06/2015) AND LIDAR SURFACE DATA OBTAINED FROM NEW SOUTH WALES LAND AND PROPERTY INFORMATION (LPI). THE FIELD SURVEY DATA HAS BEEN ALIGNED TO LPI SCIMS PM 83690 AND PM 83691 TO MERGE WITH THE LIDAR SURFACE DATA. THIS PLAN SHALL BE USED FOR CONCEPTUAL DESIGN PURPOSES ONLY AND SHALL NOT BE USED FOR ANY OTHER PURPOSE.
2. VISIBLE SERVICES HAVE BEEN LOCATED ONLY. THE RELEVANT AUTHORITIES SHOULD BE CONTACTED FOR THE LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.
3. CONTOUR INTERVAL 0.5m.
4. ALL VOLUMES AND LEVELS SHOWN ARE CONCEPTUAL ONLY AND ARE SUBJECT TO DETAILED ENGINEERING DESIGN.
5. THESE NOTES ARE AN INTEGRAL PART OF THIS PLAN.

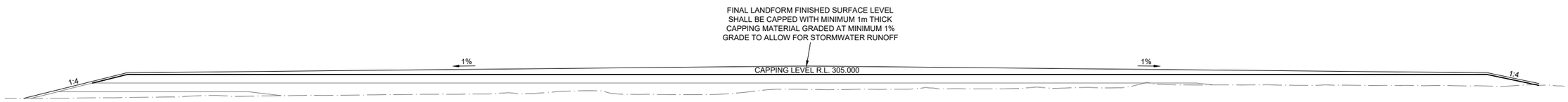


CONCEPTUAL LANDFILL LIFT 1 — 1 / EV03
SCALE 1:1250 (A1)
SCALE 1:2500 (A3)

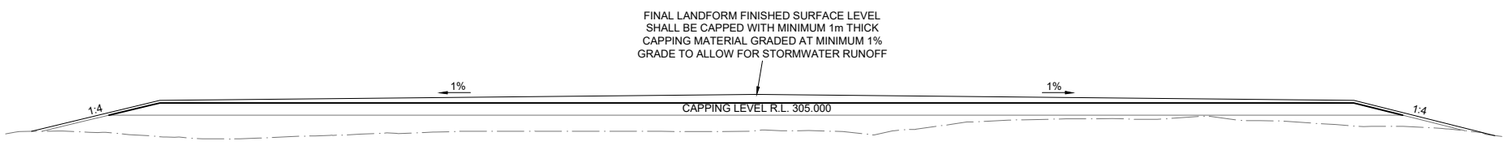
CONCEPTUAL LANDFILL LIFT 1 — 2 / EV03
SCALE 1:1250 (A1)
SCALE 1:2500 (A3)

CONCEPTUAL LANDFILL LIFT 2 — 3 / EV04
SCALE 1:1250 (A1)
SCALE 1:2500 (A3)

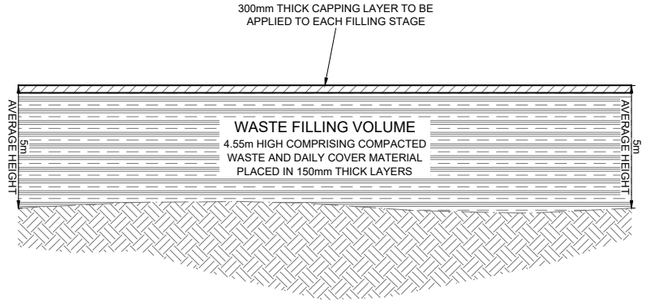
CONCEPTUAL LANDFILL LIFT 2 — 4 / EV04
SCALE 1:1250 (A1)
SCALE 1:2500 (A3)



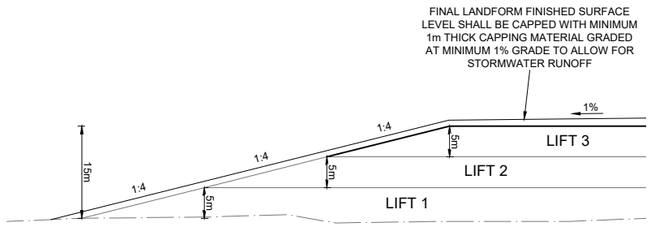
CONCEPTUAL LANDFILL LIFT 3 — 5 / EV05
SCALE 1:1250 (A1)
SCALE 1:2500 (A3)



CONCEPTUAL LANDFILL LIFT 3 — 6 / EV05
SCALE 1:1250 (A1)
SCALE 1:2500 (A3)



CONCEPTUAL LANDFILL LIFT COMPOSITION
SCALE 1:250 (A1)
SCALE 1:500 (A3)



CONCEPTUAL LANDFILL LIFT STAGING
SCALE 1:500 (A1)
SCALE 1:1000 (A3)

LEGEND:

DESIGN SURFACE

NATURAL SURFACE

GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800
orange@geolyse.com
www.geolyse.com
Ph. (02) 6393 5000
Fx. (02) 6393 5050

REV.	DATE	DFTD.	APPD.	DETAILS
A	23/06/16	AJD	BS	ISSUED FOR REVIEW

DRAWING SCALE

SCALE 1:2500 (A1)

0 50 100 150 200

SCALE 1:5000 (A3)

0 50 100 150 200

DO NOT SCALE FROM THESE DRAWINGS. ALL MEASUREMENTS SHALL BE CONFIRMED ON SITE AND WITH GEOLYSE PTY. LTD. PRIOR TO CONSTRUCTION

APPROVAL AUTHORITY: BROKEN HILL CITY COUNCIL

CLIENT: BROKEN HILL CITY COUNCIL

PROJECT: BROKEN HILL WASTE MANAGEMENT FACILITY

DRAWING: CONCEPTUAL LANDFILL TYPICAL SECTIONS

PROJECT NUMBER 216074 | DRAWING FILE 216074_03A_EV01-EV06.dwg | ORIGINAL A1

DATA SOURCE INTERNAL

IMAGE SOURCE | SET 03

STATUS FOR REVIEW | SHEET EV06 OF EV06