Buronga Landfill Expansion

Landfill Environmental Management Plan

Wentworth Shire Council

SSD-10096818
19 September 2024
Ref: 202597R12Rev03

tonkin

Building exceptional
outcomes together

Document History and Status

Rev	Description	Author	Reviewed	Approved	Date
0	For Client Comment	DZD/BK	MI	MI	22 Dec 2023
1	Final	DZD/BK	MI	MI	27/02/2024
2	Litter Section Included	AS	AS	AS	24/07/2024
3	Address the DPHI comments	MI	MI	AS	19/09/2024

Contents

Project: Buronga Landfill Expansion | Landfill Environmental Management Plan
Client: Wentworth Shire Council
Ref: 202597R12

Tables

Figures

Appendices

Appendix K – Sediment and Erosion Control Plan
Appendix L – Landfill Gas Monitoring Plan
Appendix M – Emergency Response Plan
Appendix N – Complaint Management Policy

1 Introduction

1.1 Background

1.1.1 Introduction

This Landfill Environmental Management Plan (LEMP) has been prepared by Tonkin on behalf of Wentworth Shire Council (WSC) in support of the expansion to the Buronga Landfill (the site).

WSC currently holds Environmental Protection Licence (EPL) 20209 which covers waste disposal activities (Construction of landfill cells and leachate and stormwater collection systems) and resource recovery activities (recovered aggregate processing and storage / Waste storage) at the site and is under the development processes of the expansion to the site under a Development Consent Application Number: SSD 10096818.

This LEMP is to set out environmental objectives and operating procedures to satisfy the conditions of the site's Development Consent, EPL and other regulatory requirements. The LEMP addresses the following issues:

- Approvals and licencing;
- Compliance with the statutory requirements;
- Site description;
- Site operations;
- A monitoring and reporting program;
- A contingency plan
- An improvement program;
- A managing and reporting program;
- A periodic review protocol;
- Environmental Management Plans including:

- Water Management Plan (Section 7.2)
- Erosion and Sediment Control Plan (Section 7.3)
- Leachate Management Plan (Section 7.4)
- Landfill Gas Monitoring Plan (Section 7.5)
- Air Quality Management Plan (Section 7.6)
- Heritage Management Plan (Section 7.7)

- Concept details for progressive closure and landscaping of the site, together with monitoring and management strategies.

This LEMP was developed to replace the existing site LEMP which was developed by WSC in December 2015[1]. WSC are responsible for the operation and management of the site. WHS is outside of the scope of this LEMP.

By the time of developing this LEMP, it is understood that the site's EPL reflects the current site operation, and WSC has submitted a licence variation application for the expansion of the site to the EPA. This LEMP will be reviewed and updated (if required) when an EPL variation is issued.

1.1.2 Expansion Development Progress

The following expansion developments are noted in the Development Consent:

[1] Wentworth Shire Council (2015). *Buronga Landfill, Landfill Environmental Management Plan*, Revision 0, 22 December 2015, Ref: 21/21400/181846.

- Progressive excavation, landfilling and rehabilitation of new landfill cells constructed in four stages;
- Maximum waste disposal of 90,000 tonnes per annum (tpa) of general solid waste;
- Total waste acceptance at the gate of 100,000 tpa for waste disposal, resource recovery and transfer;
- Operation of the expanded landfill for 38 years;
- Construction and use of additional resource recovery and waste transfer infrastructure.

Construction of the expansion development will occur progressively throughout the life of the site with staged construction of landfill cells and supporting infrastructure as well as regular staged rehabilitation of filled landfill cells. Design of the first stage of road and cell construction occurred in FY 2022/2023. Specific timing of the proposed construction phases is not known at this stage of the project as the progressive development of the landfill will be dependent on waste receival rates at the site over time. Initial construction activities at the site are expected to commence during FY 2023/2024 and consist of the following activities:

- Upgrade of Arumpo Road intersection including:
  - Detailed design
  - Construction by WSC
- Construction of first landfill cell in Stage 1A to provide continuing disposal capacity as the capacity of the existing facility nears exhaustion. This is expected to include the following activities:
  - Six months prior to the commencement of the landfill cell construction, WSC will submit a Landfill Cell Design Report (LCDR) to the Planning Secretary and the EPA which details the design, construction, operation and rehabilitation of the stage. The LCDR will:
    - be prepared by a suitably qualified and experienced person(s);
    - be prepared in consultation with the EPA;
    - be designed in accordance with the requirements of the Landfill Guidelines or its latest version; and
    - include details of a QA/QC program which can demonstrate that the landfill cells are constructed to meet its design specifications.(B12 of the DC)
  - WSC will :
    - not commence each stage of landfill cell construction until the LCDR required by condition B12 as required in the development consent is approved by the Planning Secretary; and
    - implement the most recent version of the LCDR approved by the Planning Secretary for the duration of the development.
  - Finalisation of landfill cell design following consultation with NSW EPA
  - Land clearing within the footprint of the cell and access roads
  - Construction of access roads to the location of the new cell to be determined during detailed design
  - Earthworks to achieve design levels across the cell footprint including within the existing landfill footprint to facilitate piggyback liner construction
  - Construction of landfill cell liner and leachate collection system including pipework to transfer leachate to existing pond
  - Stormwater controls to manage stormwater within the footprint of the new cell
- Construction of Front End Recycling Facility (FERF) and Resource Recovery Area (RRA) consisting of:
  - Stripping and grubbing within the footprint of the proposed structures, access roads and ponds
  - Construction of hardstand areas for proposed storage of scrap metal, tyres, inert C&D waste, drum muster, roro bin storage, residual waste drop off area and green waste
  - Construction of roads and signage within RRA and waste acceptance areas
  - Construction of structures proposed for resource recovery shed, site office & amenities, and FERF
  - Construction of RRA stormwater basin and swales
- Capping of the southern batter of the existing landfill to begin progressive rehabilitation consisting of:
  - Finalisation of proposed cap design following consultation with NSW EPA
  - Earthworks to prepare the existing cover surface to form a suitable subgrade for the construction of the landfill cap
  - Construction of the final cap profile supported by NSW EPA
  - Construction of stormwater controls to manage runoff from the capped area
  - Revegetation of the capped area with appropriate native vegetation to be determined during detailed design

- Upgraded stormwater facilities consisting of:
  - Stripping and grubbing within the footprint of proposed stormwater controls
  - Construction of stormwater ponds required to manage stormwater flows during operation of landfill cell, FERF and RRA. Construction of the north western and/or southern ponds may be required at this time depending on the location of the first landfill cell constructed. This will be determined during detailed design.

Ongoing construction activities will occur regularly as a part of the progressive development of the landfill. The timing of these construction campaigns is not known as they will be dependent on the rate of waste disposal at the facility. These construction activities are generally expected to consist of the following:

- Progressive landfill cell construction including:
  - Finalisation of landfill cell design following consultation with NSW EPA
  - Land clearing within the footprint of the cell and access roads
  - Construction of access roads to the location of the new cell to be determined during detailed design if required.
  - Earthworks to achieve design levels across the cell footprint.
  - Construction of landfill cell liner and leachate collection system including ring main pipework to transfer leachate to existing pond
  - Stormwater controls to manage stormwater within the footprint of the new cell as require
- Progressive capping and rehabilitation of completed landfill areas including:
  - Finalisation of proposed cap design following consultation with Planning Secretary and NSW EPA
  - Earthworks to prepare the existing cover surface to form a suitable subgrade for the construction of the landfill cap
  - Construction of the final cap profile supported by NSW EPA
  - Construction of stormwater controls to manage runoff from the capped area
  - Revegetation of the capped area with appropriate native vegetation to be determined during detailed design.
- Progressive extension of access roads including detailed design and construction of the access roads.
- Progressive construction of drainage infrastructure including:
  - Progressive development of drains and swales to direct stormwater flows to basins as required
  - Construction of additional stormwater basins as the development of the site progresses
- Construction of additional leachate ponds including:
  - Finalisation of proposed design following consultation with NSW EPA
  - Stripping and grubbing of proposed pond location
  - Earthworks to form basin subgrade
  - Construction of proposed basin lining system
  - Extension of leachate ring main to transfer leachate to the new pond
- Installation of new firefighting tank once substage 1D is commencing development

1.1.3 Maximum gradients of side batter slopes

Best management practices are that final slopes of the landfill are between 5% and 20%. The lower limit is to minimise the risk of water ponding and increasing infiltration whereas the maximum gradient is to minimise erosion and facilitate easy maintenance. During the after-care period, the maintenance will require the repair of the cap surface, weed spraying, mowing and other operations which are easier and safer to perform on slopes of < 20%.

In accordance with best practice, the side batter slopes of the final landform and landfill cap (permanent external landfill batters) will have maximum slopes of 20% (1V:5H). Internal (temporary) landfill batter slopes will be determined during detailed design.

1.2 Site and Ownership

The site is located at 258 Arumpo Road, Buronga NSW and is shown in Figure 2 and Figure 3 of Appendix A. The site is owned and operated by WSC. The site is discussed in detail in Section 2.

1.3 Compliance with Regulatory Requirements

The primary regulatory requirements for the operation of the site are:

NSW Department of Planning, Industry and Environment, 2023, Buronga Landfill Expansion Development Consent, 19 July 2023, Ref: SSD-10096818 (the Development Consent);

NSW EPA, 2023, Environment Protection Licence – 20209, Licence Version Date 8 March 2023 (the EPL);

NSW EPA, 2016, *Environmental Guidelines, Solid Waste Landfills*, Second Edition, April 2016, Ref: EPA 2016/0259 (The Landfill Guidelines);

Waste Avoidance and Resource Recovery Act 2001 (NSW) (WAAR Act 2001);

Protection of the Environment Operations Act 1997 (NSW) (the POEO act 1997);

Landcom, 2004. *Managing urban stormwater: soils and construction*, Volume 1, Match 2004, 4th edition.

This LEMP was prepared in compliance with Conditions C2 and C3 of the NSW Development Consent (SSD_10096818). Table 1-1 presents these requirements and where they are presented in the LEMP.

Table 1-1: Landfill Environmental Management Plan Requirements

NSW Development Consent (SSD_1009681) Condition	LEMP Section
C2. The Applicant must prepare a Landfill Environmental Management Plan (LEMP), in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	All the LEMP
C3. As part of the LEMP required under condition C2 of this consent, the Applicant must include the following:	
(a) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;	Section 3.2
(b) describe the procedures that would be implemented to:	
(i) keep the local community and relevant agencies informed about the operation and environmental performance of the development;	Section 3.4 and Section 10.4
(ii) receive, handle, respond to, and record complaints;	Section 3.4.2 and Appendix N
(iii) resolve any disputes that may arise;	Section 3.5
(iv) respond to any non-compliance;	Section 7.1.3 and Section 10.3
(v) respond to emergencies; and	Section 8 and Appendix M
(c) include:	
(i) Erosion and Sediment Control Plan (see condition B14);	Section 7.3 and Appendix K
(ii) Water Management Plan (see condition B16);	Section 7.2 and Appendix J
(iii) Leachate Management Plan (see condition B21);	Section 7.4 and Appendix I
(iv) Air Quality Management Plan (see condition B27);	Section 7.6 and Appendix G
(v) Heritage Management Plan (see condition B37); and	Section 7.7 and Appendix H
(vi) Landfill Gas Monitoring Plan (see condition B47).	Section 7.5 and Appendix L

1.4 Compliance with Environmental Protection Licence

The POEO Act 1997 defines scheduled activities for which an EPL must be held. The site is licenced under the POEO Act 1997 for one scheduled activity:

Waste disposal (application to land).

The EPL also applies to ancillary activities undertaken at the site, listed as including:

- Resource recovery - recovered aggregate processing and storage;
- Waste storage.

WSC holds EPL number 20209 for the operations at the site. A copy of the EPL is included as Appendix B. This LEMP has been prepared to ensure compliance with the EPL. It is noted that activities proposed in the expansion development is under EPA's review and not included in the site EPL by the time of preparation of this LEMP. The LEMP should be updated accordingly following an updated EPL is issued.

1.5 Use and Validity Period of LEMP

This LEMP has been prepared to address the management of landfilling and resource recovery operations at the site. It will be the responsibility of the licensee to maintain this document in a useable form and to consolidate the documentation relevant to the operation of the site in a form that is accessible to site staff, Contractors and the EPA. WSC will review this LEMP within three months of:

a) the submission of a Compliance Report as detailed in Section10.4;

b) the submission of an incident report as detailed in Section 10.2;

c) the submission of an Independent Audit as detailed in Section 10.5;

d) the approval of any modification of the conditions of The Development Consent;

e) the issue of a direction of the Planning Secretary under condition A2(b) of the Development Consent which requires a review,

f) after each review of EPL; or

g) at least every 3 years, as appropriate based on changes to site infrastructure and planning.

WSC will then submit any amendments to both the EPA and Planning Secretary (C6- Development Consent). Upon approval, changes will be updated in the Document History and Status.

If needed for environmental improvement, modification, or compliance, required documents must be revised and submitted to the Planning Secretary within six weeks of the review under condition C8 of the Development Consent. Approval timing may vary, as agreed by the Planning Secretary.

1.6 Reference Documentation

This plan was written with reference to the following documents and legislation:

NSW Department of Planning, Industry and Environment, 2023, Buronga Landfill Expansion Development Consent, 19 July 2023, Ref: SSD-10096818 (the Development Consent);

NSW EPA, 2023, Environment Protection Licence – 20209, Licence Version Date 8 March 2023 (the EPL);

NSW EPA, 2016, *Environmental Guidelines, Solid Waste Landfills*, Second Edition, April 2016, Ref: EPA 2016/0259 (The Landfill Guidelines);

Waste Avoidance and Resource Recovery Act 2001 (NSW) (WAAR Act 2001);

Protection of the Environment Operations Act 1997 (NSW) (the POEO act 1997);

Landcom, 2004. *Managing urban stormwater: soils and construction*, Volume 1, Match 2004, 4th edition.

Wentworth Shire Council (2015), Buronga Landfill, Landfill Environmental Management Plan, December 2015, Ref: 21/21400/181846.

GHD (2012). Buronga Landfill Geotechnical Investigation Report, Wentworth Shire Council, 05 November 2012, Ref: 21/21400/181848.

Tonkin (2021), Buronga Landfill Expansion Geotechnical Investigation Report, 11 June 2021, Ref: 202597R02A.

Tonkin (2022), Buronga Landfill Expansion Environmental Impact Statement, SSD-10096818, 25 January 2022, Ref: 202597R04Rev1. (the expansion development EIS)

Tonkin (2022), Buronga Landfill Expansion Submission Report, SSD-10096818, 1 December 2022, Ref: 202597R05Rev2.

Tonkin (2023), Buronga Landfill Expansion Amendment Report, SSD-10096818, 8 February 2023, Ref: 202597R07Rev0.

Tonkin (2023), Buronga Landfill Expansion Groundwater Impact Assessment, 19 September 2021, Ref: 202597R03Rev0.

2 Site Overview

2.1 Site Description

2.1.1 Site Location

The Buronga Landfill (the site) is located at 258 Arumpo Road, Buronga NSW, approximately 4.75 km north of the town of Buronga, NSW and approximately 10 km northeast of the City of Mildura, VIC. Access to the Landfill is via Arumpo Road with current operational area of 19 ha out of a total licenced area of 124 ha. The site location is shown in Figure 2 and Figure 3 provided in Appendix A.

2.1.2 Site Land Title Details

The site occupies Lot 197 and 212 of DP756946 and Lot 1 DP1037845.

2.1.3 Zoning and Land Use

The site is situated in the WSC and is zoned as SP2 (Infrastructure), in this case for the purpose of waste or resource management facility according to the NSW Planning Portal.

2.1.4 Surrounding Land Use

The surrounding areas of the site are zooned as RU 1 (Primary Production).

The surrounding land uses are as follows:

NORTH: Broadscale agriculture (grazing), Arumpo Road;

EAST: Remnant vegetation, irrigated agriculture to SE, Lake Gol Gol;

SOUTH: Remnant vegetation, irrigated agriculture to SW (grapevines, orchards);

WEST: Arumpo Road, Industry including bentonite and gypsum suppliers, Mourquong saltwater disposal basin.

The closest residence is located more than 900 m from the site boundary.

2.1.5 Waste Tonnages

It is expected that waste tonnages accepted at the Buronga Landfill will increase as it becomes a regional waste facility. WSC are currently licenced to receive 30,000 tonnes/year at the Buronga Facility. Neighbouring councils generate a total of around 40,000 tpa of kerbside waste; recyclables would be transported directly to recyclers while the remaining waste for disposal may be transported to Buronga for disposal. It is considered unlikely that BSC will transport waste to Buronga in the short term due to its size and haulage distances; however MRCC landfill is nearing capacity and BSC and CDSC have small unlicensed landfills which equating to a total of 26,000 tpa.

The EIS Amendment Report (Tonkin 2023) provided in Appendix C, in Section 5.2 includes a detailed analysis of the waste expected to go to the Buronga Landfill. The study provided that the combined total of the kerbside waste for disposal 64,000 tpa which may be directed from other LGAs combined with the other wastes received at the Buronga Landfill results in a total waste projected to be received at the facility by 2050 of around 100,000 tonnes.

The Development Consent requires WSC must not dispose to landfill more than 90,000 tpa of waste at the site, including:

a) 60,000 tpa of municipal solid waste;

b) 29,000 tpa of commercial and industrial and construction and demolition waste;

c) 500 tpa of waste tyres;

d) 500 tpa of asbestos; and

e) the total quantity of waste required to meet the final landform profile described in the Amendment Report shown in Appendix 1 of the Development Consent (Appendix C of this LEMP).

2.1.6 Expected Capacity of The Expansion Stages

Based upon the concept baseliner level and concept top of cap, there is a total of 3.3 million m^3 of airspace in Stages 1A to 1D. There is also approximately 470,000 m^3 of airspace remaining between the top of cap and existing surface within the existing landfill area, some of which will be filled following piggyback liner construction and some that will become part of the cap volume. This volume will not be confirmed until detailed design of the piggyback liner is completed.

A breakdown of the estimated airspace and expected life of each stage and substage is shown in Table 2-1 Estimated Airspace for Each Substage and Expected Life This estimate is based on the expected disposal tonnages (Table 5.1 of the Amendment Report provided in Appendix C) and the 2020 calculated density from the Buronga Landfill. The size of each cell within the substages will be adjusted during detailed design based upon waste receival rates expected during each cells operation to limit the size of the active cell and facilitate faster rehabilitation, which in turn limits the LFG emission and leachate generation.

Table 2-1 Estimated Airspace for Each Substage and Expected Life

Stage	Airspace (m^3)	Life (Years)
1A	923,477	10.6
1B	792,427	9.0
1C	790,159	9.0
1D	797,711	9.1
Total	3,303,774	37.8
Notes: Life is based on average 64,000 t waste/annum at a density of 0.733 t/m^3		

2.1.7 Topography

The site features a gradual slope from an elevation of RL 48 m in the north-west corner to a lower point at RL 35 m on the eastern toe of the landfill. The natural slopes across the site range from approximately 2% to 6%. A natural gully traverses the area in a north-east to south-west direction. The site's drainage system follows the natural gradient towards the east; towards Lake Gol Gol, navigating around embankments and the landform's base to reach a sediment pond located at the southeast of the site. The site has sparse vegetation, with only the far eastern section remaining relatively undisturbed and covered with low scrub, weeds, and native trees (gums). The ground surface is primarily composed of loose red-brown sand material.

The previously landfilled area forms a single landform, with landfilling generally occurring above the natural ground level. In some sections, minor excavation was undertaken to a depth of approximately 3 meters.

2.1.8 Geology

The geological information from the 1:250,000 scale Geological Map Series Sheet SI 54-11 entitled Mildura; Edition 2 dated May 1997 reveals that the site is primarily characterised by the following:

Woorinen Formation including aeolian red brown sand with carbonaceous silt; and

Coonambidgal Formation which contains fluvial and lacustrine sand, sandy clay, and clay likely associated with Lake Gol Gol located east of the site.

The Woorinen Formation is described as being unconsolidated red-brown medium to fine silty sand, red calcareous silty clay, sandy clay, clay pellet aggregates which forms extensive dune fields with subdued crests and flakes separated by swales and sand plains.

The southern and eastern most portion of the site is situated within proximity to the boundaries of the Woorinen Formation and the Late Pleistocene – Holocene aged Yamba Formation. The Yamba Formation consists of friable pale grey gypsite, gypsiferous clay, grey pelletal gypsum-quartz aggregates, black sulphide-rich mud, and ephemeral salt crusts of gypsum, halite, bischofite, thenardite, mirabilite.

Field observations from the February 2021 site investigation[2] generally align with the expected subsurface conditions outlined in the geological maps. The presence of topsoil was minimal, with a predominantly sandy surface layer observed in most boreholes. The upper layer generally consisted of sand and clayey sand materials, transitioning into clays and sandy clays with low to medium plasticity. Further below, silty clayey sand and sand layers were identified, often containing groundwater. The western boreholes were characterised by a more prevalent presence of upper sands and clayey sand layers, while the eastern boreholes encountered clays closer to the surface.

2.1.9 Hydrogeology and Groundwater Use

The site is situated within the southern part of the Western Porous Rock resource unit. The resource unit incorporates all groundwater within sediments of Tertiary and Quaternary age and all alluvial sediments within the outcropped area. The two major aquifers of the resource unit are the Renmark Group Aquifer and the Pliocene Sands Aquifer, the sands of which are weakly cemented and thus defined as porous rock (NSW Office of Water 2013)[3].

The Renmark Group Aquifer forms the major confined aquifer covering most of the water source. It is an accumulation of riverine sediments deposited approximately 30 to 50 million years ago (NSW Office of Water 2013). It is comprised of intercalations of lignite, peat, carbonaceous clay and medium to coarse grained quartz sand (NSW Office of Water 2013). Salinity in the Renmark Group ranges from 2,000 to 36,000 mg/L TDS with the freshest water located in the northern margins and salinity increasing down the hydraulic gradient. Vertical stratification is commonly observed in the areas to the north and east.

The Pliocene Sands Aquifer forms the major shallow unconfined/semiconfined aquifer covering most of the water source. It is comprised of layers of sand and gravel deposited approximately 2 to 6 million years ago. The aquifer is predominantly sands of marine origin comprised of the Loxton-Parilla Sand, while to the east lies a small area of sands of riverine origin comprised of the Calivil Formation (NSW Office of Water 2013). The Loxton-Parilla Sands contain significant deposits of heavy mineral sands (rutile, zircon and ilmenite), whilst overlying younger deposits contain bentonite and gypsum. The Pliocene Sands Aquifer contains highly saline groundwater ranging from 1,000 to 82,000 mg/L TDS and very locally up to 160,000 mg/L TDS near salt lakes.

As noted in the Groundwater Impact Assessment[4], during the February 2021 site investigations, groundwater was intercepted in most boreholes, at ranging from 9.5 m below ground level in the south west to 7-8 m in the east. In two boreholes (H7 and H9) the groundwater level rose by approximately 1 m when left overnight suggesting the clay may be partially confining the aquifer.

The Western Porous Rock SDL is governed by the Water Sharing Plan for the NSW Murray-Darling Basin Porous Rock Groundwater Sources (NSW Office of Water 2011). In accordance with the expansion

[2] Tonkin (2021), Buronga Landfill Expansion Geotechnical Investigation Report, 11 June 2021, Ref: 202597R02A.
[3] NSW Office of Water (2013) Western Murray Porous Rock and Lower Darling Alluvium Groundwater Sources, Groundwater Status Report 2011, January 2013.
[4] Tonkin (2023), Buronga Landfill Expansion Groundwater Impact Assessment, 19 September 2021, Ref: 202597R03Rev0.

development EIS[5], the Water NSW Real Time Data website[6] showed that there were 20 groundwater bores within a 2 km radius of the site of which 5 were within 1 km of the site. Two bores were located within the site boundaries with many to the east and south east located around Laker Gol Gol. Information of these groundwater bores is summerised in Table 2-2. A previous investigation[7] reported that the water level in the on-site wells was 9.29 m and 7.37 m below ground level (bgl) for on-site wells GW087083 and GW088479, respectively and that all wells within 1-2 km of the site were registered for monitoring purposes.

It is expected that the wells to the north may be used for stock watering and the ones to the south may be used for irrigation, though it is noted that the salinity is unlikely to be suited to these uses given the proximity to Lake Gol Gol to the east and Mourquong Disposal Basin to the west.

Table 2-2 Groundwater Bores Information

Bore ID	Status	Distance (km)	Date completed	Borehole depth (m)	Elevation (m AHD)
GW087083	Manual Observations	0.4 (on site)	1/03/1972	20	40.54
GW088479	Unknown	0.6 (on site)	21/03/2007	61	37.89
GW087644	Unknown	1.3 west	5/03/1991	17.2	36.12
GW088478	Unknown	1.7 north	16/05/2007	52	36.74
GW088168	Unknown	1.8 south	2/02/2000	10.5	-0.5
GW088169	Unknown	2.0 south	3/02/2000	10.5	-0.05
GW088170	Unknown	2.0 south	7/02/2000	13.5	-0.5
GW087038	Unknown	2.0 south	12/10/1977	10.97	-0.11
GW087073	Unknown	2.1 east	12/10/1972	12.19	-0.12
GW087812	Unknown	2.3 south east	10/12/1996	5.5	-0.5
GW273072	Equipped	2.4 east	12/03/2009	24	-0.6
GW273069	Supply Obtained	2.4 east	11/02/2009	20	-1
GW087081	Unknown	2.4 north	12/10/1972	12.5	-0.2
GW600409	Equipped	2.6 south	6/09/2012	15	39
GW087039	Unknown	2.6 south	12/03/1972	10.97	-0.1
GW273071	Equipped	2.6 east	6/03/2009	25.5	-0.6
GW087811	Unknown	2.7 south east	5/12/1996	11.5	-0.5

[5] Tonkin (2022), Buronga Landfill Expansion Environmental Impact Statement, SSD-10096818, 25 January 2022, Ref: 202597R04Rev1.

[6] https://realtimedata.waternsw.com.au/

[7] GHD (2012). Buronga Landfill Geotechnical Investigation Report, Wentworth Shire Council, 05 November 2012, Ref: 21/21400/181848.

Bore ID	Status	Distance (km)	Date completed	Borehole depth (m)	Elevation (m AHD)
GW087074	Unknown	2.7 south	12/10/1972	14.02	-0.13
GW087328	Filled	2.7 south east	21/10/1977	16	-0.14
GW087813	Unknown	2.7 south east	11/12/1996	6.5	-0.5
GW088473	Unknown	2.8	26/02/2007	47	35.08
GW088305	Unknown	2.8	14/09/2005	20.56	32.39
GW087529	Unknown	2.8	4/04/1987	15	-0.48
GW273068	Supply Obtained	2.8	9/02/2009	0	-1
GW273074	Equipped	2.8	30/03/2009	25	-0.4
GW088167	Unknown	2.9	28/01/2000	3.08	-0.5
GW087814	Unknown	3.0	12/12/1996	8	-0.5
GW087331	Unknown	3.1 west	19/10/1977	12	-0.11

2.1.10 Climate

According to Climate Data.org[8] the Buronga area is elevated approximately 43m above sea level and the climate is considered to be a local steppe climate. Rainfall is generally low throughout the year whilst the climate is classified as "Bsh" by the Koppen-Geiger system. The average annual temperature is 18.2 degrees centigrade and the annual rainfall is 274mm. The driest month is March with an average of only 16 mm of rain, whilst in September the precipitation reaches its peak with an average monthly rainfall of 28 mm. A climate graph is presented in Figure 2-1.

[8] https://en.climate-data.org/oceania/australia/new-south-wales/buronga-764924/#climate-graph

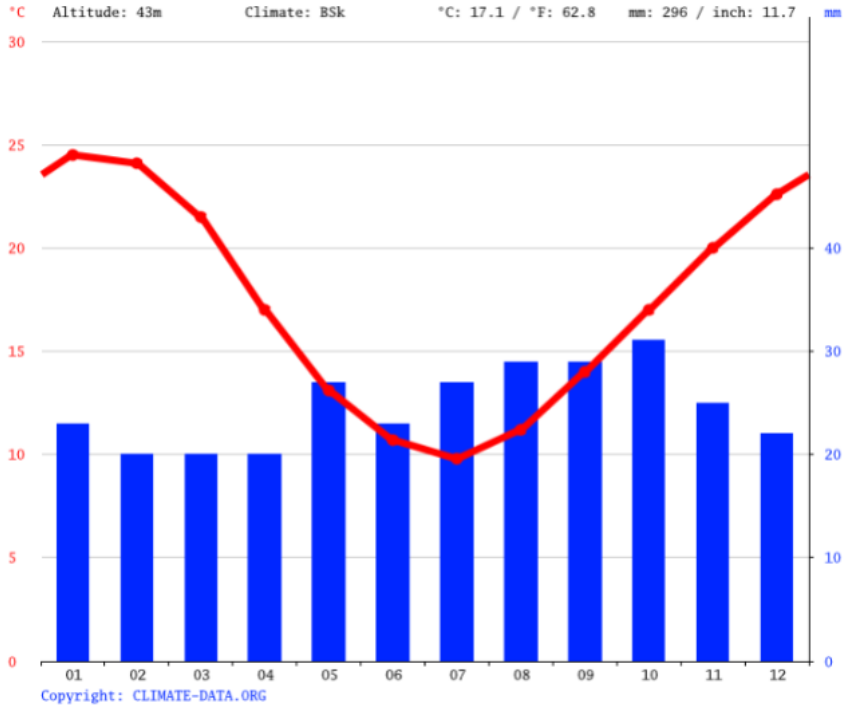


Figure 2-1 Climate Graph : Weather by Month

2.1.11 Surface Water

The closest surface water bodies are Gol Gol Lake, approximately 1.5 km east, and the Murray River, over 5 km south. There is no direct waterway or pathway from the Project area to either of the mentioned water bodies. The site is outside the flood planning area defined in the Wentworth LEP 2011. The lack of surface water bodies and defined drainage is not unexpected given the gently undulating to flat topography and low rainfall (274 mm average annual rainfall).

Surface water at the site naturally flows eastward, towards Lake Gol Gol, navigating around embankments and the base of the landform before reaching a sediment pond located in the southeast corner of the site. The site's lowest elevation is situated at the eastern toe of the landfill at RL 35 m. Natural slopes across the site range from approximately 2% to 6%.

2.1.12 Landfill Gas Management

Currently no landfill gas (LFG) management system exists on site, nor is the LFG monitored at the site. The low rainfall is likely to result in limited leachate or gas generation due to relatively dry and aerobic landfill conditions.

3 Environmental Management System

3.1 Legislative Requirements, Standards and Codes of Practice

The purpose of the Environmental Management System (EMS) is to provide policy direction, management structure, improvement programs and operational procedures to ensure that environmental aspects and impacts of the site are managed and minimised.

The environmental management initiatives that relate directly to the Licence or existing documentation such as the LEMP form part of the EMS.

The objectives of the EMS are summarised as follows:

- To provide a framework to facilitate operation of the landfill site in a practical and environmentally sustainable manner; and
- To provide a mechanism to measure operational performance and to implement a program for review and continual improvement (the improvement program).

3.2 Management Structure and Responsibilities

Overall responsibility for the site lies with the owner and licensee.

WSC may engage consultants to assist with the following tasks as required:

- Design or advice for future development of the site;
- Environment management advice such as for landfill gas, surface and groundwater management, monitoring and reporting;
- Survey; and
- Planning advice.

Day to day responsibilities for carrying out operational procedures associated with the environmental management of the site is allocated to:

- The Site Manager; and
- WSC's site staff.

The specific responsibilities associated with the various procedures and monitoring programs are detailed further in the following sections.

3.3 Monitoring and Reporting Procedures

3.3.1 Monitoring Procedures

WSC will undertake regular monitoring of groundwater, leachate, stormwater, gas combustion emissions and landfill gas to ensure that the site is not causing detrimental impact to the environment or creating health and safety issues on site. The operation of the landfill will be reviewed by WSC every 12 months or as required to assess the compliance of the landfill operation with regulatory requirements, the site licence and this LEMP.

All sampling must be carried out by suitable qualified and experience personnel, in accordance with EPA accepted procedures. These procedures include those described in the EPA Publication "*Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales*[9]" (EPA Water Sampling Guideline), the *National Environment Protection (Assessment of Site Contamination) Measure 2013* (Cth.) (ASC NEPM) and the *Environmental Guidelines: Solid Waste Landfills*. All laboratory analysis must

[9] NSW Environmental Protection Authority, *Approved methods for the Sampling and Analysis of Water Pollutants in New South Wales*, NSW Department of Environment and Conservation, Sydney, March 2004, Ref: DEC 2004/35

be performed by a laboratory accredited by the National Association of Testing Authorities (NATA) to undertake the analysis specified. Selected analytes have been based upon the requirements of the *Environmental Guidelines: Solid Waste Landfills* and the site licence. Records of monitoring undertaken at the site must be recorded and retained as required by the site licence.

Where required, a Quality Assurance and Control (QA/QC) Program has been be included as part of the Environmental Monitoring Program in accordance with AS/NZS 5667.1:1998(R 2016) Water Quality - Sampling including the collection of:

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

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

Details of the monitoring to be performed for individual aspects are provided in Section 7.

3.3.1.1 Monitoring Program Review

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

3.3.1.2 Monitoring Record Keeping

The results of all monitoring will be recorded and retained as required by the site licence. The records will include the following:

- Sampling date(s);
- Sampling time(s);
- Sampling point(s);
- Sampling results including field measurement; and
- The name of the person who collected the sample.

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

All environmental monitoring will be performed by suitable qualified personnel. The requirements of the *Environmental Guidelines: Solid Waste Landfills* shall be followed to ensure that all applicable requirements are met.

3.3.2 Daily Log

WSC are required to complete a Daily Log, recording all relevant details of the day's activities, including weather conditions, litter problems, fires, contractors on site, inductions carried out etc. These records should be kept at the premises.

3.3.3 Weekly Inspection and Report

WSC will inspect the site weekly to verify that the operations are being conducted in an environmentally satisfactory manner, and will complete a Weekly Inspection Report. Copies of the Weekly Inspection Report and Daily Log Sheets shall be kept on the premises. A Weekly Inspection Report Proforma example is provided in Appendix D.

3.3.4 Quarterly Inspection and Report

During March, June, September and December of each year WSC will carry out a quarterly inspection of the site with the Site Manager and prepare a Quarterly Inspection Report.

Quarterly inspections shall be undertaken to assess conformance with day to day operational and environmental management procedures, as part of the EMS. These inspections will be coordinated with, or may be part of the weekly inspections.

For each inspection, monitoring issues as well as the on-going management of the site will be addressed, as detailed below:

- Disposal area/new cells – size and layout, erosion and sediment control, surface water management and leachate control;
- Site management – roads, traffic management;
- Daily cover;
- Landscaping and vegetation;
- Air quality and noise management;
- Bird, vermin, pest and weed control; and
- Fire management.

Copies of the Quarterly Inspection Reports shall be kept on the premises. A Quarterly Inspection Report Proforma example is provided in Appendix D.

3.3.5 Annual Return

The EPL sets out the requirements for regular reporting to EPA. Required reporting includes:

Annual returns in the approved form including:

- a Statement of Compliance,
- a Monitoring and Complaints Summary,
- a Statement of Compliance - Licence Conditions,
- a Statement of Compliance - Load based Fee,
- a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
- a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
- a Statement of Compliance - Environmental Management Systems and Practices.
- Environmental Monitoring reports
- an analysis and interpretation of monitoring results; and
- actions to correct identified adverse trends.

Annual Returns must be prepared in respect of each reporting period, except as provided below.

- Where the EPL is transferred to a new licensee (refer to the EPL for the reporting requirements for a licence transfer)
- Where the EPL is surrendered by the licensee or revoked by the EPA or Minister (refer to the EPL for the reporting requirements for a licence surrender/revocation)

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.

WSC 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.

Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by the licence holder or by a person approved in writing by the EPA to sign on behalf of the licence holder.

3.4 Community Engagement and Information Sharing

The Wentworth Shire Council (WSC) is committed to ensuring transparent and continuous communication with the local community regarding the Buronga Landfill's operations and environmental performance. The following procedures will be implemented to keep the local community informed.

These initiatives will be reviewed annually to assess their effectiveness, and adjustments will be made based on community feedback and evolving best practices.

3.4.1 Public Access to Environmental and Operational Information:

A dedicated section on the WSC website will be established to provide updates on the Buronga Landfill's operations and environmental performance. This will include relevant reports, monitoring results, and compliance documents such as:

- Annual environmental reports.
- Groundwater, surface water, and air quality monitoring results.
- Incident reports and corrective actions undertaken.
- Any relevant updates to the Landfill Environmental Management Plan (LEMP).

In addition to the online platform, printed reports will be made available at the Council's offices for public viewing.

3.4.2 Complaint Management System:

A formal complaint system is maintained by WSC to ensure that community concerns regarding landfill operations are addressed in a timely and transparent manner. A copy of this Complaint Management Policy[10] is attached in Appendix N. All site complaints will be logged on the site Complaint Register and in the WSC corporate record management system, which will document the nature of the complaint, the action taken, and the outcome. The process for receiving and addressing complaints will be communicated on the Council's website.

The complaint record shall include the following information:

- the date and time of the complaint;
- the method by which the complaint was received;
- any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
- the nature of the complaint;
- the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
- if no action was taken by the licensee, the reasons why no action was taken.

The record of the complaint will be kept for at least 4 years after the complaint was made, and the record must be produced to any authorised officer of the EPA who asks to see them. All complaints received over the course of a reporting year will be reported to the EPA in the annual review report.

3.5 Dispute Resolution Procedures:

In the operation of the Buronga Landfill, it is recognized that disputes may arise between stakeholders, contractors, regulatory authorities, or community members concerning environmental management practices, waste disposal procedures, or other operational matters. The following procedures are established to ensure disputes are managed and resolved efficiently, transparently, and equitably:

[10] DOC-22-4683_Complaint-Management-Policy-GOV012 dated at 17 Feb 2022

3.5.1 Identification of Disputes

Disputes may be identified through formal complaints lodged by external stakeholders (e.g., local community members, regulators) or internal disagreements between project personnel or contractors. Disputes can relate to:

- Environmental impacts such as air quality, noise, and water management
- Waste disposal practices or unauthorized waste
- Breach of any terms in the Development Consent (SSD 10096818) or Environmental Protection Licence (EPL 20209)

3.5.2 Dispute Resolution Process

To resolve any disputes that may arise during the course of landfill operations, the following steps will be followed:

1- **Initial Assessment**: Upon receiving a formal notice of a dispute, the Site Manager will conduct an initial assessment of the issue to determine its validity and scope. This will involve:
   - Collecting all relevant information and documentation regarding the dispute.
   - Consulting with involved parties to understand the perspectives and potential impacts.

2- **Consultation with Parties**: The Site Manager or designated representative will consult with all parties involved in the dispute to gather facts, clarify misunderstandings, and attempt to negotiate a mutually agreeable solution.

3- **Mediation**: If direct consultation does not resolve the issue, a formal mediation process will be initiated. This may involve:
   - Engagement of an independent third-party mediator, agreed upon by all parties, to facilitate discussions and negotiations.
   - Setting timelines for the mediation process to ensure the issue is addressed promptly.

4- **Escalation**: If the dispute remains unresolved after mediation, it may be escalated to the Planning Secretary or NSW Department of Planning and Environment, as appropriate, for further review and decision. The decision made by the regulatory authority will be considered final.

5- **Final Resolution and Documentation**: Once a resolution is reached, all parties involved will sign a resolution agreement outlining the terms of the settlement. A detailed record of the dispute, including actions taken and the final outcome, will be maintained for audit and review purposes in accordance with Section 3.8 (Record Keeping) of this LEMP.

3.5.3 Monitoring and Reporting

- All disputes will be documented in the Dispute Resolution Register, which will track the status, progress, and outcome of each dispute.
- A summary of disputes and their resolutions will be included in the annual reporting under Section 10.1 of this LEMP.
- Where applicable, any disputes related to environmental non-compliance will also be reported in accordance with the Non-Compliance Notification procedure outlined in Section 10.3.

3.5.4 Continuous Improvement

- The outcomes of disputes will be reviewed periodically to identify any recurring issues or areas of improvement.

- Updates or changes to dispute resolution procedures will be implemented to prevent future disputes, and any changes will be reflected in revisions of the LEMP.

3.6 Non-conformance and Corrective/Preventative Action

A non-conformance form will be completed as a result of a number of potential events at the site, namely:

- From observations made by personnel on site and recorded in daily log and annual inspection reports;
- From complaints made by the general public or by users of the site, and recorded on a complaint form; and/or
- As a consequence of the interpretation of monitoring data.

Non-conformance forms will be completed by the WSC to provide a traceable record of non-conformances. Corrective and preventive actions will be specified in non-conformance documentation, which will be signed off when appropriate actions have been completed.

The majority of environmental observations made by personnel on site will be most appropriately dealt with through the daily inspections, with the non-conformance system used to address environmental issues as necessary. Similarly, complaints made by users or the community may be dealt with through the non-conformance system, as required.

Procedures for dealing with non-conformance will be based on:

- Identifying the cause of the non-conformance;
- Identifying, recording and implementing the necessary corrective action;
- Making any changes necessary to avoid repetition of the non-conformance i.e. preventive action; and
- Recording any changes in written procedures that result from the corrective and preventive actions.

These procedures will be reflected in future updates of the LEMP, for the operation and management of the site.

3.7 Review Process

3.7.1 Annual Review

On an annual basis WSC will undertake a review of the facility to ensure continual improvement in the management and operation of the landfill site and promote continuous improvement of site management. Information shall be collated and maintained for ready access. The review will generally consider the following:

- General waste disposal data collation and recording including review of tonnages disposed of and remaining airspace;
- Status of site operations, waste management and site monitoring and compliance with the LEMP and EPL conditions;
- Weekly, monthly, and quarterly inspections reporting and response to issues identified;
- Complaints recording and management;
- Non-conformance reporting and resolution; and
- Correspondence with EPA.

3.7.2 LEMP Review

WSC shall review and update (if required) this LEMP in accordance with the requirements outlined in Section 1.5 of this LEMP to ensure it reflects the status of the site and demonstrates an appropriate level of operation and monitoring. The LEMP review shall consider and update the following site aspects:

- Any updates to the requirements of the EPL or regulatory requirements, or changes in WSC's waste management policy;
- General details;
- Layout and Development;
- Operations including evaluation of the rate of filling and revision of staging/filling plans as required;
- Monitoring and reporting;
- Capping and closure; and
- Site records.

3.8 Record Keeping

The following records shall be kept at the legal address of the site Licensee:

- Copy of conditions of planning consent and authorisation under the *Amended Environmental Planning and Assessment Act 1979*;
- Records of inspections conducted by staff;
- Records of monitoring as discussed above;
- Records of complaints received;
- Correspondence with or records of inspections by EPA;
- Records of situations where licence conditions have been breached and how the breaches were rectified;
- Copy of LEMP in its entirety;
- The site's EPL;
- Site diary/daily log-book;
- Plans of waste storage locations for future possible retrieval;
- Worksite WHS field folder
- Any other applicable Council operational plans and policies including closure and post closure management plans (when developed);
- Copies of any site reporting; and
- Evidence and outcomes of site reviews.

WSC shall ensure that the above records are kept up to date and readily accessible for future reference.

A copy of this LEMP and the EPL shall be kept at the premises at all times and must be available for inspection by any employee or agent of WSC working at the premises and must be also produced to any authorised officer of the EPA who asks to see it.

4 Site Infrastructure

4.1 Access and Layout

Access to the site is via Arumpo Road. The current layout of the site and the proposed landfill cell layout are shown on Figure 4 and Figure 5 included in Appendix A.

The site infrastructure currently consists of:

- Entrance gates and fencing;
- Weighbridge and site office;
- Community recycling centre for concrete, oil, paint, gas bottle, green waste, scrap metal, cardboard, glass, batteries, plastic bottles, fluoro globes and tubes;
- Public waste acceptance area;
- Access roads;
- Landfill;
- Leachate management ponds.

The proposed upgrade of the front end recycling & resource recovery areas and the proposed expansion of landfill cells are as shown in Figure 6 and Figure 1 of Appendix A.

4.2 Waste Acceptance and Storage Facilities

4.2.1 Front End Recycling Facility

Prior to entry into the landfill site, customers will be able to drive into the Front End Recycling Facility (FERF) - double bay shed structure that is dedicated for the disposal, temporary storage/handling and out loading of household recyclable items that typically do not incur a disposal charge or fee. The materials include items such as:

- Steel
- Cardboard
- Container deposit scheme materials
- Any other items, other than e-waste, that may be resold or have value, e.g. furniture in working order, bicycles, etc.

The FERF is designed as an enclosed, flat floor shed structure, which is located and/or accessed before the weighbridge and gatehouse infrastructure on-site. This will incentivise customers to sort loads and divert materials from landfill as much as practicable. Vehicles driving through the FERF will be able to deposit materials in stillages with these materials then unloaded into the proposed drum muster drop off area (12m x 12m sealed hardstand) and the proposed RORO bin storage area (8m x 15m sealed hardstand) prior to transport off site. Materials will be stored within the enclosed portion of the building with the intent to re-purpose as much as possible of these materials.

4.2.2 Gatehouse Area

After passing the FERF, all vehicles will be required to enter the site over the site weighbridge. At this location, various details of the vehicle including registration, time of entry, weight and material type will be recorded. From here the residential and commercial vehicles will be split and directed to the appropriate location of the site. Cars and trailers and other small vehicles will turn left as soon as they come off the weighbridge and drop of materials at the general public drop-off area. Larger commercial vehicles will be directed to the waste disposal (application to land) areas located on site.

An existing gatehouse, site office, lunch room with first aid facility, a toilet block with septic tank, and a weighbridge are located on the site access road. The 40 m long weighbridge is equipped with weighbridge software. This system facilitates precise weighing of disposed waste and categorises the

waste type in accordance with EPA reporting standards. Upon entering the facility, all waste-carrying vehicles undergo weighing and random inspections on the weighbridge. The software additionally enables gatehouse operators to view and capture images of the waste through an integrated camera system for documentation and storage.

A proposed new site office, lunchroom and amenities building (30m x 6m) is designed to accommodate increased staffing numbers as the volumes of recyclables and waste increases over time.

4.2.3 General Public Drop-Off Area

Following the entry into the general public drop-off area, cars and trailers are directed past specific material type drop-offs to encourage the deposition of recyclable materials prior to giving customers the opportunity to dispose of any residual waste material.

The Resource Recovery Area includes the existing Community Recycling Centre and a new shed where the costumers can deposit:

- Hazardous materials;
- Batteries;
- Oils;
- Green waste;
- Inert materials (e.g. soils, concrete, bricks);
- Tyres;
- Steels and other metals.

After this, a residual drop of shed which is an undercover and enclosed building is provided where customers can deposit residual waste materials in a pit area before the customers depart the site. WSC staff will push this material up and then sort to remove further recyclables, where possible. By this stage, minimal recyclables remain within the waste stream; however it provides a final opportunity for diversionary activities prior to sending this material to landfill.

Once it has been determined that the residual material is suitable only for landfill, a loader will collect this material and place it into the back of an on-site haulage truck. This truck will then transfer the material from the transfer station shed to the active tip face where it will be disposed.

Rainwater tanks will be installed for all buildings to collect roof runoff for use in on-site activities. Dedicated fire water supplies are available on-site.

With respect to recyclables that are collected in the general public drop-off area, these will be loaded into the on-site haulage vehicle and then taken to the larger material storage areas utilised by commercial vehicles.

4.2.4 Commercial Vehicles Drop Off Areas

After passing over the site weighbridge, commercial vehicles will travel in an easterly direction until after they pass the general public drop off area. From there they will head north, travelling up the western side of the landfill perimeter. This northern access road will act as a primary transport route to access various parts of the site where materials can be deposited.

4.2.4.1 Scrap Metal Storage Area

The scrap metal recycling area is to be located in the northwest of the site and consolidates metal items for subsequent collection by recycling contractors. The stockpile will be periodically pushed up into heaps to reduce the stockpile footprint. This material will be regularly cleared when volumes stockpiled approach 200 tonnes. This enables efficiencies with material handling equipment and transport to occur.

4.2.4.2 Concrete Stockpile and Processing Area

Concrete is stockpiled in an area at the north east of the current landfilling area. This material is subsequently crushed by a contractor approximately once a month and is either used for on-site purposes (primarily site roads) or sold off site.

4.2.4.3 Garden Waste and Wood Waste Stockpile and Processing Area

The garden waste area is located to the north east of the existing landfilling area and comprises an open area upon which garden waste and associated woody material is stockpiled. This material is currently shredded by a contractor and removed from site approximately once a month. In future, the green waste is proposed to be shredded and used in landfill final capping. The dimensions of each stockpile of shredded green waste will be:

- Maximum heigh: 4 m
- Maximum length: 23 m
- Maximum base width: 8 m
- Minimum width between stockpiles: 2-10 m, with a 10 m buffer provided on at least one side of the stockpile as required by *Fire Safety Guidelines* (Fire Safety Branch, 2020).

This material is regularly shredded when volumes stockpiled approach 200 tonnes.

4.2.4.4 Tyre Stockpile Area

Tyres are stockpiled to the southeast of the site for subsequent collection by recycling contractors or shredding prior to disposal. Dimensions of each tyre stockpile must not exceed:

4 metres as the maximum base width;

18 metres as the maximum base length;

3 metres as the maximum stockpile height

A 23 m buffer has been included between the tyre stockpile and the green waste stockpile as recommended for loose piles of high fire risk materials (Fire Safety Branch, 2020)

Less than 50 tonnes of tyres are proposed to be stored on site at any time.

4.2.4.5 Stormwater Controls

All the areas above will be placed on hardstand area to limit leaching and control runoff. The green waste pad will have a 2 m wide lined sump on the northern end to collect any runoff from stockpiles and allow for sediment deposition prior to directing into a swale which will direct runoff from all areas into a newly constructed stormwater pond to the northwest of the stockpile areas. An emergency overflow from the stormwater pond will be directed into the site stormwater system.

4.3 Landfill Areas

4.3.1 Landfill Cell Layout

All landfill cells will be constructed with an engineered lining and leachate collection system consistent with the requirements of the Landfill Guideline and as represented in Figure 4-1. This lining system is provided to contain the waste and prevent environmental harm due to the landfill operation by forming a barrier between the waste and the environment.

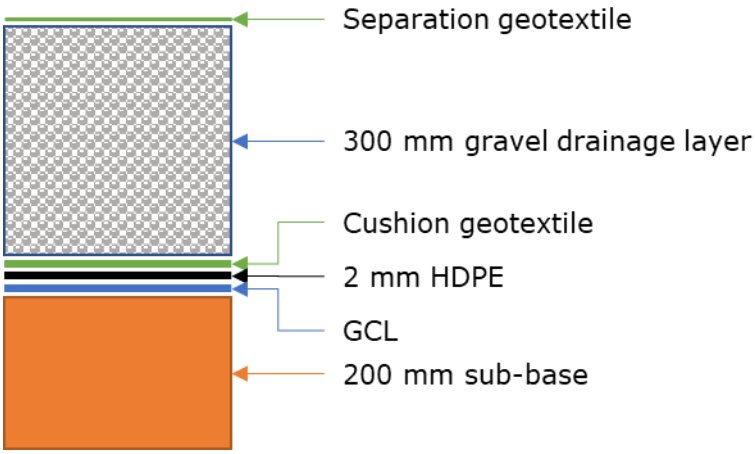


Figure 4-1: Schematic of Cell Liner System (NSW EPA, 2016)

The specific lining system profile will be determined during detailed design of the landfill cells prior to construction. It is anticipated that the first landfill cells and the basal liner will "piggyback" over the northern batter of the existing waste mass to allow for a continuous final landform to be developed sympathetic with other regional landforms. Utilising a "piggyback" lining system over the existing waste mass also allows the existing landfill footprint to be further utilised, minimising the footprint of the new landfill areas.

Cells extend to approximately 5 to 8 m bgl, with final base line levels to be determined during the detailed design of each cell. This cell depth has been selected to provide a minimum of 2 m separation between the groundwater levels recorded at the site and the lowest point of the cell floor. Groundwater levels were set as the highest groundwater levels observed in monitoring wells BH2 and BH4 located to the west and east of the existing landfill respectively. These wells were installed in 2010 and 2012 respectively (GHD, 2012) and have been monitored regularly since, with the highest observed groundwater levels being 30.2 m AHD in BH2 and 32.7 m AHD in BH4 based upon data provided by WSC. These groundwater levels are consistent with those described in the Groundwater Monitoring provided in Appendix J Water Management Plan. This separation is provided to ensure there is an unsaturated zone between the base liner to prevent contaminants reaching groundwater and to prevent groundwater impacting on the stability of the liner. Leachate sumps will be 300 mm below the lowest point of the floor to facilitate collection.

4.3.2 Existing Landfill

Located in the southern portion of the site, current disposal activities are undertaken in a fully lined and approved landfill cell within the existing landfill area, particularly in its eastern segment. Inert wastes, encompassing mixed building and demolition debris, alongside selected loads of inert commercial and industrial waste, are deposited at the old unlined cell to raise it to its final landform. Vehicles access the area from the south, manoeuvring on covered waste and backing up to the active tip face where material is unloaded, and vehicle then exit the site.

4.3.3 Stage 1 Landfill

The new Stage 1 landfill located at the north of the existing landfill is proposed for construction in four sub-stages, i.e., Stage 1A, Stage 1B, Stage 1C and Stage 1D. Sub-stages will progress from south to north on the western side of the site. Each sub-stage will be developed into individual landfill cells each with approximately 4 to 5 year filling lives. Concept design of the proposed new cells have been developed. Each cell will drain to a leachate collection sump which will contain a leachate pump and riser to facilitate the extraction of leachate from the landfill cells.

Design of cell Stage 1A has a composite barrier system overlain by leachate collection gravel and pipework. Leachate will drain to a sump located within Cell Stage 1A. Construction of this cell is subject to EPA approval.

All landfill cells will be constructed with an engineered lining and leachate collection system consistent with the requirements of the *Environmental Guidelines: Solid Waste Landfills*, Second Edition (NSW EPA, 2016).

4.3.4 Landfill Cell Construction Quality Assurance

Quality assurance measures will be implemented to ensure that all critical features of the landfill are constructed according to the design and specifications approved by WSC and EPA. Design work for the facility will be undertaken by suitable qualified and experienced personnel or consultants in accordance with quality principles.

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

Construction work of environmental protection elements at the site including the landfill capping layer or future landfill cells will be subject to the quality assurance requirements set out in the *Environmental Guidelines: Solid Waste Landfills*, Second Edition (NSW EPA, 2016). These requirements include:

- The preparation of a Construction Quality Assurance Plan prior to major construction works, setting out proposed testing, inspection and verification procedures to be implemented during construction.
- Following construction, the occupier shall prepare a Construction Quality Assurance Report on the quality assurance that was implemented to ensure that the works comply with the approved designs and specifications.
- In the case of a new landfill cell, a satisfactory Construction Quality Assurance Report shall be submitted to the EPA before the EPA can issue an approval to dispose of waste in the new landfill cell. The CQA report will also include a QA/QC program, which will be integrated into the LCDR for submission to the Planning Secretary as detailed in Section 1.1.2.
- In the case of final capping works under a Closure Plan, a satisfactory Construction Quality Assurance Report shall be submitted to the EPA before the EPA can approve the surrender of the licence.
- Construction Quality Assurance Plans and Reports shall satisfy the requirements of Sections 11.1 and 11.2 of the *Environmental Guidelines: Solid Waste Landfills.*

These requirements apply to the construction of cell Stage 1A and any other future landfill cells constructed at the facility.

4.4 Leachate Management System

4.4.1 Leachate Management

A high-level leachate balance has been undertaken to establish a footprint for the leachate basin area.

The existing leachate evaporation basin at the site is lined and is used for disposal of leachate from the existing lined landfill cell. This pond will initially be retained to dispose of leachate during the early period of the landfill operation. When additional leachate ponds are required, new leachate evaporation ponds will be designed and constructed to dispose of leachate from both the new and existing landfill cells. The leachate ponds will be progressively constructed as the landfill expands and the volume of leachate generated increases.

Leachate ponds will be designed in accordance with the requirements of the *Environmental Guidelines: Solid Waste Landfills*, Second Edition and will be sized with adequate freeboard to accept rainfall from a 1 in 25-year average recurrence interval, 24-hour rainfall event to prevent overtopping. Ponds shall be

lined with an engineered lining system of a similar standard to the landfill cells to prevent leachate causing contamination.

4.5 Stormwater Infrastructure

4.5.1 Stormwater Drainage

The existing stormwater sedimentation basin is located at the south east of the site.

The location of the basins for Stage 1 are shown in Figure 7 of Appendix A. The locations have been selected to allow for gravity flow to the basins whilst minimising the potential impact on vegetation by selecting already cleared areas and/or minimising the footprint as far as practical for the north-eastern basins where higher quality vegetation was found. Associated stormwater drains directing stormwater towards stormwater basins are designed and to be constructed.

The basin sizes required for the development are described in Table 4-1.

Table 4-1 Stormwater Basins for Buronga Landfill

Basin	Area (ha)	Settling Zone Volume (m^3)	Sediment Storage Volume (m^3)	Total Basin Volume (m^3)
Stage 1 North Western	17.1	1493	746	2239
Stage 1 North Eastern	4.3	376	188	564
Stage 1 Southern	20.0	1743	872	2615

4.6 Landfill Gas Infrastructure

4.6.1 LFG Extraction System and Flare

All proposed landfill cells will feature engineered lining systems designed to confine landfill gas within the cells, thereby preventing its migration to the surrounding geology while promoting vertical migration over horizontal. Additionally, WSC is investigating the potential implementation of an extraction system to gather landfill gas from the waste mass and treat it. Figure 6 of Appendix A illustrates the potential location of the Proposed LFG Management Area.

4.7 Final Landform, Site Life and Staging

It is estimated that the existing facility is likely to consume all available airspace by late 2024. The site extension provides further life of the site. The design concept provides approximately 3,304,000 m^3 of airspace across the proposed four stages labelled Stages 1A to 1D, providing an expected 38 years of landfill life based upon future projected waste tonnages.

The final landform has been designed in accordance with the requirements of the Landfill Guidelines to facilitate the rehabilitation of the site following closure. The final landform extends to a height of approximately 59 m AHD, slightly higher than the landform of the existing waste disposal operation in the southern area of the site. The final landform has been designed with final grades no steeper than 1V:5H (20%) and no flatter than 5% to facilitate the drainage of stormwater and minimise the risk of erosion and scour of cover materials in accordance with The Landfill Guideline. This will assist in minimising long-term maintenance requirements for the closed landfill. The landform has been designed

to be similar to parallel dunes in an east-west orientation to be sympathetic to other regional landforms. Rehabilitation of Stage 1A will commence as soon as is practicable after completion of filling within the cell. A detailed design of a landfill cap for the Buronga Landfill has not been completed yet. Capping contours are expected to be in accordance with the post-settlement final landform developed as a part of the expansion development EIS and shown in Figure 8 of Appendix A.

4.8 Utilities

The site has an existing operational toilet which is connected to a septic tank underneath. Electricity on site is supplied by a generator. Water for the offices, toilets, shower and gatehouse are supplied by water from the local Mourquong Irrigation Pipeline on Arumpo Ave. The water is non-potable and stored in a 5000 L Poly tank. Potable water for drinking is supplied by a commercial supplier in 10 L bottles. Site water is also stored in a 50,000 L poly tank for site use and supplied from the same metered pipeline.

5 Site Operations

5.1 General

Buronga Landfill currently accepts construction and demolition (C&D) waste, green waste, general exempted waste, waste mineral oils, tyres, asbestos, and general solid waste (both putrescible and non-putrescible) as permitted under the EPL.

C&D waste, green waste and waste oils are received for resource recovery. WSC personnel take all reasonable steps to ensure that recyclable and reusable items received are diverted from landfill. Where possible C&D waste (concrete, bricks and tiles) is mixed with soil to be used as daily cover. Clean fill accepted at the landfill is stockpiled as appropriate on site for use as cover material or for rehabilitation. Garden waste is stockpiled until the volumes reach a sufficient size for a contractor to shred and remove the mulch created from site.

WSC has constructed a Community Recycling Centre (CRC) on site in accordance with the NSW Environmental Trust Community Recycling Centre Grants Program. The CRC on site accepts recyclables and hazardous waste from the public. Materials accepted at the CRC include paints, motor oils, cooking, hydraulic and transmission oils, household single use batteries, car batteries, fluorescent and compact fluorescent lighting, gas cylinders and smoke detectors. Other recyclable materials accepted at the facility include scrap metal, mineral oils, glass and plastic containers, garden waste and cardboard and paper. The CRC facilitates the diversion of these recyclables away from landfill for reuse and this facility is to continue under the proposed development.

Remaining wastes, i.e. general waste and asbestos, are disposed of through landfilling. Tyres are stockpiled at the tyre stockpile area for subsequent collection by recycling contractors. The site currently accepts bonded asbestos materials which are disposed of in accordance with the procedure set out in this LEMP requiring asbestos materials to be appropriately wrapped and sealed and immediately covered when placed. Waste disposed in the landfill is placed and compacted to achieve a maximum practical in situ density in accordance with the site licence. The waste is covered daily with a minimum of 150 mm of material in accordance with this LEMP to maintain sanitary conditions on site and minimise environmental impact.

Environmental monitoring is required by the site EPL and the Development Consent, including monitoring of leachate, air quality, landfill gas, stormwater and groundwater. Leachate generated in the lined cell is managed through a formal leachate capture system and pumped to the leachate basin and disposed of via evaporation. The 2015 LEMP[11] permits storage of excess leachate in the landfill cell during very wet weather and disposal off site via tanker to a sewage treatment plant or similar, if required. The legacy cell has no formal leachate management system. Surface water from the site is directed to a sedimentation basin in the south eastern corner of the site. Cells are graded to direct clean stormwater away from the waste mass and prevent contamination of stormwater. No landfill gas (LFG) management system exists on site, nor is LFG monitored at the site. The low rainfall is likely to result in limited leachate or gas generation due to relatively dry and aerobic landfill conditions. Further details of monitoring will be provided in Section 7.

The site shall be operated by WSC in accordance with the EPL, this LEMP, and other relevant regulatory requirements including the POEO Act.

WSC shall implement a comprehensive range of measures to minimise the potential for environmental impact from the current and future waste management operations conducted at the site as required by

[11] Wentworth Shire Council (2015), Buronga Landfill, Landfill Environmental Management Plan, December 2015, Ref: 21/21400/181846.

the EPL, the Development Consent, the Landfill Guidelines and other regulatory requirements. This includes:

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

The operations of the proposed expansion are to continue to be in accordance with the best management practices of the time, as defined by the EPL and Landfill Guidelines. Facilities for the public to separate recyclables and disposal of waste will continue to be provided.

5.2 Management, Supervision and Staffing

WSC shall provide suitable trained and experienced personnel as necessary to manage, supervise, operate and maintain the site in a competent manner in accordance with this LEMP, the site licence, the *Environmental Guidelines: Solid Waste Landfills* and other regulatory requirements. This shall include provision of staff to undertake the following activities:

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

WSC shall facilitate the effective control of traffic at this site, and in particular at any waste disposal active tipping face. WSC shall ensure that the equipment engaged in the movement, spreading,

compaction and covering of deposited waste in the vicinity of any active tipping face is not operated in such a way as to constitute a risk to persons disposing of waste. WSC shall facilitate the supply and placement of barricades and/or signs as required to achieve this.

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

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

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

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

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

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

5.3 Traffic Management and Signage

WSC will ensure that traffic is effectively managed within the WMF to ensure safe and efficient vehicle movements on site.

A traffic control plan for the recycling and resource recovery areas of the site has been designed and currently under review. Details of the traffic control plan and signage are provided in Figure 9 to Figure 12 of Appendix A.

All vehicles must adhere to landfill signage covering speed and general safety aspects. WSC has the authority to deny access to any user of the facility not complying with these policies.

The gatehouse operator shall monitor load security and reject any non-conforming vehicles and loads and notify the EPA if necessary. Customers may also be turned away if they do not meet other WSC requirements, such as place of residence or origin of waste. Any complaints regarding litter loss on open road areas will be investigated by WSC and landfill access will be denied to persistent offenders.

5.4 Hours of Operation

The hours of operation of the site and its subsidiary operations shall be as per the requirements of the EPL and the Development Consent. Under the EPL and the Development Consent, the current hour of operation are:

- Monday to Friday: 6:00am to 7:00pm
- Saturdays, Sundays and Public Holidays: 7:00am to 6.00pm

5.5 Waste Acceptance & Screening

5.5.1 Environmental Protection Licence Conditions

Currently the Buronga Landfill is licensed to receive the following waste types, subject to the further conditions of the EPL for disposal to land:

- Municipal solid waste including:
- Domestic solid waste (putrescible & non-putrescible);
- Council waste;
- Other domestic waste (delivered direct to the site by residents);
- Commercial and industrial solid waste;
- Building and construction solid waste;
- Contaminated soil (meeting the definition of general solid waste);
- Recyclable waste materials (separated) including:
    - garden organics;
    - wood waste;
    - glass;
    - paper and cardboard;
    - concrete;
    - scrap metal
- Tyres. Tyres are not landfilled at the premises;
- Special wastes;
- Asbestos;
- Liquid wastes, including:
    - grease trap waste;
    - waste oil.

5.5.2 EPA Fixed Plate

As required by the *NSW EPA Asbestos and Waste Tyres Guidelines*[12], WSC will display an EPA Waste Locate Fixed Plate at its premises to assist the tracking of either Waste Tyres or Asbestos Waste to its premises. This is to enable it to give information to EPA under the requirements of the Protection of the Environment Operations (Waste) Regulations 2014 (NSW).

5.5.3 Waste Screening

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

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

- Council kerbside collections are screened during the run to identify any non-conforming wastes;
- Private refuse collection companies usually inform clients of acceptable waste as part of contract and inspect bins upon collection;
- Prominent signage at the entrance to the landfill defining acceptable wastes and directing users to contact site staff for information regarding disposal of other wastes;
- All waste loads shall be inspected by gatehouse staff and the driver questioned prior to entering the landfill. All vehicles suspected of containing unacceptable waste are refused permission to deposit waste until the waste is verified as being acceptable. WSC shall require and collect appropriate

[12] NSW Environment Protection Authority, 2015, Asbestos and Waste Tyres Guidelines, September 2023, Ref: EPA 2023P4464

evidence from the driver of the vehicle as verification that the waste is acceptable, e.g. test certificates, approvals, etc.;

- Directing vehicles with unacceptable wastes to an appropriate disposal facility;
- Random monitoring and inspection of wastes as they are discharged from vehicles at the waste disposal areas by WSC personnel. All waste suspected of being unacceptable will be segregated and checked as to its acceptability, e.g. by detailed inspection and/or testing, as deemed appropriate by WSC;
- Monitoring of the deposited waste during spreading, compaction and covering at the landfill or during stockpiling by the operator. All waste suspected of being unacceptable will be segregated and checked to determine its acceptability e.g. by detailed inspection and/or testing, as deemed appropriate by WSC;
- Recording of all incidences of identification of unacceptable wastes in the site's daily log. The record will be generated in accordance with WSC's Incident Reporting, Review and Investigation procedure and should include:
    - Details of the waste including type and a description;
    - Source of the waste including vehicle identification, driver identification and generator of the waste;
    - Recommended waste management facility(s);
    - Result(s) of contacting the waste management facility; and
    - Date contacted EPA.
- Incident reports should be recorded in the daily log.
- Any company or person depositing refuse that does not conform to the site acceptance policy on a repeated basis will be refused tipping rights unless compliance can be provided.

5.5.4 Unacceptable Waste Procedure

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

In the event that unacceptable waste is identified during deposition by a vehicle, WSC will immediately segregate and contain the waste away from the active tipping face or processing area. WSC personnel will record the details of the waste, such as type, the source, and the vehicle and driver identification. WSC personnel will advise the driver of the vehicle that the waste is not acceptable and may load the waste back onto the vehicle where practical and safe to do so. The vehicle will then be escorted from the landfill by WSC personnel. WSC personnel will advise the driver of the vehicle to contact the EPA for advice on the appropriate management of the unacceptable waste. In the event that unacceptable waste is identified during the spreading and compaction of deposited waste or stockpiling at the green waste area, WSC personnel will segregate and contain the waste away from the active waste disposal or processing areas. WSC personnel will make all practical efforts to identify the source of the waste, including:

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

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

5.6 Community Recycling Centre

The community recycling centre (CRC) is located at the north of the existing site offices. The CRC was constructed in accordance with the NSW Environmental Trust Community Recycling Centre Grants Program. CRC facilities are provided to allow for public drop-off of problematic recyclable wastes. The CRC accepts:

- Hazardous materials;

- Batteries;
- Oils;
- Green waste;
- Inert materials (e.g. soils, concrete, bricks);
- Tyres; Tyres are not landfilled at the premises;
- Steels and other metals.

Separate collection areas are provided for the waste types accepted and the public are permitted to drop off these wastes in each area. The recyclable materials accepted at the CRC are removed from site by contractors. The quantity of any waste received at the premises which is to be stored in the CRC does not contribute towards the total waste allowed under the authorised amount in the licence.

The CRC is operated in accordance with the *NSW EPA Community Recycling Centres operations and management handbook*[13]. This handbook outlines minimum standards for infrastructure, risk management, operating procedures, training, record keeping and reporting.

5.7 General Waste Disposal

All waste will be deposited in a manner that minimises any nuisance or environmental impact and achieves maximum practical in situ density. Waste will not be deposited into water. The active waste disposal area will be maintained in a dry condition as far as is possible during the life of the area.

Every layer of waste deposited in the landfill will be evenly placed and compacted by the landfilling equipment to achieve a target effective waste density of >650 kg/m^3.

Waste disposal shall be undertaken in accordance with the performance criteria nominated in Table 5-1 to minimise the usage of cover soils and to best utilise landfill airspace.

Table 5-1 Waste Disposal Performance Criteria

Parameter	Performance Criteria	Notes
Waste Layer Thickness	Maximum 1.0 m	Waste layers shall be placed at approximately 0.5 m uncompacted thickness and compacted thoroughly.
Waste disposal area (daily cell/tip face)	ensure the active landfill tipping face area is no larger than 600 m^2 at any one time	Disposal area shall be managed to ensure safety at all times and managed in daily cells that minimise the lateral extent of exposed waste and usage of daily cover material. The tip face shall be clearly identified with high visibility markers and signage to promote safety of contractors.
Compaction	Minimum 3 passes of landfill compactor	Waste shall be worked and compacted with a compactor in maximum lifts as nominated above Compactor not to work on slopes >1:3 (V:H) due to reduced compaction and operational safety considerations

[13] NSW Environment Protection Authority (2017). *Community Recycling Centres, Operations and management handbook – 2nd ed.*, 2nd Edition, June 2017, Ref: EPA2016/0557

Large bulky wastes that can't be broken up by the landfill compactor such as tree trunks will not be deposited in the final lift of a waste disposal area since settlement of the fill may result in these large items piercing the landfill cap.

5.7.1 Waste Disposal Monitoring

WSC will ensure waste disposal is monitored, in accordance with the schedule set out in Table 5-2. The requirements of Table 5-2 shall be recorded at the weighbridge.

Reasons for recording are as follows:

- To monitor waste being presented to site and general waste intake rates
- Ensure no unauthorised materials are accepted
- To monitor waste disposal activity and airspace consumption
- Ensure general compliance with:
    - EPL conditions
    - Development Consent conditions
    - EPA Guidelines – Environmental Guidelines: Solid Waste Landfills (2016)
    - Protection of the Environment Operations Act 1997

Table 5-2 Waste Disposal Monitoring

Item	Comment
Key Information	Waste volumes/quantities Occurrence of unauthorised wastes Unacceptable site use
Location	Tipping Face
Methodology	Routine monitoring using checklists Maintain accurate and up to date records Carry out spot checks on incoming loads to ensure compliance where possible
Responsibility	WSC
Frequency	Continuous
Duration	Operating life of site
Acceptance Criteria	Compliance with EPL conditions
Reporting - Internal	Quarterly review completed by WSC
Reporting - External	Annual Review and correspondence with the EPA
Non-conformance Procedures	Refuse to accept non complying materials Check adequacy of above monitoring procedures

	Implement corrective actions and modify procedures as necessary
Management Review	WSC to review procedures and implement recommendations from annual review

5.8 Filling Plan

The current filling plan[14] of the site is for filling in the existing landfill. The proposed Stage 1 cells are yet to be developed. Filling plans should be developed for these cells prior to filling commencing.

5.9 Asbestos Waste Handling

5.9.1 General

WSC require 24 hours' notice prior to receiving asbestos waste at the site. Asbestos material shall be identified at the weighbridge and directed to the landfill. Asbestos material shall be placed directly into the area prepared for the waste material. Disposal of asbestos will be in accordance with Clause 80 of the *Protection of the Environment Operations (Waste) Regulation 2014 (NSW)* (the waste regulation). The EPL permits disposal of Asbestos Waste (by application to land) with a condition of the total quantity of asbestos disposed at the premises not exceeding 500 tonnes per annum.

5.9.2 Asbestos Requirements under The Waste Regulation

In this section "bonded asbestos material" means any material (other than friable asbestos material) that contains asbestos. "Friable asbestos material" means any material that contains asbestos and is in the form of a powder or can be crumbled, pulverised or reduced to powder by hand pressure when dry as under the waste regulation.

5.9.2.1 Transport

Transportation of asbestos waste will be in accordance with Clauses 78 and 79 of the waste regulation. The general requirements relating to the transportation of asbestos waste are as follows:

- A person who transports asbestos waste must ensure that any part of any vehicle in which the person transports the waste is covered, and leak-proof, during its transportation.
- A person who transports bonded asbestos material must ensure that it is securely packaged during its transportation.
- A person who transports friable asbestos material must ensure that it is in a sealed container during its transportation.
- A person who transports asbestos waste (other than bonded asbestos material that is securely packaged or friable asbestos material that is in a sealed container) must ensure that it is wetted down during its transportation.

Transportation of asbestos waste solely within New South Wales is subject to reporting conditions as described in Clause 79 of the waste regulation. These requirements set out reporting requirements to the EPA. These reporting requirements do not apply to any of the following:

- the transportation of less than 100 kilograms of asbestos waste, or of less than 10 square metres of asbestos waste that is asbestos sheeting, in any single load;
- the transportation of asbestos waste in an emergency to protect human health, the environment or property;
- the transportation of asbestos waste that commenced before 1 July 2015.

[14] MRA Consulting Group (2015). *Wentworth Shire Council, Buronga Landfill - Landfill Filling Plan*. January 2015.

These reporting requirements require the transporter of a load of asbestos to supply the following information to EPA prior to transportation commencing:

- the address of the site at which the asbestos waste has been generated (by its removal from the site), if known to the transporter;
- the name, address and contact details of the premises from which the load is proposed to be transported;
- the date on which it is proposed that the transportation commence;
- the name, address and contact details of the premises to which the waste is proposed to be transported;
- the approximate weight (in kilograms) of each class of asbestos waste in the load (rounded to the nearest kilogram and, if the amount to be rounded is 0.5 kilogram, rounded up);
- any other information specified in the Asbestos and Waste Tyres Guidelines;

If the premises to which the load is delivered are not the same as the premises that was proposed prior to transportation, the transporter must ensure the EPA is given the name, address and contact details of the receiving premises within 24 hours after the delivery.

The occupier of any premises to which a load of asbestos waste is delivered must provide the following information to the EPA:

- If the EPA Fixed Plate at an occupier's premises to which a load of Asbestos Waste is delivered is not scanned by the transporter of the Asbestos Waste (Unscanned Asbestos Load), the occupier must provide the EPA the following information in relation to the load:
    - the date and time of delivery of the load of Asbestos Waste;
    - the vehicle registration number of the vehicle driven by or on behalf of the transporter for the specific consignment.

5.9.2.2 Disposal

The requirements relating to the disposal of asbestos waste under Clause 80 of the waste Regulation are as follows:

- When a person delivers asbestos waste to a landfill site, the person must inform the occupier of the landfill site that the waste contains asbestos;
- The person unloading or disposing of the asbestos waste and the landfill occupier (WSC) must ensure that no dust is generated from the waste during unloading and/or disposal;
- Asbestos waste disposed of at a landfill site must be covered with virgin excavated natural material or other material as approved in the facility's EPL:
    - Initially (at the time of disposal), to a depth of at least 150 mm, and
    - At the end of each day's operation, to a depth of at least 500 mm, and
    - 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.

5.9.3 Asbestos Requirements under WHS Industry Codes of Practice

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

- Safe Work Australia, 2018, *How to manage and control asbestos in the workplace, Code of Practice,* Commonwealth of Australia, Canberra, October 2018, ISBN 978-0-642-33315-5.
- Safe Work Australia, 2018, *How to safely remove asbestos, Code of Practice,* Commonwealth of Australia, Canberra, October 2018, ISBN 978-0-642-33317-9.
- NSW EPA, 2019, *Standards for managing construction waste in NSW,* State of NSW, April 2019, Sydney, EPA2019P1542.

- WorkCover NSW, 2010, *Management of Asbestos in Recycled Construction and Demolition Waste – Guide,* SafeWork NSW, Gosford, Ref: SW08774.

5.9.4 Procedure

The asbestos disposal party shall notify the site operation staff 24 hours in advance that a load of asbestos is to be delivered to the site. Once the vehicle containing the asbestos arrives at the weighbridge, the weighbridge operator will inspect the material to ensure it is appropriately wrapped or sealed. Details of the asbestos load will be recorded in the Asbestos Register and the driver will be directed to the disposal location at the site.

The Asbestos Register will include the following information:

- Details of the waste type – asbestos containing material;
- Load weight;
- Generator of the waste;
- Vehicle registration;
- Driver identification;
- Transport company (if applicable); and
- Details of the type and weight of any unapproved waste detected in load.

If the above information is not provided by the asbestos transporter and the waste cannot be verified, then the material must be rejected and recorded accordingly in the Excluded Waste Register.

The asbestos will be handled and treated in the following manner:

- The landfill supervisor will inspect the load of asbestos to confirm that it is appropriately wrapped or sealed;
- Unloading of the asbestos material should be in such a manner that ensures the wrapped or sealed bags or covering plastic is not ruptured or punctured and that dust is not generated;
- The material is unloaded directly into a designated prepared hole in the previously compacted waste so as to avoid direct contact between the compactor/dozer and the waste;
- Emplaced asbestos waste will be immediately covered with 150 mm of cover; and
- Application of daily waste cover to a minimum depth of 500mm as well as a minimum depth of 3m clearance between any emplaced asbestos and the final landfill surface elevation by the end of the day's operation.

The Asbestos Register shall be made accessible to all staff within the workplace and should be reviewed and appropriately updated at least every 12 months to ensure it meets industrial and EPA requirements.

5.10 Regular Covering of Waste

5.10.1 Daily Cover

To maintain sanitary conditions and minimise the environmental impact of the landfilling operation, at the end of each working day all exposed waste surfaces will be covered by WSC. The main functions of daily cover are to minimise adverse amenity impacts such as odour, dust, litter, the presence of scavengers and vermin, and the risk of fire. It is also desirable that the daily cover material limits rainfall infiltration into the waste (and therefore the amount of leachate generated) and the emission of landfill gas.

The amount of exposed waste should be kept to a minimum at all times. Additional effort may be required for loads containing large amounts of highly biodegradable wastes, in order to minimise vermin attraction and adverse odour impacts.

Under the site EPL, the material used for the covering of waste will be clean soil and VENM, including material sourced from the new landfill cell excavation and suitable incoming waste materials. This may

include waste materials such as clean soil, VENM, road base, asphalt and crushed concrete, as approved by the EPA. Other materials may be used as daily cover subject to EPA approval. Daily cover must be applied to a minimum depth of 150 mm of the EPA approved material.

WSC will ensure there is, sufficient cover material on site for daily covering of the deposited waste at all times. Cover material used for daily covering will be stockpiled at a point convenient to the active waste disposal area. WSC must ensure that there is at least two weeks supply of cover material available on site under all weather conditions.

WSC will not source or store clean fill on the site in excess of the needs of the site and will not use excessive amounts of cover in operating the landfill. Silt fences and other approved sediment control measures shall be provided for all cover soil stockpiles by WSC as required.

5.10.2 Intermediate Cover

Where a filled area has not reached the final landform level, but due to the staging of the filling will remain inactive for a period greater than 90 days, WSC shall apply an intermediate covering layer. The intermediate covering layer shall comprise of a minimum of 300 mm of approved cover material.

The intermediate soil cover material shall meet the following requirements:

- Minimum 300 mm layer of VENM in the form of a fine-grained, largely cohesive soil;
- Soil should have a saturated hydraulic conductivity of less than 1 x 10-5 metres/second;
- The cover layer should restrict the rainfall infiltration rate into the waste to 20% of the total rainfall (or less); and
- The methane concentration in surface gas above the intermediate cover should be less than 500 parts per million.

This soil cover material be stripped to a thickness of 100-150mm and stockpiled for re-use as daily cover on future landfill lifts.

5.11 Final Capping

5.11.1 General

The landfill will be progressively capped and rehabilitated as filling reached the proposed final landform. The final landform has been designed in accordance with the requirements of the Landfill Guidelines to facilitate the progressive capping and rehabilitation of each cell throughout operation. The Top of Cap design is shown in Figure 8 of Appendix A.

The final capping is proposed to be a phytocap, which is a cap that reduces rainfall infiltration into the waste through natural storage and evapotranspiration processes. Phytocaps also manage emission of fugitive landfill gas through natural microbial activity in the soil. Revegetation of the landfill surface is to occur as part of capping works. The revegetation of the final capped landfill is subject to detailed design. The revegetation shall be based upon the intention of rehabilitating the site to a state resembling native vegetation for the Buronga region. The use of a phytocap allows for revegetation of the capped landfill with trees and shrubs to maximise the visual amenity and environmental values of the landform following rehabilitation. Trees and shrubs can be planted on a phytocap as unlike a conventional or composite landfill cap. no barrier layer is used that can be damaged by deep-rooted vegetation.

The Landfill Guideline allows for the use of a phytocap for landfill capping where it can be demonstrated through modelling and a field trial that the cap can meet the required performance objectives. The design of the phytocap is based on the specific soil hydraulic properties, the local climate and suitable vegetation. The climate in Buronga is favourable to the use of a phytocap due to the relatively low rainfall and high evaporation. The design details will be determined prior to capping commencing based on the soil material identified for use. The phytocap design will be prepared in accordance with the

Landfill Guidelines and the *Guidelines for the Assessment, Design, Construction and Maintenance of Phytocaps as Final Covers for Landfills* (WMAA, 2011).

5.11.2 Final Capping Design and Construction Quality Assurance

Prior to the construction of the final capping layer, WSC shall develop in accordance with the requirements of Sections 9 and 11 of the Landfill Guidelines and as per Section 5.11 of this LEMP:

- A detailed design;
- A materials specification; and
- A construction quality assurance plan for the final capping.

These documents shall be submitted to the EPA and the Planning Secretary for their approval prior to commencing the capping works.

The construction quality assurance plan shall detail requirements of WSC and their contractors to conduct appropriate tests in line with the requirements of the Landfill Guidelines. During construction, records of testing completed, results of the testing, observations and remedial actions undertaken shall be kept. Following construction, a construction quality assurance report shall be produced that documents all construction and quality aspects and contains a declaration by the Construction Quality Assurance engineer that there is sufficient information to demonstrate that the landfill works were constructed in accordance with the approved designs and specifications. This Construction Quality Assurance report shall be submitted to the EPA for EPA's approval.

5.12 Equipment

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

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

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

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

5.13 Security

All traffic entering and exiting the site must pass through the weighbridge. The site is fenced, and access gates will be locked outside of the operating hours. Coded locks or keys will be provided by WSC to staff and contractors as required and only locks approved by WSC shall be used for access gates.

Keys to gates and buildings will only be kept by necessary staff members and contractors approved by the Council. Approval will be required from WSC for issue of new keys to any party.

5.14 Health and Safety Procedures

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

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

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

It is the responsibility of WSC and their sub-contractors to be familiar with the provisions of the *Work Health and Safety Act 2011* (NSW) (the WHS Act 2011) and *Work Health and Safety Regulation 2017* (NSW). The duties and all other obligations that the Act places on an employer will be properly discharged by WSC and their sub-contractors, so that all employees are aware of their responsibilities under the WHS Act 2011.

WSC will ensure that all personal protective equipment (PPE) is available and/or issued to all employees, is maintained in good condition, and is used where required.

WSC will ensure that site infrastructure is maintained safely to meet the WHS requirements of WSC and sub-contractor personnel, as well as the general public. This includes processing of wastes away from the general public and ensuring large drops in ground level are appropriately barricaded.

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

WHS procedures associated with construction activity are outside the scope of this plan.

5.15 Wet Weather Operation

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

5.16 Operational Access Road Maintenance

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

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

5.17 Fire Control

The following fire prevention and control measures shall be implemented at the site:

- No materials shall be intentionally burned on site.

- Signs should clearly inform the general public that flammable liquids are not permitted on the site.
- Stockpiles of approved amounts of combustibles and composting (such as tyres, wood or vegetation) will be divided into small piles, tyres stockpiles shall not exceed 50 tonnes at any time and shall be located in a clearly defined area away from the tipping face.
- All sealed or contaminated drums are banned from the landfill unless they are delivered as a specific consignment, the contents of which clearly identified and suitable for acceptance.
- All fuels and flammable solvents for operational use will be stored in an appropriately ventilated and secure store located on unfilled land. All flammable liquids will be stored within a bund that has a capacity of 110 % of the volume of the flammable liquids so that any release of raw or burning fuel will not cause a fire in the filled waste or affect stormwater.
- Flammable solid wastes are not stockpiled at the premises in excess of the quantity limits imposed on the EPL.
- Fire breaks will be constructed and maintained around all filled areas, stockpiles of combustibles, gas extraction equipment and site buildings.
- Fire- fighting equipment will be installed at the site, including at flammable waste storage areas.
- All firefighting equipment will be clearly signposted and access to it must be available at all times.
- All firefighting equipment will be maintained according to a regular schedule at a minimum visual checks weekly and 3 monthly testing on the equipment.
- Landfill staff will be trained and their skills updated regularly during on-site training.

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

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

WSC will record all fire events in details and report to the EPA as per the requirements of the EPL. WSC will also report all fire events to the Fire Brigade.

5.18 Waste Recording and Reporting

5.18.1 Waste Reporting

All vehicles entering the site will have a receipt completed and issued by the gatehouse staff. The receipt will include:

- Type of vehicle and vehicle registration;
- Type of waste and classification;
- Amount of waste; and
- Amount of money paid.

The weighbridge at the site will be manned by WSC at all times during operating hours to ensure that all vehicles are recorded including municipal collections vehicles.

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

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

- A copy of this LEMP in its entirety;
- The site EPL;
- Site diary;
- Operator procedures manual; and

- Worksite WHS Field Folder.

5.18.2 Annual Return

WSC will prepare and submit an Annual Return in accordance with the requirements of the site EPL. Annual reporting is discussed in Section 3.3.5.

5.18.3 Landfill Airspace Surveys

WSC shall undertake a topographic survey of the landfill every six months to ensure that allow WSC to:

- Determine the overall volume of landfill airspace consumed;
- Monitor the efficiency of the operations at the facility through estimation of the waste densities achieved;
- Forecast the remaining life of the facility and any capital works (i.e Cell construction and capping) required;
- Submit a report detailing the survey results to the EPA within 1 month of completion of the survey.as required by the site EPL.

6 Recycling and Resource Recovery

6.1 General

Both State and Federal Governments have adopted significant waste minimisation policies aimed at reducing waste to landfill including the *Waste Avoidance and Resource Recovery Act 2001* (NSW) supported by various policies and strategies including the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*[15]. WSC supports waste minimisation initiatives and promotes them wherever possible for both the environmental and practical benefits.

To complement its community waste minimisation activities, WSC have developed a range of resource recovery activities at the site including collection of recyclables, and the stockpiling of garden waste for subsequent shredding and removal from site.

These resource recoveries include providing collection facilities for:

- Garden Waste;
- Scrap Metal;
- Mineral Oil;
- Glass and Plastic Containers;
- Batteries;
- Tyres. Tyres are not landfilled at the premises;
- Concrete, Bricks and Tiles;
- Clean Fill; and
- Asbestos;
- Liquid wastes, including:
  - grease trap waste;
  - waste oil.
- Cardboard and Paper.

Much of the waste generated in the WSC LGA is diverted from landfill by the waste transfer stations or by reuse/recycling via other means, e.g. composting of agricultural wastes by Morello Gypsum and Organic Manures. Only a small proportion of waste (145 tonnes in 2020/21) is transported from the transfer stations to the Buronga Landfill. In addition to kerbside waste, currently the Buronga landfill receives several waste types which are all recorded at the weighbridge. The location of the proposed drop-off areas for these wastes are shown in Figure 6 of Appendix A. This area also includes a Community Recycling Centre which caters for the disposal of various hazardous types of material such as batteries, oils and fluorescent tubes.

WSC personnel will take all reasonable efforts to ensure that recyclable and reusable items are diverted from the landfill operations. WSC may increase the range of recyclable materials collected and alter the form in which they are collected. This infrastructure will be maintained by WSC. Materials for resource recovery must be stored separately, not in comingled stockpiles.

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

6.2 Receipt and Acceptance of Recyclable Waste

Recent improvements have increased the recycling from the facility, but further improvements are required to increase recycling to achieve higher diversion rates. In order to promote the waste hierarchy, WSC has integrated several key elements into the material receival and handling process covering both

[15]NSW Environmental Protection Authority (2014). NSW Waste Avoidance and Resource Recovery Strategy 2014-21, December 2014, Ref: EPA 2014/0876

design and operational elements that aim to reduce the quantity of material going to landfill. A concept design of these upgrades is shown in Figure 13 of Appendix A and include:

- Dedicated car and trailer area established at the Front End Recycling Facility, including drum muster recycling compound, located at the start of site for all cars and trailers where, under the guidance of WSC staff, customers can dispose of the following targeted recyclable materials at no cost:
  - Scrap metal;
  - Cardboard;
  - Container Deposit items
  - Batteries;
  - Plastic bottles; and
  - Other materials that may be determined by WSC.
- Pricing mechanisms at the weighbridge whereby customers who sort their loads and remove recyclable pay less for the disposal of residual waste.
- Resource Recovery Area with:
  - Provision of recycling bins for cars and trailers for further recycling to occur;
  - Dedicated area for green waste recycling
  - Dedicated area for concrete and brick recycling
  - Waste oil recycling facility
  - E-waste disposal area
  - Detox facility for the receipt of household hazardous waste
  - Room within the transfer station building to remove recyclables from the residual waste stream.
- Residual Drop off Area with bins for further recycling and space for WSC staff to further sort wastes prior to transport to landfill. A 4-bay drop off area with undercover area for cars with trailers is proposed as the final point for domestic drop off. Waste will be disposed to the rear of the trailers and well-labelled recycling bins provided separating the bays to facilitate further sorting by residents.
- Storage and bulking up areas to provide economies of scale for transport of recyclables to markets in Adelaide/Melbourne.

6.3 General Recyclable Materials

WSC are committed to maximising the recycling of general recyclable materials in alignment with the NSW Waste Avoidance and Resource Recovery Strategy 2014-2021. This involves instructing customers on proper recyclable material placement, educating them on the advantages of segregating recyclables from general waste, and actively retrieving recyclables from the general waste stream.

6.4 Garden Waste

Garden waste received at the site is directed to the designated stockpiling area. The garden waste drop-off area is located to the north of the existing landfilling area and comprises an open area where garden waste is stockpiled. This waste is then shredded using contracted shredding equipment and used as landfill cover (either daily or in the final capping).

6.5 Scrap Metal Storage Area

The scrap metal recycling zone located northeast of the site, where metal items are compiled for subsequent collection by recycling contractors. Periodically, the stockpile is consolidated into heaps to minimise its footprint. This area also involves the facilitation of the segregation of delivered scrap metal on-site, including car bodies, parts, white goods, and roofing. It is crucial to maintain this material consistently in an orderly and presentable manner, ensuring easy accessibility for the scrap metal recycler. Unauthorised scavenging directly from the scrap metal stockpile by the public is strictly prohibited.

The Council will regularly oversee the removal of scrap metal from the site and retain all proceeds from its sale. To maintain compliance, the Council will ensure that the on-site scrap metal stockpile does not exceed approximately 200 tonnes. The Council is responsible for all necessary actions to keep the stockpile within these size constraints.

6.6 Mineral Oil

Materials with potential environmental risks, like mineral oil containers before decanting, must be stored in bunded areas to contain any leaks or spills. The decanting of mineral oils into the waste oil collection tank will be the responsibility of site staff. Customers are strictly prohibited from accessing the oil collection tank for any reason.

6.7 Glass and Plastic Containers

The Council will guarantee the proper storage of glass and plastic containers designated for recycling, maintaining a clean and safe on-site location. Stringent measures will be taken to prevent these materials from posing a fire risk. Additionally, the Council will organise regular collections of glass and plastic containers for recycling.

6.8 Car Batteries

Car batteries, truck batteries, and solar lead acid batteries are specifically set aside from landfill and placed on pallets for recycling purposes. Once a pallet is filled, the Council promptly organises the collection of these batteries. The responsibility for arranging battery removal, along with any revenue generated from recycling, lies with the Council.

6.9 Concrete, Bricks and Tiles

The Council does not have a dedicated stockpile or separation process for concrete, brick, and tiles. Instead, when incoming loads contain substantial amounts of these materials, efforts are made to mix them with soil for use as daily cover on the landfill site. Concrete is stored in an area on the east side of the site. It is later crushed by either a contractor or WSC's operational staff and reused in WSC's operations.

6.10 Clean Fill

The Council will guarantee that clean fill brought to the site is stored in a convenient location for easy utilisation as cover material or for site rehabilitation. When necessary, the Council will actively seek clean fill for purposes such as landfill cover or other site development projects. In cases where Council procures material for landfill lining or bund walls, the quality will meet the required permeability standards. The Council will not acquire or store an excess of clean fill on-site beyond the site's needs and will refrain from using excessive cover in landfill operations.

6.11 Cardboard and Paper

The Council is committed to maintaining a clean and secure location for the storage of cardboard and paper designated for on-site recycling. Rigorous measures will be implemented to prevent these materials from posing any fire risks. Furthermore, the Council will organise routine collections of cardboard and paper for recycling to ensure a consistent and efficient process.

7 Environmental Management Plans

7.1 General

7.1.1 Introduction

The environmental management plans contained within this section including monitoring plans have been developed to be undertaken by WSC as a part of everyday operations to maintain the site and control and manage potential environmental risk factors. The environmental management plans are aimed to ensure that the Landfill does not adversely impact the surrounding environment and to provide any early warning should such impacts possibly occur as well as to satisfy the requirements of the Landfill Guidelines.

The environmental management plans are summarised below. All monitoring shall be conducted by site staff or where nominated by suitably qualified personnel to ensure that environmental targets for each of the management and monitoring programs are met. Record keeping requirements are identified in Section 3.8.

Environmental monitoring occurs at the existing landfill operation in accordance with site licencing conditions. The environmental monitoring regime will be extended as the landfill expansion occurs, with ongoing monitoring of groundwater, surface water, leachate and landfill gas occurring during operation in accordance with the requirements of the Landfill Guidelines. Proposed monitoring measures have been discussed in the expansion development EIS, and will be reported on an annual basis where interpretation of potential trends discussed and recommended actions, if required.

7.1.2 Monitoring Timing, Frequency and Duration

The monitoring schedules within this LEMP detail the inspection and monitoring timing and frequencies for each environmental management plan. Whilst the inspection and monitoring regimes of this report do not specify a minimum duration, it should be noted that monitoring as prescribed shall continue for the operational life of the site and into the closure and post-closure periods.

Additionally, monitoring frequencies should be regularly reviewed and prolonged or reduced as necessary based upon achieving acceptable environmental outcomes.

7.1.3 Non-Conformance and Corrective Action

The procedures for non-conformance and corrective action are detailed in each environmental management plan. Where any non-conformance is detected and non-conformances are put into place records shall be kept as detailed in Section 3.5. Reporting requirements are detailed in Section 10.

7.1.4 Annual Review

WSC will undertake an annual review (or more regularly if required) of all site activities including monitoring, non-conformances and corrective actions to assess compliance with this LEMP and the acceptance criteria. Annual review is discussed in Section 3.7.

7.2 Water Management Plan

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

- Runoff from undisturbed areas within the site (clean stormwater runoff);
- Runoff from rehabilitated (revegetated) areas of the site (clean stormwater runoff);
- Runoff from disturbed areas of the site (potentially turbid stormwater runoff);
- Runoff from within the active landfilling area (leachate contaminated stormwater);

- Runoff from the waste transfer and storage areas (potentially contaminated stormwater); and
- Leachate from within the landfill.

Management of water at the landfill is aimed at:

- Minimising the generation of contaminated water;
- Minimising erosion and reducing the sediment load (suspended solids) of stormwater discharged from the site;
- Preventing impact to surface water and groundwater in the vicinity of the site; and
- Ensuring that adequate water is available to meet operational requirements.

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

Appendix J Ground Water Management Plan outlines the management of groundwater and stormwater.

7.3 Erosion and Sediment Control Plan

WSC will implement ongoing efforts to minimize the generation of sediment-laden stormwater on-site. Erosion control measures and strategies to reduce sediment-laden stormwater will be applied in accordance with the NSW EPA Environmental Guidelines: Solid Waste Landfills. The specific measures and controls are outlined in Appendix K: Erosion and Sediment Control Plan, which details the procedures WSC will adopt to effectively manage erosion and sediment on-site.

7.4 Leachate Management Plan

WSC is committed to managing leachate generated on-site in compliance with the NSW EPA Environmental Guidelines: Solid Waste Landfills. The Leachate Management Plan outlines the measures and systems that will be implemented to effectively control, collect, and treat leachate to prevent contamination of surface water, groundwater, and surrounding environments. Detailed procedures for leachate management, including the design and operation of the leachate collection system, are provided in Appendix I: Leachate Management Plan. These measures will ensure ongoing compliance with regulatory requirements and promote sustainable landfill operations.

7.5 Landfill Gas Management Plan

WSC will implement a comprehensive Landfill Gas Monitoring Plan to manage and monitor the generation and emission of landfill gas at the site, in line with the NSW EPA Environmental Guidelines: Solid Waste Landfills and the Environmental Protection Licence (EPL) 20209. This plan details the measures to be taken to monitor gas levels, prevent off-site migration, and ensure compliance with environmental and safety standards. The monitoring system is designed to detect potential gas emissions early and mitigate risks to the surrounding environment and human health. The specific procedures and control strategies are outlined in Appendix L: Landfill Gas Monitoring Plan, which ensures ongoing compliance and the effective

7.6 Air Quality Management Plan

7.6.1 General

SLR Consulting Australia has developed the Air Quality Management Plan (AQMP) to support the expansion of the Buronga Landfill. The AQMP is designed with the following objectives in mind:

a) Identification of environmental values pertinent to the Site and its surrounding area.

b) Characterisation of the existing air quality environment, including the assessment of sensitive receptors, topography, and local meteorology.

c) Assessment of potential air emission impacts arising from ongoing operations and their implications for relevant environmental values.

d) Provision of a comprehensive overview and guidance on the systems, procedures, and documentation implemented to:

- Ensure adherence to operational conditions specified in all active approvals.
- Mitigate the environmental impact of dust on the surrounding area and nearby receptors.
- Address the release and impact of offensive odours on neighbouring receptors.
- Evaluate and report on the effectiveness of the air quality management system.
- Maintain an effective response mechanism for managing exceedances and addressing complaints.

More details about Air Quality Management Plan (AQMP) is provided in Appendix G.

7.6.2 Litter

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

• Undertaking landfilling within a bunded waste disposal area.

• Maintaining a small active waste disposal (filling) area.

• Regular compaction of landfilled waste throughout the day.

• Covering of all landfilled waste at the end of each day.

• Use of mobile litter fences around the active tipping area as required.

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

7.7 Heritage Management Plan

The Heritage Management Plan (HMP) has been authored by Dr. Matt Cupper from Landskape to meet the NSW Development Consent (SSD_10096818) requirements, focusing on the management of Aboriginal cultural heritage.

Details regarding the Heritage Management Plan can be found in Appendix H.

7.8 Vermin

Although pesticides and baits are sometimes used at the site, the primary strategy for controlling pests involves effectively compacting and covering waste, including the compaction of the cover layers. When pesticides are applied, measures are taken to prevent them from contaminating stormwater, garden waste runoff, or leachate, and to avoid creating airborne pollution or nuisances. WSC will implement these pest control measures.

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

7.9 Noise

WSC will undertake all feasible steps to reduce noise emissions generated by the landfill and its related waste management activities. To minimise the noise impact from landfill operations on neighbouring residential areas, the following measures will be implemented:

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

WSC will implement such measures as are necessary to satisfy all EPA requirements relating to noise pollution.

8 Contingency Plan (Emergency Response)

WSC has developed a comprehensive Emergency Response Plan to ensure prompt and effective action in the event of an emergency at the landfill site. This plan outlines the procedures to be followed in response to incidents such as fires, chemical spills, or other potential hazards that may pose risks to human health, the environment, or site operations. The Emergency Response Plan, detailed in Appendix M, includes protocols for emergency communication, evacuation, and coordination with emergency services, ensuring compliance with regulatory requirements and safeguarding the site and its surrounding areas.

9 Closure and Rehabilitation

9.1 Final Land Use and Site Rehabilitation

At the completion of filling the final landform shall be as shown in the drawings in Figure 15 of Appendix A. The filled portions of the site will be vegetated and maintained. The site will be progressively capped and revegetated as each stage is completed as discussed in Section 4.7. Operation of the waste transfer and resource recovery facilities may continue following landfill closure. Closure and rehabilitation of the site will be as detailed in the Closure Plan.

9.2 Landfill Closure Plan

A Landfill Closure Plan will be developed in accordance with the requirements of the Landfill Guidelines and the Development Consent and will be submitted to the EPA and Planning Secretary 12 months prior to the closure of the landfill. The closure plan will identify controls and monitoring required to ensure that the landfill remains non-polluting and does not cause environmental harm after the site closure.

9.3 Post Closure Management

Ongoing environmental management, monitoring and maintenance of the Buronga Landfill post closure is required until it can be demonstrated that the landfill is stable and non-polluting. The Landfill Guideline sets out the requirements for demonstrating this and requires that a certified statement of completion is submitted to EPA.

The following sections discuss these activities.

9.3.1 Environmental Management

WSC are responsible for the ongoing environmental management of the site following closure to landfilling. This would consist primarily of:

- Ongoing management and maintenance of stormwater control measures;
- Ongoing management and maintenance of the leachate management system;
- Ongoing management and maintenance of the LFG management system;
- Ongoing management and maintenance of the capping system, including vegetation; and
- Ongoing management and maintenance of any other site infrastructure including the waste drop-off area, community recycling centre and any future site infrastructure.

WSC are required to continue to conduct general maintenance, including landscaping and gardening activities. WSC will ensure that all leachate collection, LFG collection, stormwater controls and reporting practices are maintained at the same level employed during the operational life of the landfill. These environmental management measures will continue until WSC can demonstrate to the EPA (or any future regulatory body) that the landfill is stable and non-polluting.

WSC must continue to care for the landfill until they receive an approved certified statement of completion from the EPA. To receive an approval, WSC must demonstrate that the landfill satisfies the landfill closure plan. Attaining the approved certified statement of completion should be addressed in the landfill closure plan.

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

9.3.2 Environmental Monitoring

WSC will establish and maintain a monitoring and reporting program for leachate, groundwater, stormwater and landfill gas following the closure of the landfill. This monitoring program will be delineated in the Landfill Closure Plan, subject to approval by both the EPA and the Department of Planning. The program will continue until WSC are able to demonstrate to the EPA (or any future regulatory body) that the landfilled waste no longer poses a direct threat to the environment.

WSC will ensure that neighbouring residents are informed about designated contacts for discussing any issues. Any received complaints will be documented in the complaints register.

9.3.3 Maintenance

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

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

10 Reporting

10.1 Annual Reporting

WSC will prepare an Annual Return in accordance with the requirement of the EPL. The Annual Return will include the following:

- A certified Statement of Compliance,
- A signed Monitoring and Complaints Summary,
- A Statement of Compliance for Licence Conditions,
- A Statement of Compliance for Load Based Fee,
- A Statement of Compliance for Requirement to Prepare Pollution Incident Response Management Plan,
- A Statement of Compliance for Requirement to Publish Pollution Monitoring Data; and
- A Statement of Compliance for Environmental Management Systems and Practices.

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

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

The monitoring and complaints summary will contain the following information:

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

The monitoring and complains summary must be signed by WSC or by a person approved in writing by the EPA to sign on behalf of the Licence holder.

10.2 Incident Reporting

Any incident that causes or threatens material harm to the environment or may lead to a breach of EPL conditions must be communicated by WSC or its employees immediately after first becoming aware of the incident. Notifications must be made by telephoning the Environment Line service on 131 555. The Planning Secretary must be notified in writing via the Major Projects website. Written notice including details of the notification must be provided to EPA within 7 days of the date of which the incident occurs. Reportable incidents could include but are not limited to:

- Identification of non-domestic quantities (>200 g/tonne) of hazardous waste mixed amongst solid waste;
- Fire at the landfill;
- Entry of leachate or waste into the stormwater management system;
- Identification of any failure of an environmental protection system;

- Identification of a significant difference in groundwater or stormwater indicator parameters; and
- Any other incident or observation that could potentially pose an immediate environmental hazard outside normal operating conditions.

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

As required in the development consent, the written incident notification shall be provided to the Planning Secretary within seven days after WSC becomes aware of an incident. The written notification must:

- identify the development and application number;
- provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
- identify how the incident was detected;
- identify when the applicant became aware of the incident;
- identify any actual or potential non-compliance with conditions of consent;
- describe what immediate steps were taken in relation to the incident;
- identify further action(s) that will be taken in relation to the incident; and
- identify a project contact for further communication regarding the incident.

Within 30 days of the date on which the incident occurred, WSC must provide the Planning Secretary and the EPA with a detailed report on the incident addressing all requirements below, and such further reports as may be requested. The Incident Report must include:

- a summary of the incident;
- outcomes of an incident investigation, including identification of the cause of the incident;
- details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
- details of any communication with other stakeholders regarding the incident.

Where an authorised officer of the EPA suspects on reasonable grounds that an event has occurred at the premises that has caused, is causing or is likely to cause material harm to the environment, the authorised officer may request a written report of the event. WSC 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. The report may be required to contain any or all of the following information:

- The cause, time and duration of the event;
- The type, volume and concentration of every pollutant discharged as a result of the event;
- The name, address and business hours telephone number of employees or agents of the WSC, or a specified class of them, who witnessed the event;
- The name, address and business hours telephone number of every other person who witnessed the event, unless WSC cannot obtain that information after making reasonable effort;
- Action taken by WSC in relation to the event, including any follow up contact with complainants;
- Details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
- Any other relevant matters.

The EPA and/or the Planning Secretary may make a written request for further details in relation to any of the above matters if it's not satisfied with the report provided by WSC. WSC must provide such further details to the EPA and/or the Planning Secretary within the time specified in the request.

10.3 Non-Compliance Notification

WSC will notify the Planning Secretary in writing via the Major Projects website within seven days after WSC becomes aware of any non-compliance.

The non-compliance notification will:

- identify the development and the application number;
- set out the condition of consent that the development is non-compliant with;
- the way in which it does not comply and the reasons for the non-compliance (if known); and
- what actions have been, or will be, undertaken to address the non-compliance.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

10.4 Compliance Reporting

Within six months after the commencement of construction / first year of commencement of operation of the site expansion development, and in the same month each subsequent year, WSC will submit a Compliance Report to the Planning Secretary reviewing the environmental performance of the development to the satisfaction of the Planning Secretary.

Compliance Reports will be prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2020) and will also:

- identify any trends in the monitoring data over the life of the development;
- identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
- describe what measures will be implemented over the next year to improve the environmental performance of the development.

WSC will make each Compliance Report publicly available within 60 days after submitting it to the Planning Secretary and notify the Planning Secretary in writing at least seven days before this is done.

10.5 Independent Audit

Within one year of the commencement of operation of the site expansion development, and every three years after, unless the Planning Secretary directs otherwise, WSC will prepare an Independent Environmental Audit (Audit) of the development.

Audits will:

- be prepared in accordance with the Independent Audit Post Approval Requirements (Department 2020);
- be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary; and
- be submitted to the satisfaction of the Planning Secretary within three months of commissioning the Audit (or within another timeframe agreed by the Planning Secretary).

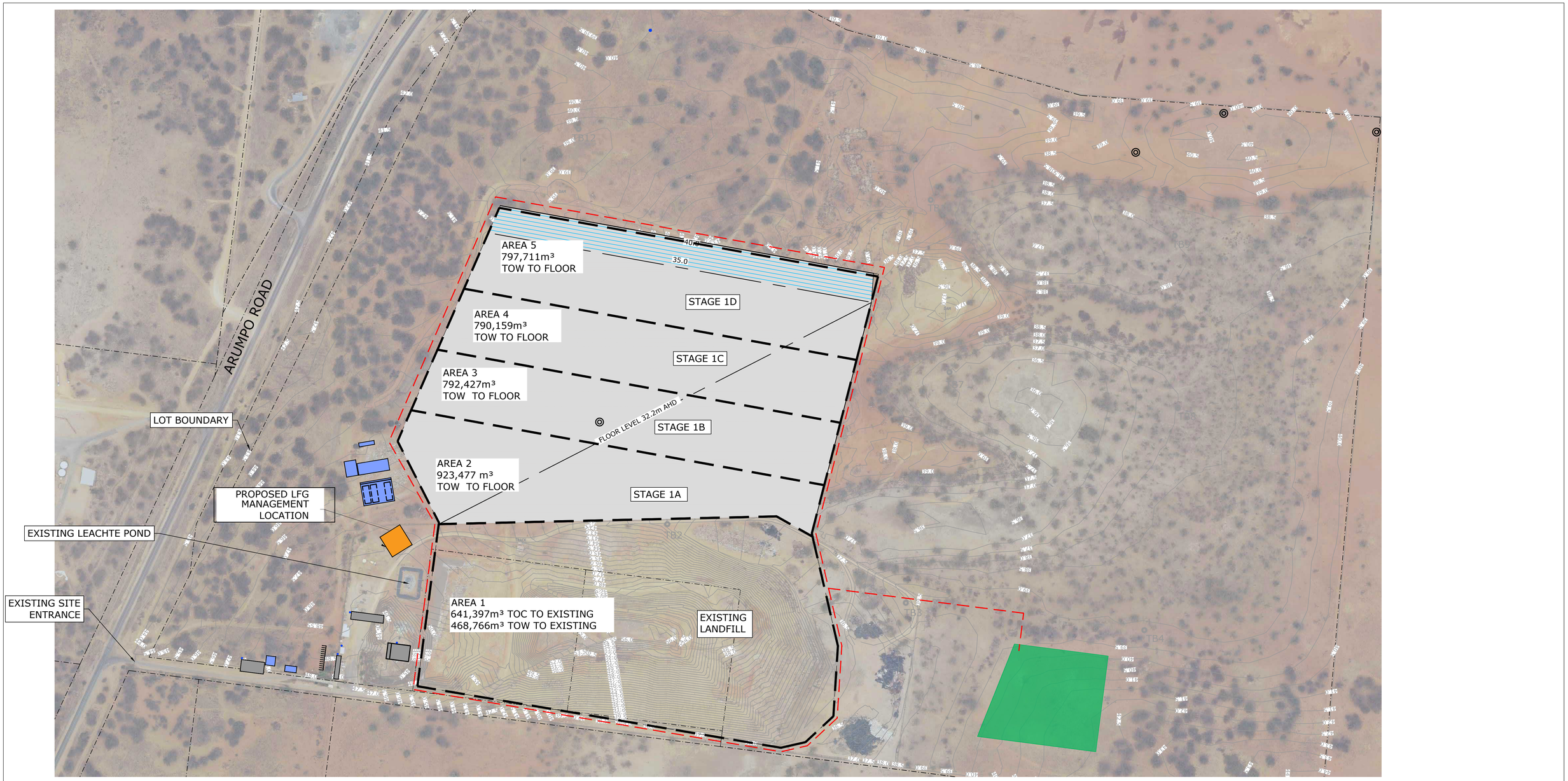
WSC will:

- review and respond to each Independent Audit Report prepared under the condition as required in the development consent;
- submit the response to the Planning Secretary and any other NSW agency that requests it, together with a timetable for the implementation of the recommendations;
- implement the recommendations to the satisfaction of the Planning Secretary; and

- make each Independent Audit Report and response to it publicly available no later than 60 days after submission to the Planning Secretary and notify the Planning Secretary in writing at least 7 days before this is done.

Appendix A – Figures

Figure 1: Stage 1 Proposed Cells Layout



LEGEND

- 40.0 EXISTING CONTOUR (0.5m INTERVAL)
- PROPOSED STAGE BOUNDARY
- PROPOSED CELL BOUNDARY
- PROPOSED STAGE 1 SERVICE ALIGNMENT
- PROPOSED STAGE 2 SERVICE ALIGNMENT
- 33.0 PROPOSED FLOOR CONTOURS
- PROPOSED LEACHATE POND
- ABORIGINAL ARTIFACT SITE
- PROPOSED BUILDING OR SHED
- PROPOSED HARDSTAND AREA
- PROPOSED LFG AREA (FUTURE)

THIS DRAWING IS TO BE VIEWED IN COLOUR AS SOME FEATURES / SYMBOLS ARE DIFFERENTIATED BY COLOUR. DRAWING NOT TO BE RELIED ON IF PRINTED IN GREYSCALE.

0 25 50 100 150
1:2500 (A1); 1:5000 (A3)
100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

SHEET SIZE
A1

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.
C	FOR INFORMATION		IN	JDT
B	ISSUED FOR INFORMATION	10.8.22	IN	JDT
A	FOR INFORMATION	14.09.21		

COORDS: MGA94 ZONE 54
DATUM: ALL LEVELS TO A.H.D.
SCALE: 1:2500
SURVEYED:PRICEMERRET
SURVEY DATE:03.03.21
APPROVED / PROJECT LEADER
MEL SALT

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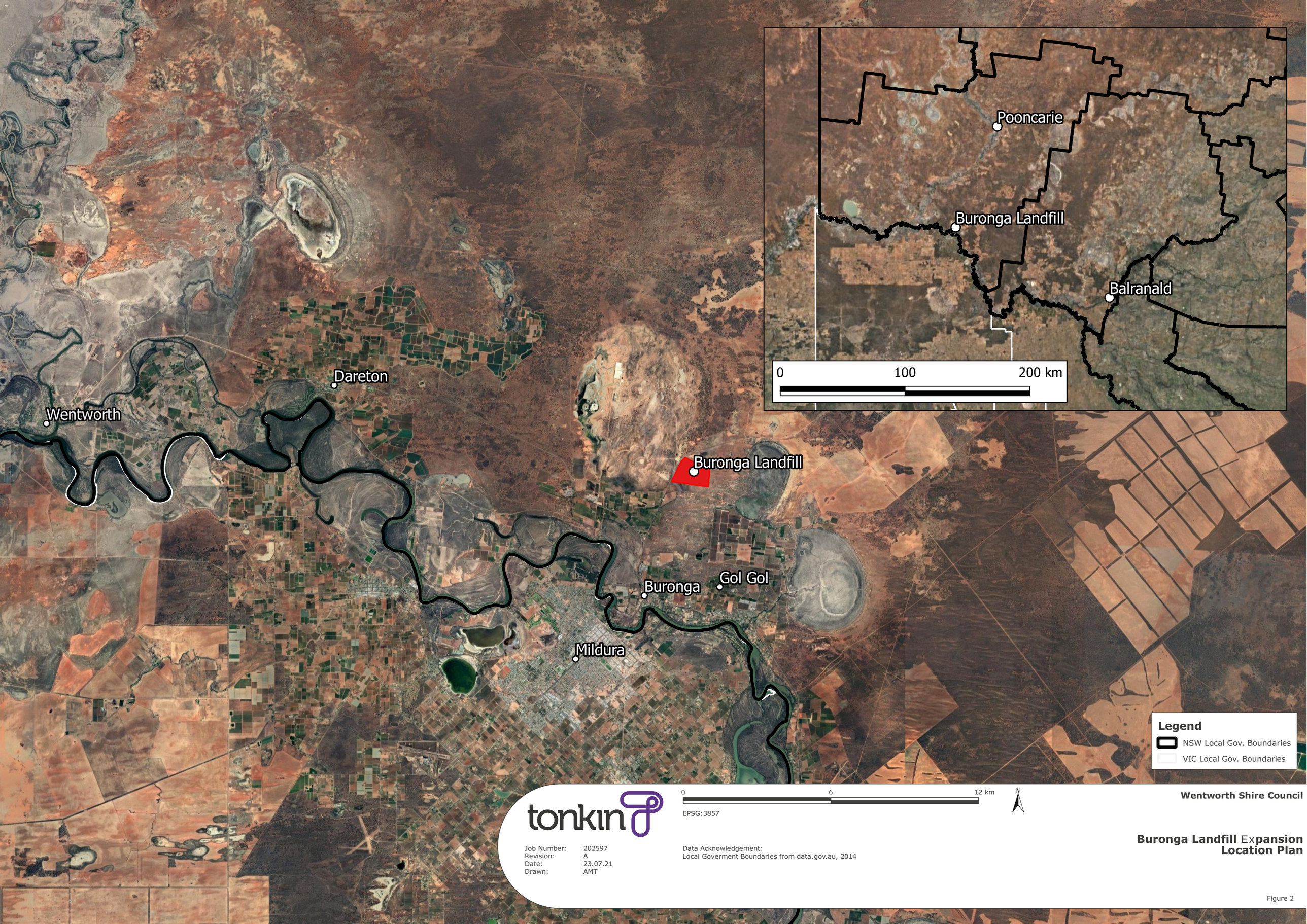
WENTWORTH SHIRE COUNCIL

BURONGA LANDFILL EXPANSION
FIGURE 1
PROPOSED CELL LAYOUT

FILENAME: 202597 CONCEPT DESIGN.DWG
PROJECT NUMBER 202597
DRAWING NUMBER 01
REVISION C

C:\USERS\JASONT~1\APPDATA\LOCAL\TEMP\ACPUBLISH_17108\202597 CONCEPT DESIGN.DWG -C011- (15-11-22 12:05:32PM)

Figure 2: Regional Location Plan



tonkin

Job Number: 202597
Revision: A
Date: 23.07.21
Drawn: AMT

Data Acknowledgement:
Local Goverment Boundaries from data.gov.au, 2014

Wentworth Shire Council

Buronga Landfill Expansion
Location Plan

Figure 2

Figure 3: Site Location Plan

Lot 1 DP1195524

Lot 2 DP1195524

ARUMPO ROAD

Lot 1 DP1037845

Lot 6917 DP1000008

Lot 197 DP756946

Lot 212 DP756946

Lot 2 DP1071616

Lot 7307 DP1180864

Lot 7311 DP1180864

Lot 2 DP1121028

Lot 2 DP1033964

Lot 930 DP756961

Lot 2 DP867041

Lot 1 DP1121028

Lot 1187 DP822097

Lot 7308

Legend

- Licenced Area
- Lot Boundaries
- Road Corridor

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0 200 400 600 m

EPSG:3857

N

Wentworth Shire Council

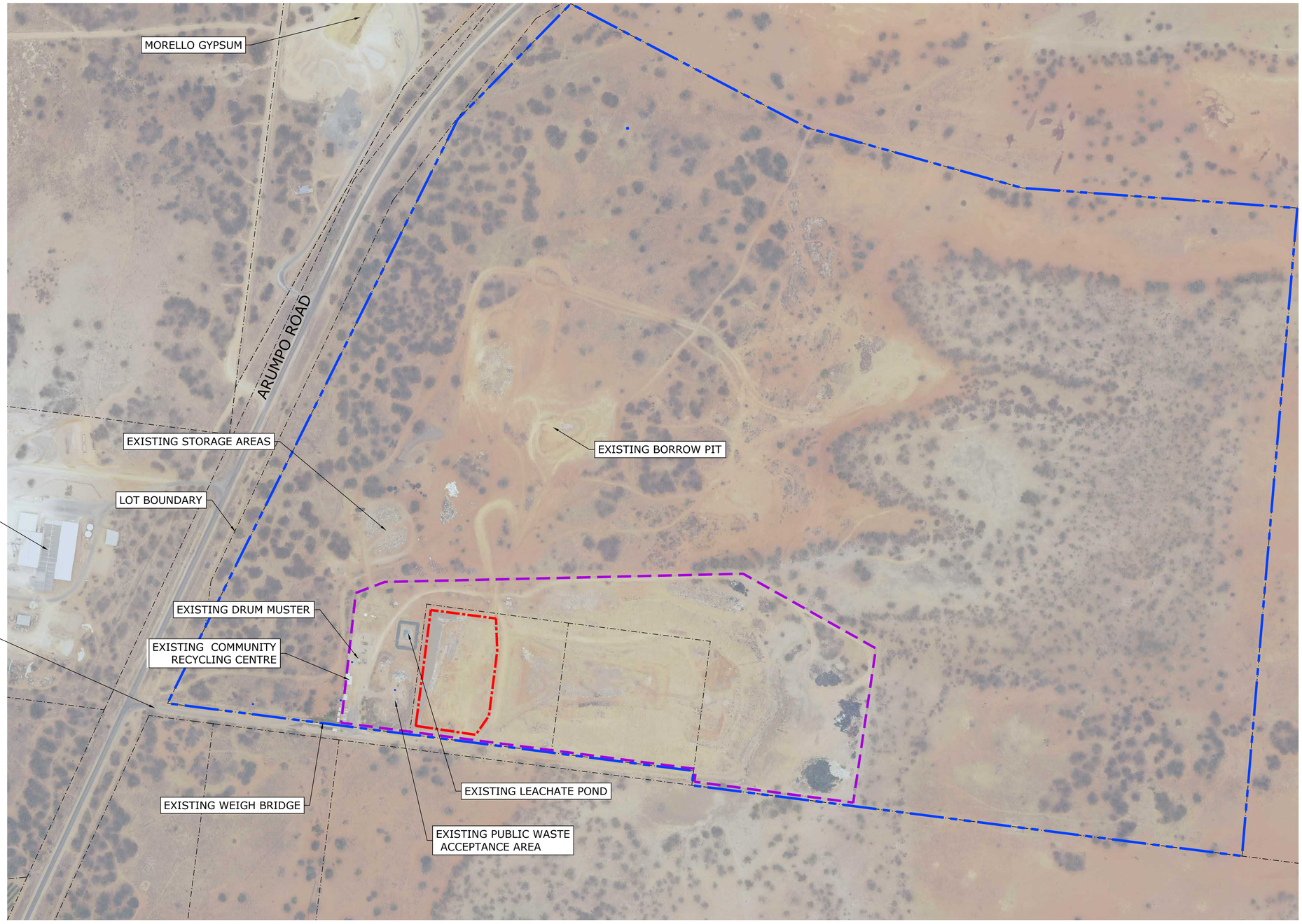
Job Number:	20180746
Filename:	20180746GQ001AGQ
Revision:	Rev A
Date:	2019-07-03 16:16
Drawn:	Isaac Nicholls

Data Acknowledgement:
Imagery from NSW Government Spatial Services, 2019
Cadastre from NSW Government Spatial Services, 2019
Road Data from NSW Government Spatial Services, 2019

Buronga Landfill Expansion Site Plan

Figure 3

Figure 4: Current Layout



LEGEND

- LICIENCED AREA
- LANDFILL FOOTPRINT
- ACTIVE CELL

THIS DRAWING IS TO BE VIEWED IN COLOUR AS SOME FEATURES / SYMBOLS ARE DIFFERENTIATED BY COLOUR. DRAWING NOT TO BE RELIED ON IF PRINTED IN GREYSCALE.

0 30 60 120 180
1:3000 (A1); 1:6000 (A3)
100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

SHEET SIZE
A1

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.
B	ISSUED FOR APPROVAL	8.2.23	IN	JDT
A	ISSUED FOR INFORMATION	10.8.22	IN	JDT

COORDS: MGA94 ZONE 54
DATUM: ALL LEVELS TO A.H.D.
SCALE: 1:3000
SURVEYED:PRICEMERRET
SURVEY DATE:03.03.21
APPROVED / PROJECT LEADER
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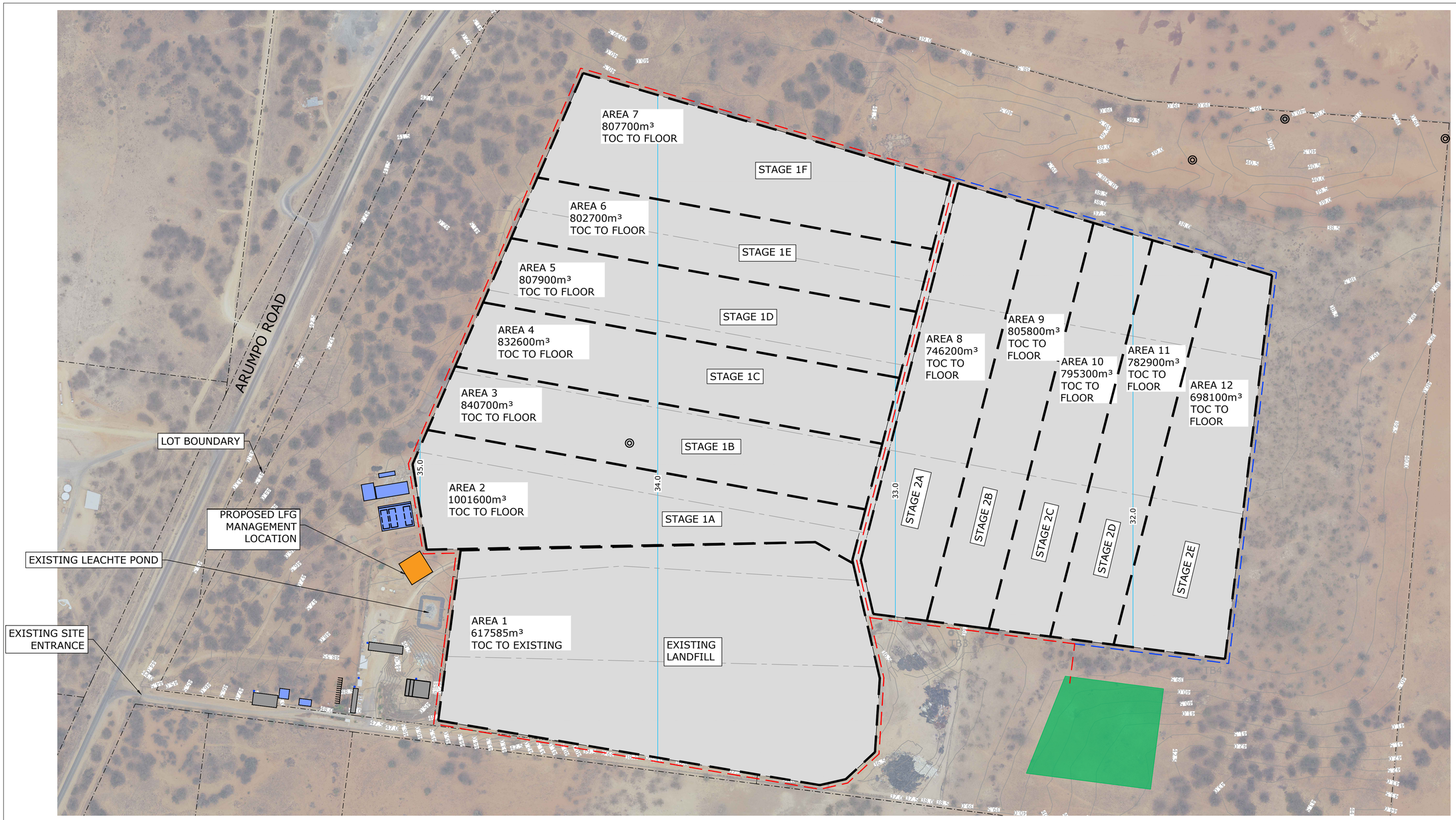
BURONGA LANDFILL EXPANSION
FIGURE 4
CURRENT SITE LAYOUT

FILENAME: 202597 CONCEPT DESIGN.DWG
PROJECT NUMBER 202597
DRAWING NUMBER 04
REVISION B

T:\2020\202597 BURONGA LANDFILL EXPANSION - WENTWORTH SHIRE COUNCIL\4_WORKING\1 CAD\202597 CONCEPT DESIGN.DWG -C003- (08-02-23 3:57:40PM)

Figure 5: Proposed Layout



LEGEND

- EXISTING CONTOUR (0.5m INTERVAL) (40.0)
- PROPOSED STAGE BOUNDARY
- PROPOSED CELL BOUNDARY
- PROPOSED STAGE 1 SERVICE ALIGNMENT
- PROPOSED STAGE 2 SERVICE ALIGNMENT
- PROPOSED FLOOR CONTOURS (33.0)
- PROPOSED LEACHATE POND
- ABORIGINAL ARTIFACT SITE
- PROPOSED BUILDING OR SHED
- PROPOSED HARDSTAND AREA
- PROPOSED LFG AREA (FUTURE)

THIS DRAWING IS TO BE VIEWED IN COLOUR AS SOME FEATURES / SYMBOLS ARE DIFFERENTIATED BY COLOUR. DRAWING NOT TO BE RELIED ON IF PRINTED IN GREYSCALE.

0 25 50 100 150
1:2500 (A1); 1:5000 (A3)
100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

SHEET SIZE
A1

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.
B	ISSUED FOR INFORMATION			
A	FOR INFORMATION	14.09.21		

COORDS: MGA94 ZONE 54
DATUM: ALL LEVELS TO A.H.D.
SCALE: 1:2500
SURVEYED:PRICEMERRET
SURVEY DATE:03.03.21
APPROVED / PROJECT LEADER

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BURONGA LANDFILL EXPANSION
FIGURE 5
PROPOSED CELL LAYOUT

FILENAME: 202597 CONCEPT DESIGN.DWG
PROJECT NUMBER 202597
DRAWING NUMBER 05
REVISION B

C:\USERS\JASONT~1\APPDATA\LOCAL\TEMP\ACPUBLISH_1588\202597 CONCEPT DESIGN.DWG -C011- (16-12-21 11:51:28AM)

Figure 6: Proposed Concept Design of Upgraded Recycling & Resource Recovery Areas

PROPOSED STORMWATER BASIN

PROPOSED TYRES (20m x 5m)
MINIMUM BUFFER 23m FROM GREEN WASTE AND LANDFILL

PROPOSED SCRAP METAL STORAGE (20m x 15m)

PROPOSED INERT C&D STORAGE UNPROCESSED & PROCESSED (40m x 15m)

PROPOSED SUMP

PROPOSED GREEN WASTE UNPROCESSED & PROCESSED (40m x 30m). STOCKPILES 23m x 8m WITH A 10m BUFFER ON AT LEAST ONE SIDE OF EACH STOCKPILE FOR FIRE ACCESS. MAXIMUM HEIGHT OF STOCKPILES 4m

STOCKPILE
STOCKPILE
STOCKPILE

6.0m
7.0m

8.0m
9.0m

EXISTING STORMWATER POND

ARUMPO ROAD

PROPOSED LFG MANAGEMENT AREA (FUTURE) (30m x 30m)

9.0m
10.0m

EXISTING LEACHATE POND

TO LANDFILL

PROPOSED RESOURCE RECOVERY SHED (42m x 10m) CANOPY OVER CONCRETE SLAB WITH DEDICATED AREAS FOR GREEN WASTE, C&D, TYRES.

EXISTING SHED TO BE USED FOR BATTERIES, WASTE OIL, DRUMS, HOUSEHOLD HAZARD WASTE, E-WASTE

6.0m
7.0m

LOT BOUNDARY

REMOVE STRUCTURE

PROPOSED SITE OFFICE, LUNCH ROOM & AMENITIES (30m X 6m)

8.0m
9.0m

PROPOSED RORO BIN STORAGE (8x15m RUBBLE HARDSTAND)

EXISTING SITE ENTRANCE

7.0m
8.0m

8.0m
9.0m

PROPOSED DRUM MUSTER DROP OFF (12x12m RUBBLE HARDSTAND)

PROPOSED CAR PARK (30m x 12m)

3.5m
3.5m
1.2m

8.0m
9.0m

4.0m
5.0m

PROPOSED RESIDUAL DROP OFF AREA.
4 BAYS WITH STILLAGE FOR ANY FURTHER RECYCLING (15m x 20m)

4.0m
5.0m

EXISTING GATE HOUSE

EXISTING WEIGH BRIDGE

PROPOSED FRONT END RECYCLING FACILITY (FERF) DROP OFF FOR ZERO COST ITEMS. CARPORT FRONT WITH ENCLOSED REAR. (30x20m)

LEGEND

- PROPOSED TRUCK MOVEMENTS
- PROPOSED CAR MOVEMENTS
- PROPOSED STORMWATER
- PROPOSED SERVICE ALIGNMENT
- PROPOSED CAP BOUNDARY
- PROPOSED RAINWATER TANK
- PROPOSED BUILDING OR SHED
- PROPOSED HARDSTAND AREA
- PROPOSED LFG AREA (FUTURE)

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0 7.5 15 30 45
1:750 (A1); 1:1500 (A3)

100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

SHEET SIZE
A1

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.
C	ISSUED FOR APPROVAL	8.2.23	IN	JDT
B	ISSUED FOR INFORMATION	10.8.22		
A	FOR INFORMATION	14.09.21		

COORDS: MGA94 ZONE 54
DATUM: ALL LEVELS TO A.H.D.

SCALE: 1:750

SURVEYED: PRICEMERRET
SURVEY DATE: 03.03.21

APPROVED / PROJECT LEADER
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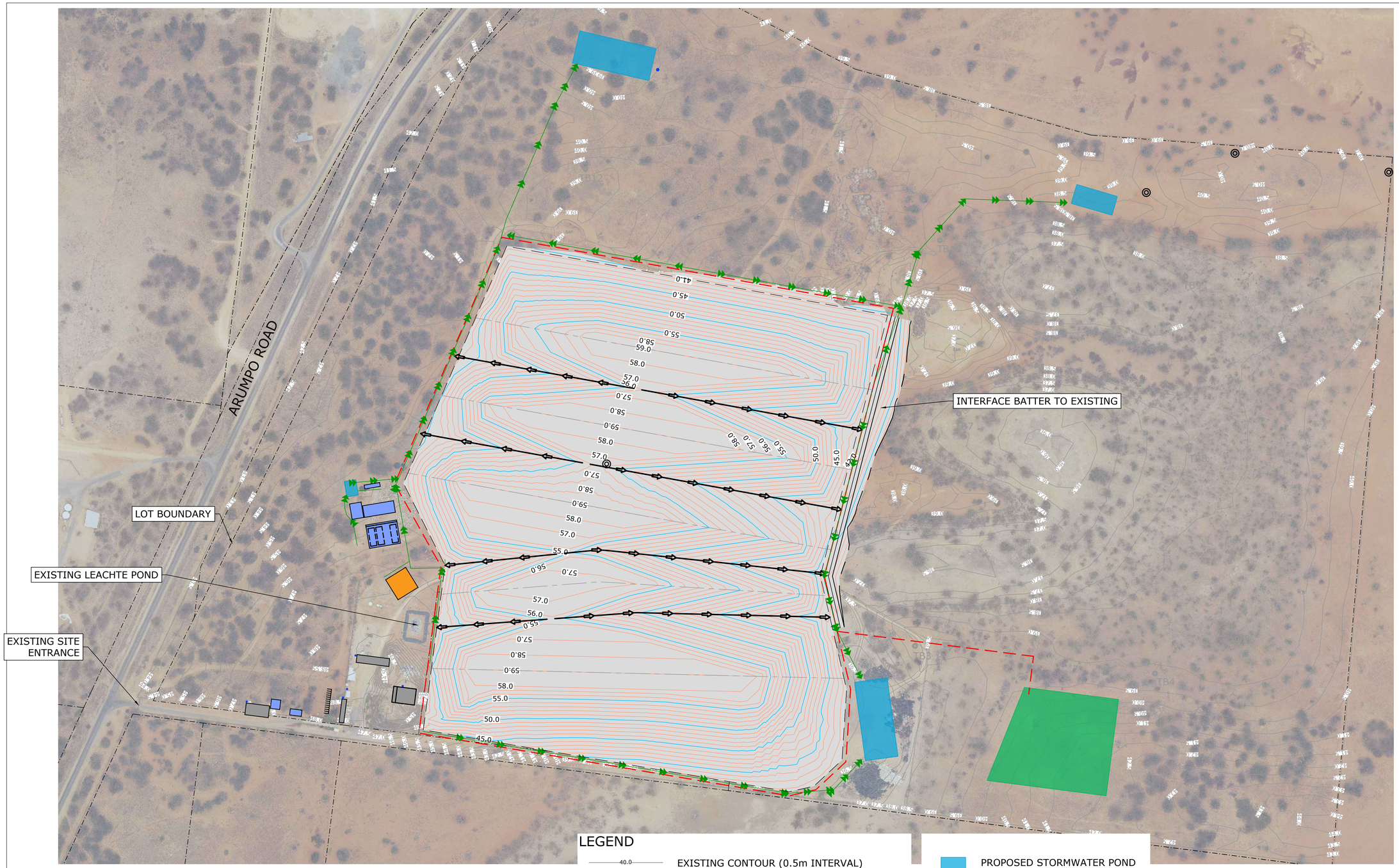
BURONGA LANDFILL EXPANSION
FIGURE 6 - CONCEPT DESIGN OF UPGRADED RECYCLING & RESOURCE RECOVERY AREAS

FILENAME: 202597 CONCEPT DESIGN.DWG
PROJECT NUMBER 202597
DRAWING NUMBER 06
REVISION C

T:\2020\202597 BURONGA LANDFILL EXPANSION - WENTWORTH SHIRE COUNCIL\4_WORKING\1 CAD\202597 CONCEPT DESIGN.DWG -C010- (08-02-23 3:57:42PM)

Figure 7: Stormwater Management Stage 1



LEGEND

- EXISTING CONTOUR (0.5m INTERVAL)
- DESIGN CONTOUR MAJ (5.0m INTERVAL)
- DESIGN CONTOUR MIN (1.0m INTERVAL)
- PROPOSED STAGE BOUNDARY
- PROPOSED CAP CROWN
- PROPOSED CAP DRAIN
- PROPOSED STORMWATER DRAIN
- PROPOSED STAGE 1 SERVICE ALIGNMENT
- PROPOSED STORMWATER POND
- PROPOSED LEACHATE POND
- ABORIGINAL ARTIFACT SITE
- PROPOSED BUILDING OR SHED
- PROPOSED HARDSTAND AREA
- PROPOSED LFG AREA (FUTURE)

THIS DRAWING IS TO BE VIEWED IN COLOUR AS SOME FEATURES / SYMBOLS ARE DIFFERENTIATED BY COLOUR. DRAWING NOT TO BE RELIED ON IF PRINTED IN GREYSCALE.

0 25 50 100 150
1:2500 (A1); 1:5000 (A3)

100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

SHEET SIZE
A1

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.
C	ISSUED FOR APPROVAL	8.2.23	IN	JDT
B	ISSUED FOR INFORMATION	10.8.22		
A	FOR INFORMATION	14.09.21		

COORDS: MGA94 ZONE 54
DATUM: ALL LEVELS TO A.H.D.
SCALE: 1:2500
SURVEYED:PRICEMERRET
SURVEY DATE:03.03.21
APPROVED / PROJECT LEADER
MEL SALT

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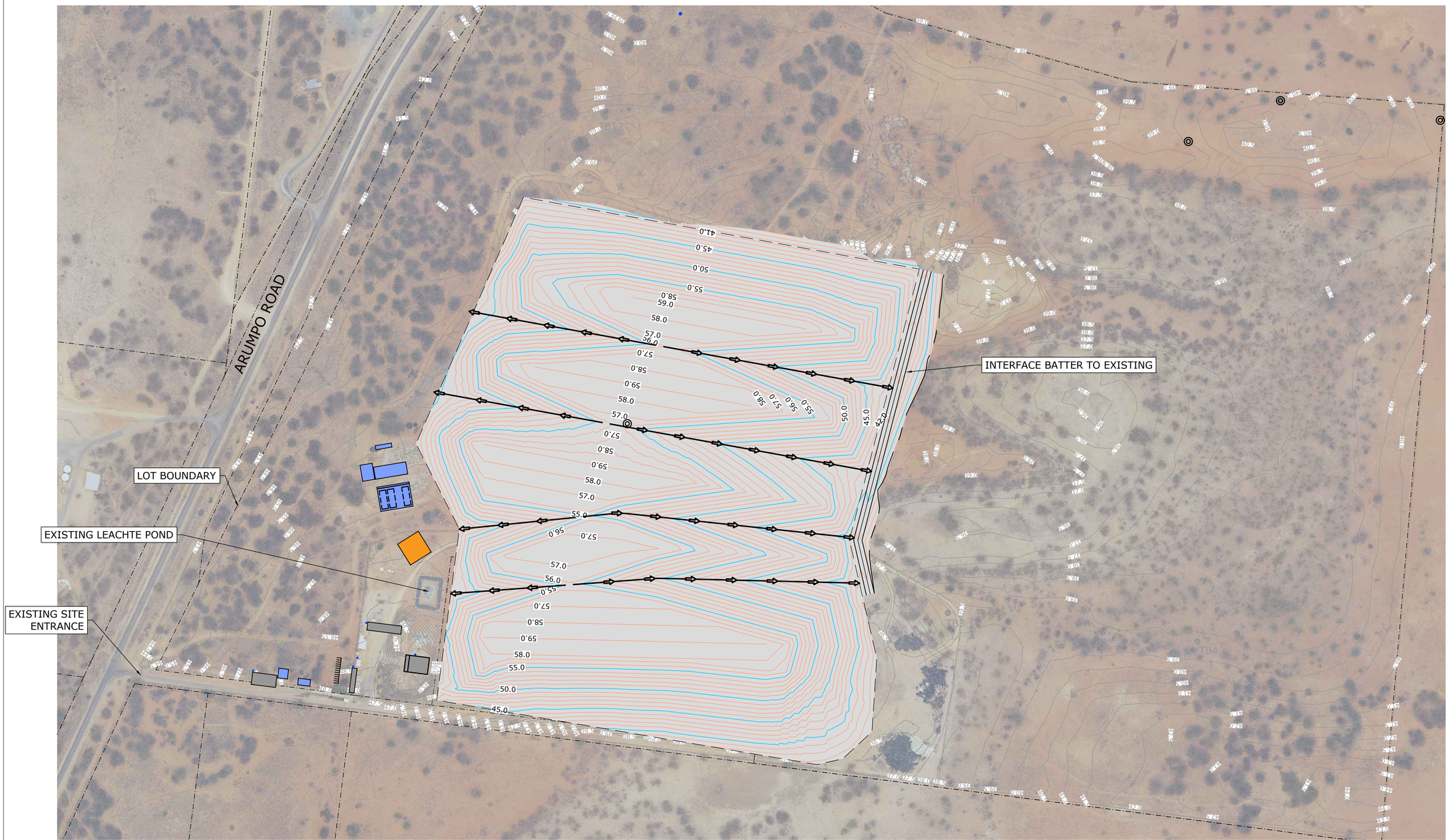
BURONGA LANDFILL EXPANSION
FIGURE 7
STORMWATER MANAGEMENT STAGE 1

FILENAME: 202597 CONCEPT DESIGN.DWG
PROJECT NUMBER 202597
DRAWING NUMBER 07
REVISION C

T:\2020\202597 BURONGA LANDFILL EXPANSION - WENTWORTH SHIRE COUNCIL\4_WORKING\1 CAD\202597 CONCEPT DESIGN.DWG -C013- (08-02-23 3:57:49PM)

Figure 8: Proposed Top of Cap Contours



LEGEND

- 40.0 — EXISTING CONTOUR (0.5m INTERVAL)
- 51.0 — DESIGN CONTOUR MAJ (5.0m INTERVAL)
- 50.1 — DESIGN CONTOUR MIN (1.0m INTERVAL)
- PROPOSED STAGE BOUNDARY
- PROPOSED CAP DRAIN
- ABORIGINAL ARTIFACT SITE
- PROPOSED BUILDING OR SHED
- PROPOSED HARDSTAND AREA
- PROPOSED LFG AREA (FUTURE)

THIS DRAWING IS TO BE VIEWED IN COLOUR AS SOME FEATURES / SYMBOLS ARE DIFFERENTIATED BY COLOUR. DRAWING NOT TO BE RELIED ON IF PRINTED IN GREYSCALE.

0 25 50 100 150
1:2500 (A1); 1:5000 (A3)
100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

SHEET SIZE
A1

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.
C	ISSUED FOR APPROVAL	8.2.23	IN	JDT
B	ISSUED FOR INFORMATION	10.8.22		
A	FOR INFORMATION	14.09.21		

COORDS: MGA94 ZONE 54
DATUM: ALL LEVELS TO A.H.D.
SCALE: 1:2500
SURVEYED:PRICEMERRET
SURVEY DATE:03.03.21
APPROVED / PROJECT LEADER
MEL SALT

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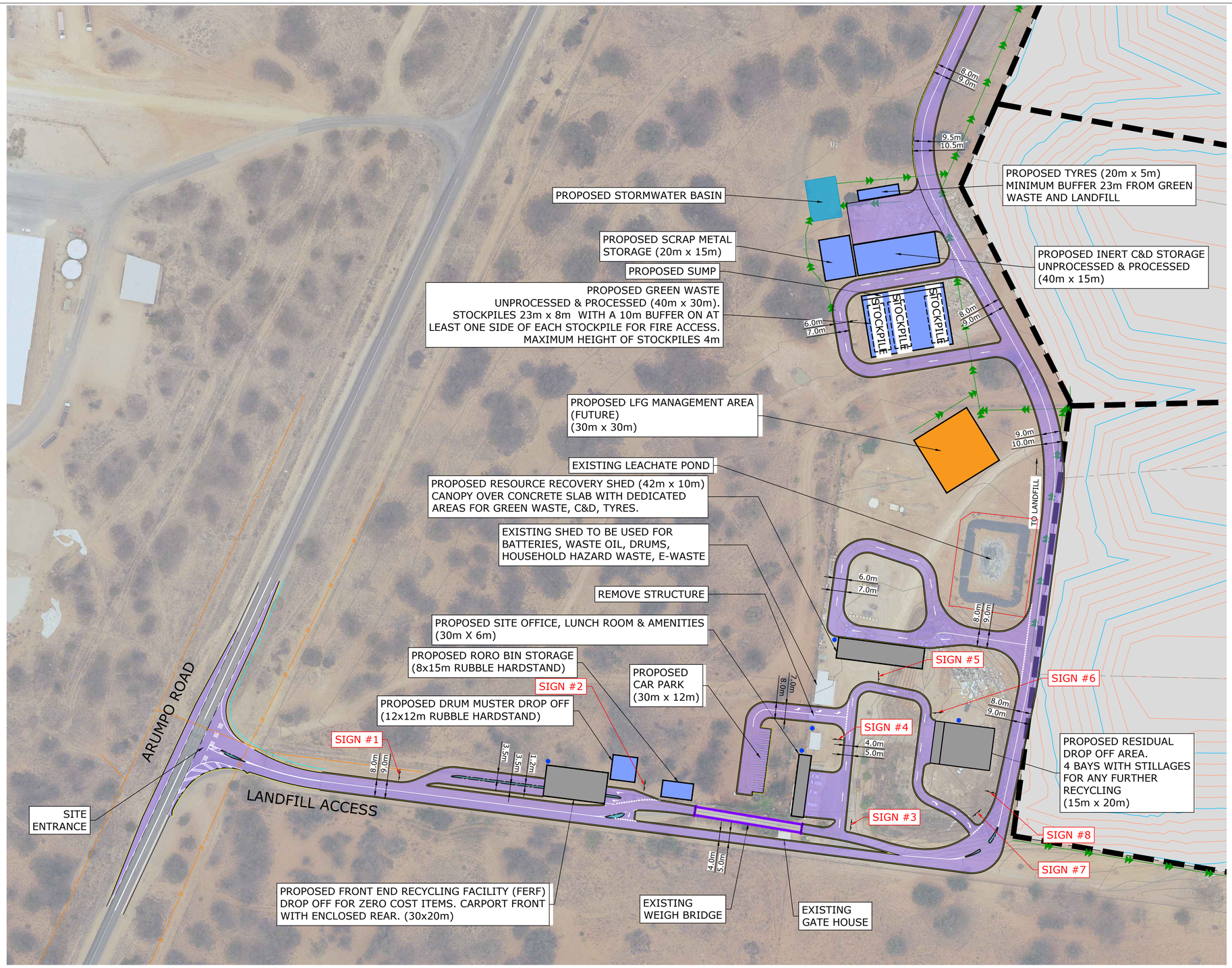
BURONGA LANDFILL EXPANSION
FIGURE 8
PROPOSED TOP OF CAP CONTOURS

FILENAME: 202597 CONCEPT DESIGN.DWG
PROJECT NUMBER 202597
DRAWING NUMBER 08
REVISION C

T:\2020\202597 BURONGA LANDFILL EXPANSION - WENTWORTH SHIRE COUNCIL\4_WORKING\1 CAD\202597 CONCEPT DESIGN.DWG -C012- (08-02-23 3:57:46PM)

Figure 9 to 12: Proposed Recycling Area Traffic Control and Signage



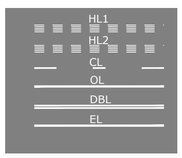
SIGNAGE LEGEND

SIGN #1	GENERAL / GREEN WASTE / CONSTRUCTION / COMMERCIAL DOMESTIC ONLY - METAL, PAPER, CARDBOARD, CONTAINER DEPOSIT, BATTERIES DRUM MUSTER
SIGN #2	GENERAL / GREEN WASTE / CONSTRUCTION / COMMERCIAL EXIT
SIGN #3	PUBLIC DROP-OFF AUTHORISED VEHICLES ONLY
SIGN #4	STAFF ONLY PAINT, GAS CYLINDERS, OIL GENERAL / GREEN WASTE / CONSTRUCTION / EXIT
SIGN #5	GREEN WASTE / MASONARY / TYRES / E-WASTE DOMESTIC WASTE / EXIT
SIGN #6	DOMESTIC WASTE EXIT
SIGN #7	NO LEFT TURN EXIT
SIGN #8	AUTHORISED VEHICLES ONLY NO PUBLIC ACCESS

LEGEND

- PROPOSED STORMWATER
- PROPOSED SERVICE ALIGNMENT
- PROPOSED CAP BOUNDARY
- PROPOSED RAINWATER TANK
- PROPOSED BUILDING OR SHED
- PROPOSED HARDSTAND AREA
- PROPOSED LFG AREA (FUTURE)

- NEW PAVEMENT RECONSTRUCTION
- NEW UNSEALED SHOULDER
- CONCRETE INFILL
- SAWCUT
- MOUNTABLE KERB



- 300mm WIDE HOLDING LINE
- 150mm WIDE HOLDING LINE
- 100mm WIDE CONTINUITY LINE
- 150mm WIDE OUT LINE
- 100mm WIDE DOUBLE BARRIER LINE
- 150mm WIDE EDGE LINE

THIS DRAWING IS TO BE VIEWED IN COLOUR AS SOME FEATURES / SYMBOLS ARE DIFFERENTIATED BY COLOUR. DRAWING NOT TO BE RELIED ON IF PRINTED IN GREYSCALE.

0 10 20 40 60
1:1000 (A1); 1:2000 (A3)
100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

SHEET SIZE A1

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.
B	ISSUED FOR APPROVAL	8.2.23	IN	JDT
A	FOR INFORMATION	10.10.22	TG	TG

COORDS: MGA94 ZONE 54
DATUM: ALL LEVELS TO A.H.D.
SCALE: 1:1000
SURVEYED:PRICEMERRET
SURVEY DATE:03.03.21
APPROVED / PROJECT LEADER
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BURONGA LANDFILL EXPANSION
FIGURE 9 - CONCEPT DESIGN OF UPGRADED FRONT END ACCESS ROADS

FILENAME: 202597 CONCEPT DESIGN.DWG
PROJECT NUMBER 202597
DRAWING NUMBER 9
REVISION B

T:\2020\202597 BURONGA LANDFILL EXPANSION - WENTWORTH SHIRE COUNCIL\4_WORKING\1 CAD\202597 CONCEPT DESIGN.DWG -C20- (08-02-23 3:58:02PM)

PROPOSED RESOURCE RECOVERY SHED (42m x 10m)
CANOPY OVER CONCRETE SLAB WITH DEDICATED AREAS FOR GREEN WASTE, C&D, TYRES.

EXISTING SHED TO BE USED FOR BATTERIES, WASTE OIL, DRUMS, HOUSEHOLD HAZARD WASTE, E-WASTE

REMOVE STRUCTURE

PROPOSED SITE OFFICE, LUNCH ROOM & AMENITIES (30m X 6m)

PROPOSED RORO BIN STORAGE (8x15m RUBBLE HARDSTAND)

PROPOSED DRUM MUSTER DROP OFF (12x12m RUBBLE HARDSTAND)

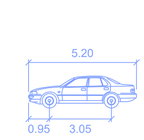
PROPOSED CAR PARK (30m x 12m)

EXISTING WEIGH BRIDGE

EXISTING GATE HOUSE

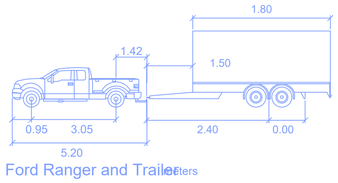
PROPOSED FRONT END RECYCLING FACILITY (FERF) DROP OFF FOR ZERO COST ITEMS. CARPORT FRONT WITH ENCLOSED REAR. (30x20m)

PROPOSED RESIDUAL DROP OFF AREA.
4 BAYS WITH STILLAGES FOR ANY FURTHER RECYCLING
(15m x 20m)



PASSENGER-CAR

	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.6



Ford Ranger and Trailer meters

Tractor Width	: 1.94	Trailer Width	: 1.75
Tractor Track	: 1.84	Trailer Track	: 1.75
Lock to Lock Time	: 6.0	Articulating Angle	: 70.0
Steering Angle	: 33.6		

LEGEND

PROPOSED STORMWATER
PROPOSED SERVICE ALIGNMENT
PROPOSED CAP BOUNDARY
PROPOSED RAINWATER TANK
PROPOSED BUILDING OR SHED
PROPOSED HARDSTAND AREA

NEW PAVEMENT RECONSTRUCTION
NEW UNSEALED SHOULDER
CONCRETE INFILL
SAWCUT
MOUNTABLE KERB

HL1 300mm WIDE HOLDING LINE
HL2 150mm WIDE HOLDING LINE
CL 100mm WIDE CONTINUITY LINE
OL 150mm WIDE OUT LINE
DBL 100mm WIDE DOUBLE BARRIER LINE
EL 150mm WIDE EDGE LINE

THIS DRAWING IS TO BE VIEWED IN COLOUR AS SOME FEATURES / SYMBOLS ARE DIFFERENTIATED BY COLOUR. DRAWING NOT TO BE RELIED ON IF PRINTED IN GREYSCALE.

0 5 10 20 30
1:500 (A1); 1:1000 (A3)
100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

SHEET SIZE
A1

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.
B	ISSUED FOR APPROVAL	8.2.23	IN	JDT
A	FOR INFORMATION	10.8.22	TG	TG

COORDS: MGA94 ZONE 54
DATUM: ALL LEVELS TO A.H.D.
SCALE: 1:500
SURVEYED:PRICEMERRET
SURVEY DATE:03.03.21
APPROVED / PROJECT LEADER
MEL SALT

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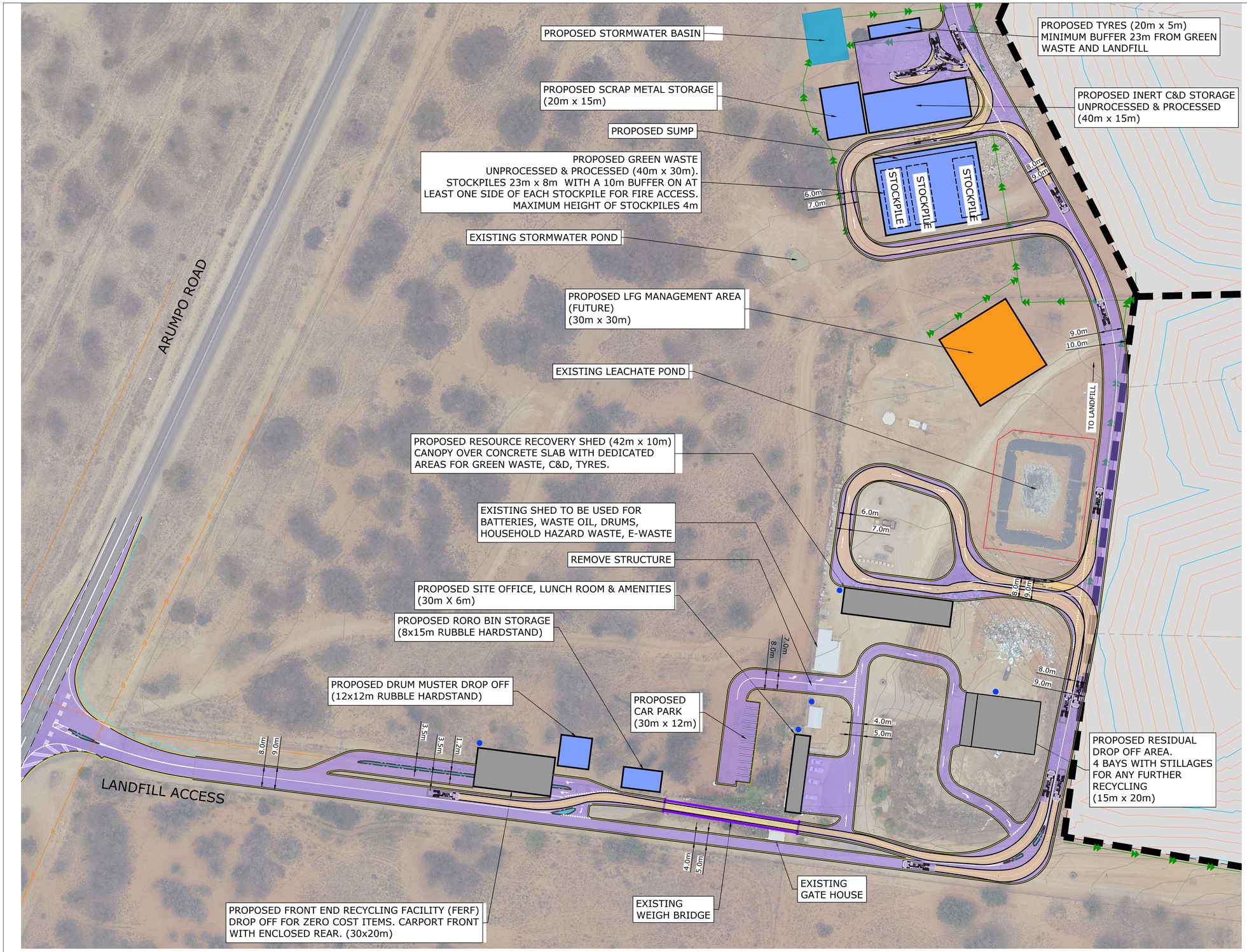
WENTWORTH SHIRE COUNCIL

BURONGA LANDFILL EXPANSION
FIGURE 10: TURN PATHS FOR LIGHT VEHICLE ACCESS

FILENAME: 202597 CONCEPT DESIGN.DWG
PROJECT NUMBER 202597
DRAWING NUMBER 10
REVISION B

T:\2020\202597 BURONGA LANDFILL EXPANSION - WENTWORTH SHIRE COUNCIL\4_WORKING\1 CAD\202597 CONCEPT DESIGN.DWG -C21- (08-02-23 3:58:06PM)



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0 7.5 15 30 45
1:750 (A1); 1:1500 (A3)
100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

SHEET SIZE A1

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.
B	ISSUED FOR APPROVAL	8.2.23	IN	JDT
A	FOR INFORMATION	10.8.22	TG	TG

COORDS: MGA94 ZONE 54
DATUM: ALL LEVELS TO A.H.D.
SCALE: 1:750
SURVEYED: PRICEMERRET
SURVEY DATE: 03.03.21
APPROVED / PROJECT LEADER
MEL SALT

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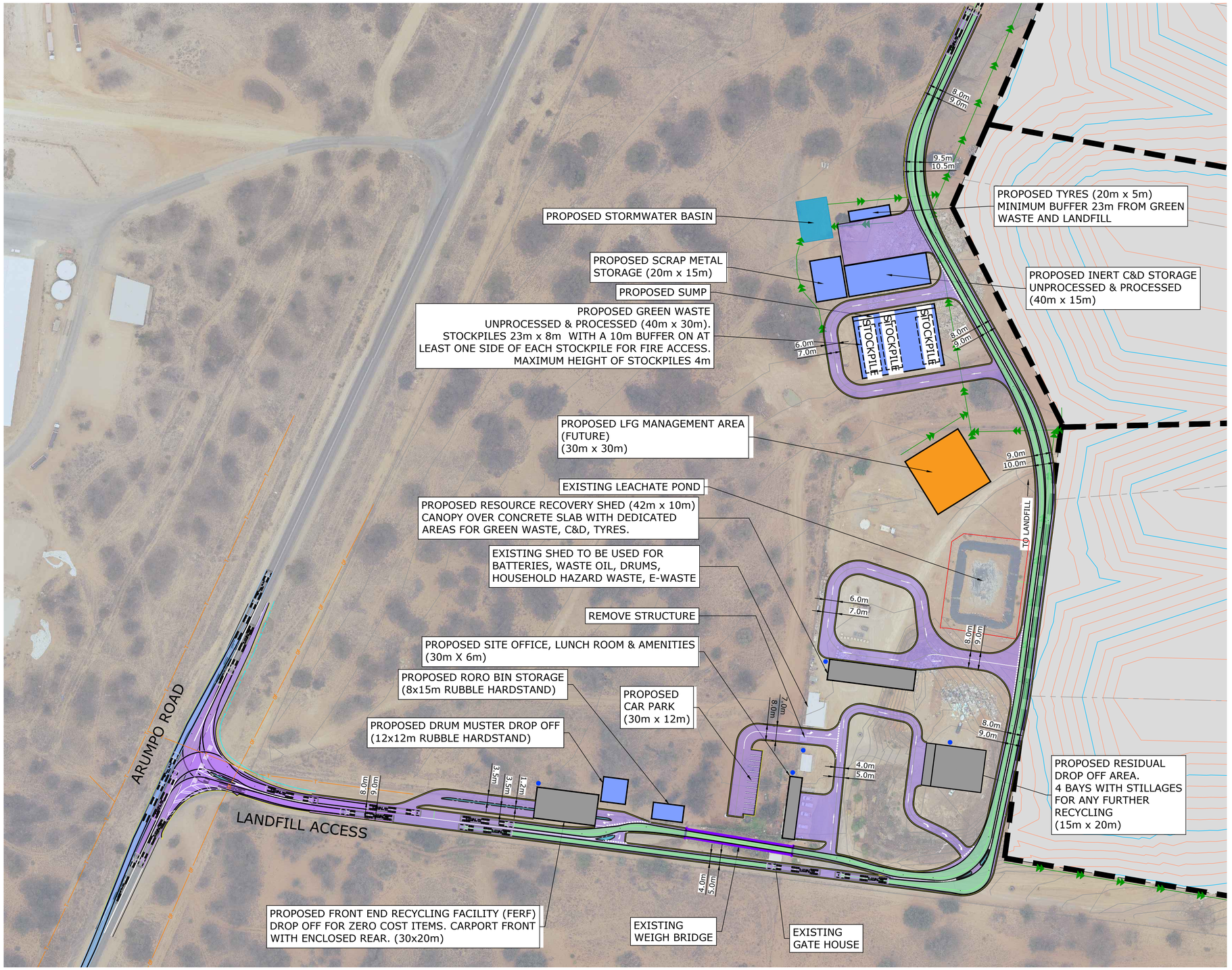
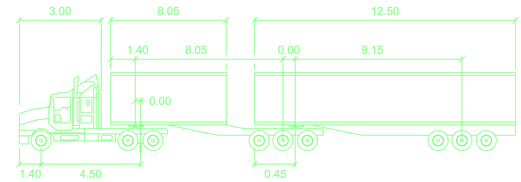
BURONGA LANDFILL EXPANSION
FIGURE 11: TURN PATHS FOR HEAVY RIGID VEHICLE ACCESS

FILENAME: 202597 CONCEPT DESIGN.DWG
PROJECT NUMBER 202597
DRAWING NUMBER 11
REVISION B

T:\2020\202597 BURONGA LANDFILL EXPANSION - WENTWORTH SHIRE COUNCIL\4_WORKING\1 CAD\202597 CONCEPT DESIGN.DWG -C22- (08-02-23 3:58:10PM)





B-DOUBLE 26M

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

LEGEND

- PROPOSED STORMWATER
- PROPOSED SERVICE ALIGNMENT
- PROPOSED CAP BOUNDARY
- PROPOSED RAINWATER TANK
- PROPOSED BUILDING OR SHED
- PROPOSED HARDSTAND AREA
- PROPOSED LFG AREA (FUTURE)

- NEW PAVEMENT RECONSTRUCTION
- NEW UNSEALED SHOULDER
- CONCRETE INFILL
- SAWCUT
- MOUNTABLE KERB

HL1 HL2 CL OL DBL EL

- 300mm WIDE HOLDING LINE
- 150mm WIDE HOLDING LINE
- 100mm WIDE CONTINUITY LINE
- 150mm WIDE OUT LINE
- 100mm WIDE DOUBLE BARRIER LINE
- 150mm WIDE EDGE LINE

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0 10 20 40 60
1:1000 (A1); 1:2000 (A3)

100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

SHEET SIZE
A1

COORDS: MGA94 ZONE 54
DATUM: ALL LEVELS TO A.H.D.
SCALE: 1:1000
SURVEYED:PRICEMERRET
SURVEY DATE:03.03.21
APPROVED / PROJECT LEADER
MEL SALT

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.
B	ISSUED FOR APPROVAL	8.2.23	IN	JDT
A	FOR INFORMATION	10.8.22	TG	TG

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BURONGA LANDFILL EXPANSION
TURN PATHS FOR B-DOUBLE ACCESS

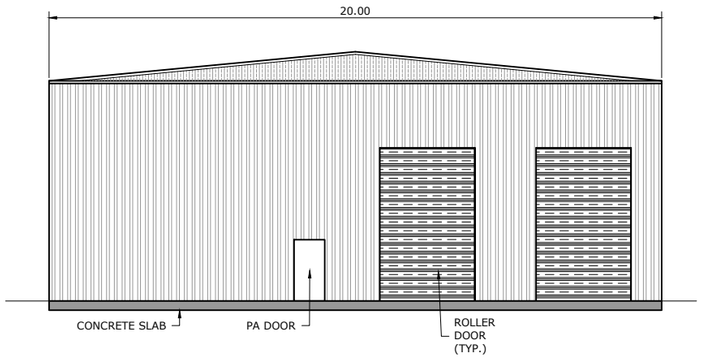
FILENAME: 202597 CONCEPT DESIGN.DWG
PROJECT NUMBER 202597
DRAWING NUMBER 12
REVISION B

T:\2020\202597 BURONGA LANDFILL EXPANSION - WENTWORTH SHIRE COUNCIL\4_WORKING\1 CAD\202597 CONCEPT DESIGN.DWG -C23- (08-02-23 3:58:13PM)

Figure 13: FERF & RESOURCE RECOVERY SHED DETAILS

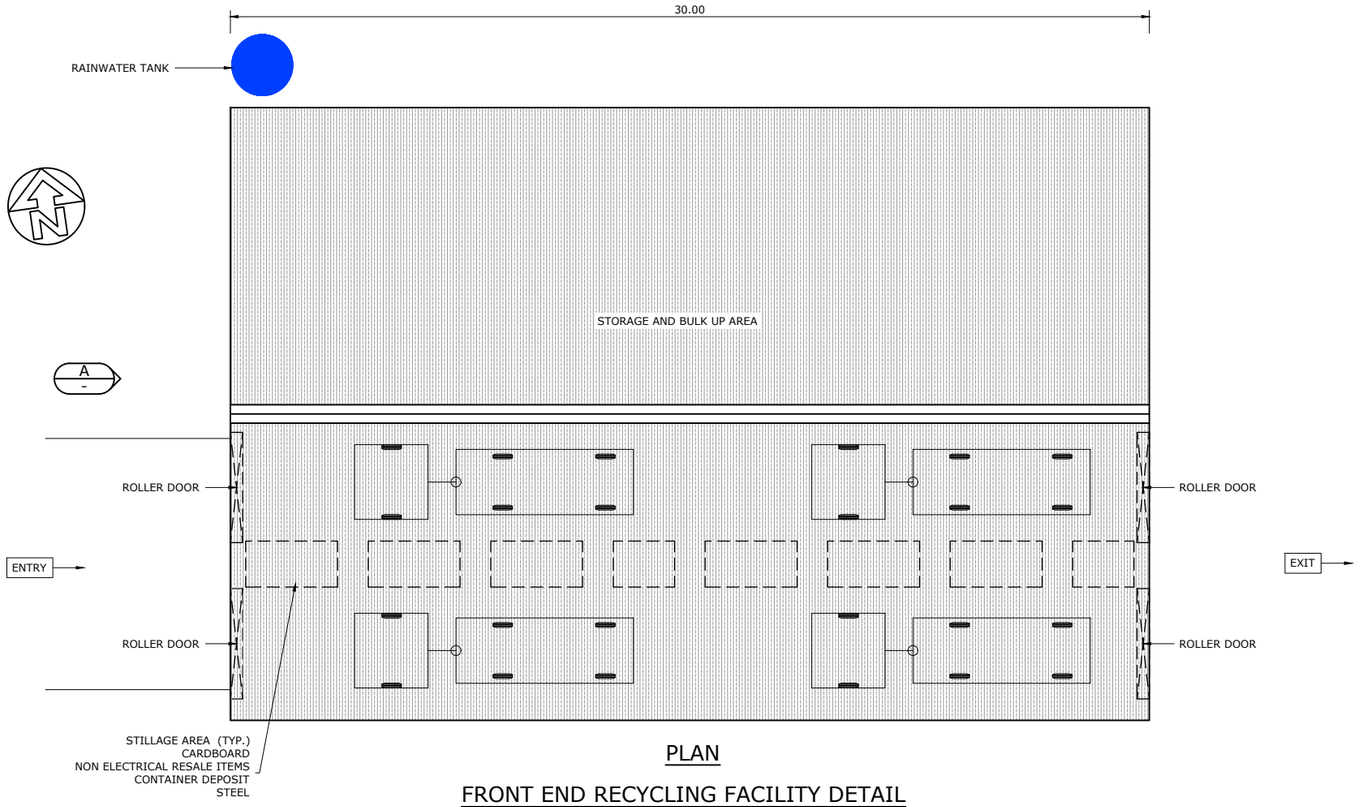
NOTE:

FERF SHED TO BE COLOURBOND STEEL WITH DULL FINISH IN GREEN OR GREY



VIEW A

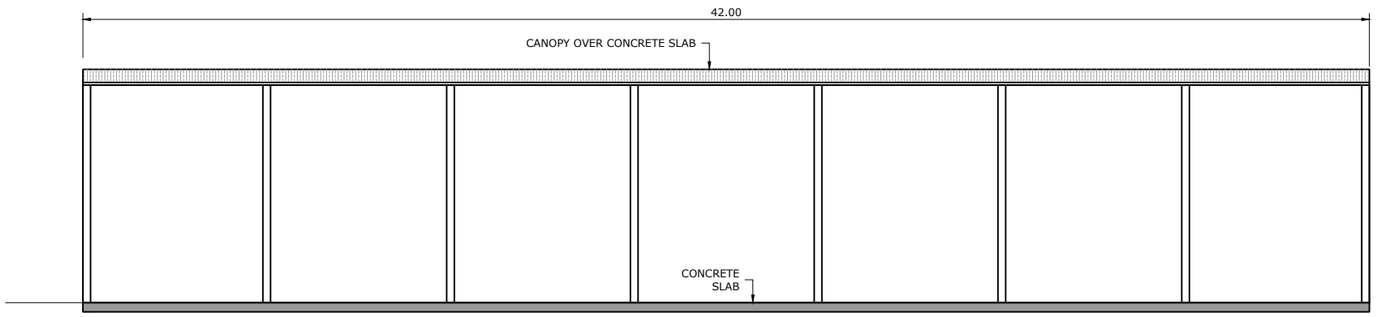
NTS



PLAN

FRONT END RECYCLING FACILITY DETAIL

NTS



VIEW

RESOURCE RECOVERY SHED DETAIL

NTS

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SHEET SIZE A1

100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.

COORDS:
DATUM:
SCALE: NTS
SURVEYED:
SURVEY DATE:
APPROVED / PROJECT LEADER

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BURONGA LANDFILL EXPANSION
FIGURE 13
FERF & RESOURCE RECOVERY SHED DETAILS

FILENAME: 202597 CONCEPT DESIGN.DWG

PROJECT NUMBER: 202597
DRAWING NUMBER: 13
REVISION:

C:\USERS\JASONT~1\APPDATA\LOCAL\TEMP\ACPUBLISH_1588\202597 CONCEPT DESIGN.DWG -C015- (16-12-21 11:51:38AM)

Figure 14: Monitoring Wells and Standing Water Level Plan

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Job Number: 202597
Filename: 202597GQ001Rev0
Revision: Rev 0
Date: 2023-05-31
Drawn: IPN

Data Acknowledgement:
Imagery from ESRI, 2023

Wentworth Shire Council

Buronga Landfill Expansion Detailed Design
Stage 2 Geotechnical Investigation
Standing Water Level Plan

Figure 14

Figure 15: Final Landform

ARUMPO ROAD

LOT BOUNDARY

EXISTING LEACHTE POND

EXISTING SITE ENTRANCE

INTERFACE BATTER TO EXISTING

LEGEND

- EXISTING CONTOUR (0.5m INTERVAL)
- DESIGN CONTOUR MAJ (5.0m INTERVAL)
- DESIGN CONTOUR MIN (1.0m INTERVAL)
- PROPOSED STAGE BOUNDARY
- PROPOSED CAP CROWN
- PROPOSED CAP DRAIN
- PROPOSED STORMWATER DRAIN
- PROPOSED STAGE 1 SERVICE ALIGNMENT
- PROPOSED STORMWATER POND
- PROPOSED LEACHATE POND
- ABORIGINAL ARTIFACT SITE
- PROPOSED BUILDING OR SHED
- PROPOSED HARDSTAND AREA
- PROPOSED LFG AREA (FUTURE)

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0 25 50 100 150
1:2500 (A1); 1:5000 (A3)

100mm ON ORIGINAL DRAWING - DO NOT SCALE DRAWING

SHEET SIZE
A1

REV	AMENDMENT / REASON FOR ISSUE	DATE	DES.	DWN.
C	FOR INFORMATION		IN	JDT
B	ISSUED FOR INFORMATION	10.8.22	IN	JDT
A	FOR INFORMATION	14.09.21		

COORDS: MGA94 ZONE 54
DATUM: ALL LEVELS TO A.H.D.
SCALE: 1:2500
SURVEYED:PRICEMERRET
SURVEY DATE:03.03.21
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BURONGA LANDFILL EXPANSION
FIGURE 15
STORMWATER MANAGEMENT STAGE 1

FILENAME: 202597 CONCEPT DESIGN.DWG
PROJECT NUMBER 202597
DRAWING NUMBER 15
REVISION C

C:\USERS\JASONT~1\APPDATA\LOCAL\TEMP\ACPUBLISH_17108\202597 CONCEPT DESIGN.DWG -C013- (15-11-22 12:05:38PM)

Appendix B – Environment Protection Licence

Appendix C – Amendment Report

Appendix D – Reporting Proforma

Appendix E – Borehole logs and core photographs

Appendix F – Buronga Landfill Expansion Basis of Design

Appendix G - Air Quality Management Plan

Appendix H – Heritage Management Plan

Appendix I – Leachate Management Plan

Appendix J – Water Management Plan

Appendix K – Sediment and Erosion Control Plan

Appendix L – Landfill Gas Monitoring Plan

Appendix M – Emergency Response Plan

Appendix N – Complaint Management Policy