THE LEADER IN RESOURCE RECOVERY

ALLAWUNA FARM LANDFILL – NOISE MANAGEMENT PLAN

This report describes the noise management measures proposed for the landfill facility at Allawuna Farm in the Shire of York.

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FILE NAME

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ACRONYMS

EPA	Environmental Protection Authority
VIPAC	VIPAC Engineers and Scientists
WA	Western Australia
DAFWA	Department of Agriculture of Food Western Australia
RAV	Restricted Access Vehicle
BPEM	Best Practice Environmental Management
EPNR	Environmental Protection (Noise) Regulations

UNITS OF MEASURE

dB(A)	Decibel at a Location
km	Kilometre
m	Metre
mm	Millimetre

1 PRELIMINARIES

1.1 SITA AUSTRALIA

SITA Australia (SITA) wishes to develop a landfill facility in the Shire of York. The proposed facility will be located on Allawuna Farm, Saint Ronans, the location of which is shown below. The local site location is shown in **Figure 1**. It is proposed that this facility would receive putrescible waste, clean fill, Type I & II Inert Waste, contaminated solid waste[1] and Type I & II Special Waste. The facility will accept up to 250,000 tonnes of waste annually.

Figure 1: Landfill location.

This noise management plan outlines the measures that will be put in place to ensure that the surrounding community and SITA employees do not suffer from a loss of amenity due to noise emissions originating from within the proposed site.

1.2 PURPOSE OF THE DOCUMENT

The purpose of this document is to provide a standard set of instructions and procedures that will be adopted during the operation of the landfill facility owned by SITA. All staff at the facility are expected to understand and follow the procedures outlined.

1.3 LOCATION

The site is located on the southern side of Great Southern Highway approximately 80 km by road from Perth and 20 km by road from York. The landfill will occupy a portion of Lot 4869 Great Southern Highway, Saint Ronans. The site is located east of the Swan Coastal Plain, in the Darling Scarp. The site was selected as the optimal choice after an investigation of nineteen potential sites undertaken by SITA.

1.4 NEAREST RECEPTORS AND BUFFER DISTANCES

The Environment and Protection Authority's (EPA) Guidance Statement No 3, *Separation Distance between Industrial and Sensitive Land Uses,* recommends a buffer distance of 150 metres between a Class II or III landfill and a single residence. The distance between the proposal and the nearest single residence is 1,900 metres. The Guidance Statement also recommends a buffer distance of 35 metres

[1] Meeting waste acceptance criteria specified for Class II landfills.

between a Class II or III landfill and the boundary of the property on which it is located. The proposed facility is located 600 metres from the Allawuna Farm's property boundary. **Table 1** provides a summary of the relevant buffer distances.

Table 1: Buffer Distances

DESCRIPTION	BUFFER DISTANCE (m)
Minimum DER requirement for sensitive receptor land use from putrescible landfill	500
Minimum DER requirement for single residence from putrescible landfill	150
Proposed landfill to Lot Boundary	600
Proposed landfill to nearest neighbouring dwelling (single residence)	1,900
Proposed landfill to Mount Observation picnic area	4,600
Proposed landfill to Wandoo National Park	1,000
Proposed leachate dams to Thirteen Mile Brook	270
Proposed landfill to Thirteen Mile Brook	350

1.5 CLOSEST RESIDENCE

The closest residence to the property is approximately 1.9 km to the north-east of the landfill. The next closest residence is situated 2.4 km from the proposed facility. These distances were measured using Google Earth and are an approximate only. No residences have a direct line of sight to the proposed site; all are screened by vegetation and sloping hills due to the topography of the landscape.

1.6 SURROUNDING LAND USES

Two properties in the vicinity of Allawuna Farm have been identified in the DAFWA sensitive sites database. One is listed as a bio-dynamic site and the other as an organic site. The property boundary of the bio-dynamic site is approximately 700 m from the Allawuna Farm property boundary and 2.5 km from the proposed landfill footprint. The organic site is approximately 1.3 km from the Allawuna Farm property boundary and 2.0 km from the proposed landfill footprint.

Given the relatively large buffer distances between these properties and the proposed landfill and the planned management strategies for potential emissions originating from the landfill, the proposed development is expected to have no impact on either of the sensitive surrounding land uses identified.

2 ASSIGNED OUTDOOR NOISE LEVELS

Table 2 shows the maximum noise levels for various types of premises in accordance with the *Environmental Protection (Noise) Regulations 1997 (as amended)* (the Regulations). The applicable type of receiving premises for the proposed development is "noise sensitive premises (0700 to 1900 hours Monday to Saturday)".

Table 2: Assigned Outdoor Noise Levels

Type of premises receiving noise	Time of day	Assigned level (dB)		
		L_{A10}	L_{A1}	$L_{A\ max}$
Noise sensitive premises: highly sensitive area (ie within 15 m of a dwelling)	0700 to 1900 hours Monday to Saturday	45 + IF	55 + IF	65 + IF
	0900 to 1900 hours Sunday and public holidays	40 + IF	50 + IF	65 + IF
	1900 to 2200 hours all days	40 + IF	50 + IF	55 + IF
	2200 hours any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	35 + IF	45 + IF	55 + IF
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80
Commercial premises	All hours	60	75	80
Industrial and utility premises other than those in the Kwinana Industrial Area	All hours	65	80	90
Industrial and utility premises in the Kwinana Industrial Area	All hours	75	85	90

Note: The L_{A10} noise level is the noise that is exceeded for 10% of the time.
The L_{A1} noise level is the noise that is exceeded for 1% of the time.
The L_{Amax} noise level is the maximum noise level recorded.
IF = Influencing Factor

The Regulations also require noise emissions from the site to be free of annoying characteristics (tonality, modulation and impulsiveness). The use of diesel-powered heavy equipment may result in tonal characteristics in the emitted noise, and as such an influencing factor of +5 dB (A) will need to be applied to the receivers' predicted noise level.

3 LANDFILL OPERATIONS

3.1 OPERATING SCHEDULE

It is proposed that the facility will operate from 6 am to 5 pm Monday to Friday and from 6 am to 4 pm on Saturdays. The Saturday schedule will be followed for public holidays but the site will remain closed for New Year's Day, Good Friday and Christmas Day.

3.2 QUALITY CERTIFICATION

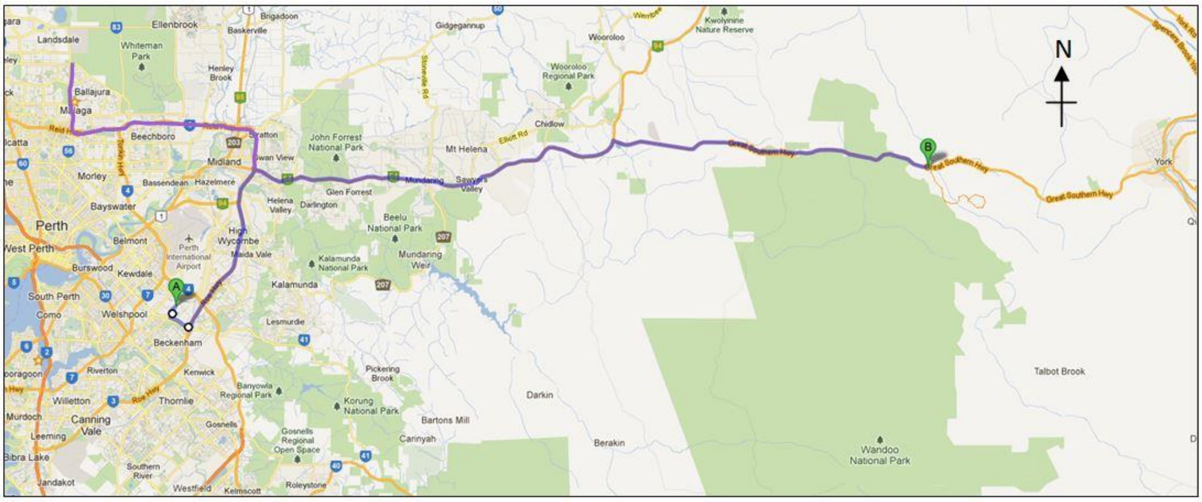
SITA has a certified system for the management of the Environment (ISO 14001), Health and Safety (AS 4801) and Quality (ISO 9001). The management processes at Allawuna Farm Landfill will tie into these certified systems.

3.3 LOGISTICS AND TRAFFIC VOLUME

The development of the Allawuna Farm Landfill will generate road train vehicle movements between SITA's waste transfer stations in Welshpool and Landsdale and the landfill site. The development will eliminate the current transfer vehicle movement to the Shale Road Landfill on South Western Highway.

The transfer road trains will be Restricted Access Vehicles (RAV) Class 2, Category 3 in a pocket road train configuration, with a maximum length of 27.5 m. The pocket road trains will travel along the existing RAV Network 4 road system to the site via Gnangara Road, West Swan Road, Reid Highway, Roe Highway, Great Eastern Highway and Great Southern Highway. The existing RAV Network 4 intersections along the route are all sufficiently developed to accommodate the small increase in road train volume associated with the landfill development. **Figure 2** outlines the route that the waste transfer trucks will take.

Figure 2: Waste transfer road train routes.



When operating at maximum capacity one road train will depart the Perth region every 20 minutes for a total of 24 deliveries to the Allawuna Farm Landfill per day. If additional cover material is required for landfill operations up to one additional truck per day carrying recycled brick road base or similar material may also access the site, as is currently the practice at Shale Road Landfill.

The development of the site will have a negligible effect on the road network in the metropolitan area and a minimal impact on Great Southern Highway vehicle volumes. As road train loads are evenly distributed across the day, the impact on peak traffic times is also considered to be negligible.

A comprehensive review of the available traffic data from the Main Roads WA (MRWA) *Traffic Digest* compared with the proposed increase in vehicle movements found the increase in Great Southern Highway vehicle volumes would be less than 3% on 2008/09 volumes.

A small number of light vehicle movements for facility staff entering and departing the site in the morning and evening will also occur. The expectation is that most employees will be residents of the York area, with an expected 30-40 vehicle single directional movements a day between York and the site. This volume represents a 2-3% increase in traffic between York and Allawuna.

3.4 LANDFILLING

The placement and covering of waste will be in accordance with the Victorian Best Practice Environmental Management (VIC-BPEM) guidelines for landfills. Cover material and internal roads will be made from material excavated during cell construction or waste materials with appropriate properties for vehicle traffic such as builders' rubble, crushed concrete and on the landfill area shredded wood.

The waste will be placed by maintaining one active tipping area that is as small as possible. The landfill will be effectively compacted to minimise long term settlement and maximise the use of the available airspace. The compactor will make three to five passes over waste that has been placed in 500 mm layers. Emplaced waste will be completely covered at the end of each day.

3.5 PLANT LIST

The earthmoving plant that will be used in the construction and operation of the landfill are listed in **Table 3**. All of the heavy machinery and mechanical plant used on-site will be fitted with acoustic panels and mufflers (exhaust silencers), as well as broadband alarm reversing beepers.

Table 3: Plant list.

Plant	Quantity
Construction	
Pad Foot Roller	1
Smooth Drum Roller	1
Grader	1
30 tonne excavator	2
Articulated Water Truck	1
Articulated Dump Truck	2
D9 Dozer	1
50 tonne Loader	1
Wheel Tractor Scraper	1
Operation	
30 tonne Compactor	1
50 tonne Compactor	1
D7 Dozer	1
Dump Truck 6x4	1
Excavator	1
Water Truck 6x4	1
Grader	1

4 NOISE MANAGEMENT PLAN

4.1 OBJECTIVE

The objective of the noise management plan is to minimise any noise generated during the operation and construction of the proposed landfill facility, and be compliant with the *Environmental Protection (Noise) Regulations 1997*.

4.2 NOISE IMPACT ASSESSMENT

Noise will arise during the operation of heavy equipment, movement of vehicles and reversing beepers. The *Environmental Protection (Noise) Regulations 1997 (As Amended)* stipulate the allowable noise levels that can be received at any noise sensitive premises as a result of activities occurring on another premise. The objective is to protect the amenity of nearby residents and other land users from noise impacts resulting from activities associated with the proposal by ensuring that noise levels comply with the *Environmental Protection (Noise) Regulations 1997 (As Amended)* (the EPNR). A noise impact assessment (Appendix A) was carried out by VIPAC Engineers & Scientists (VIPAC) in March 2015 on the Lot. The assessment was to determine the impact of the proposed landfill construction and operation on the surrounding receptors.

An extract from the VIPAC report on the predicted noise levels for the nearby sensitive receptors is shown in **Table 4** below. It must be noted that these predictions are for 'worst case' wind conditions where there is a temperature inversion in conjunction with light winds in the direction from source to receiver, resulting in effective sound propagation towards the receiver locations.

Table 4: Extract from VIPAC noise assessment.

Location 1 – 3060 Talbot West Road, Mount Observation Picnic Area			
	Noise Levels (dBA)		
	L_{A1}	L_{A10}	L_{Amax}
Computed Levels	39	35	42
Background Levels	65	46	70
EPNR Criteria (07:00-19:00, Monday – Saturday)	55	45	65
EPNR criteria met?	✓	✓	✓
Location 2 – 2974 Great Southern Highway, St Ronans			
	Noise Levels (dBA)		
	L_{A1}	L_{A10}	L_{A1}
Computed Levels	47	41	52
Background Levels	65	46	70
EPNR Criteria (07:00-19:00, Monday – Saturday)	55	45	65
EPNR criteria met?	✓	✓	✓
Location 3 – 3462 Great Southern Highway, St Ronans			
	Noise Levels (dBA)		
	L_{A1}	L_{A10}	L_{Amax}
Computed Levels	43	38	47
Background Levels	65	46	70
EPNR Criteria (07:00-19:00, Monday – Saturday)	55	45	65
EPNR criteria met?	✓	✓	✓

Based on the results of the SoundPLAN acoustic software modelling performed by VIPAC, it can be summarised that the noise levels generated at the noise sensitive receivers due to the construction and operation of the Allawuna Landfill facility are within the EPNR criteria. This demonstrates that the aural amenity of the surrounding area will remain unaffected by the Allawuna Landfill without the need for the construction of acoustic barriers/bunds.

4.3 NOISE CONTROL MEASURES

Despite VIPAC's environmental noise assessment concluding that the operation of the Allawuna Landfill facility will be in line with the EPNR criteria, SITA will implement the following management and mitigation measures to further minimise the likelihood of noise generated on-site effecting the aural amenity of nearby sensitive receptors (including staff):

- Personnel will have access at all times to operational manuals for equipment being utilised and must be familiar with the procedures detailed in the operations manual,
- Requirement for staff wear appropriate hearing protection if in close proximity to machinery for extended periods,
- Speed restrictions will be enforced on the internal access roads (60 km/h between Great Southern Highway and the right-angled turn in the access road, shown in **Drawing ALLA-09** of the Works Approval, and 40 km/h everywhere else),
- Appropriate signage is maintained displaying a contact number to call SITA in the event of a complaint from a member of the public. SITA will record any complaints received; including the date, nature and resolution action of any complaints,
- Following complaints, the source of any excessive noise is identified and work practices modified or rescheduled to reduce or eliminate the risk of future events,
- All of the heavy machinery and mechanical plant used on-site will be fitted with acoustic panels and mufflers (exhaust silencers),
- All mobile plant used on site is regularly serviced including exhaust mufflers, and
- Speed limits are enforced on all site access roads.

4.4 NOISE MONITORING

In order to confirm the results of the Environmental Noise Assessment carried out by VIPAC, noise monitoring will be undertaken once each during the construction and operational phases of the facility. The monitoring event during the operational phase will take place during the first three months of the facility's operational life. The objective of these monitoring events will be to confirm that the site is fully compliant with the ENPR and the monitoring events will be carried out in accordance with *AS/NZS 1269.1:2005 Occupational noise management Part 1: Measurement and assessment of noise immission and exposure.*

5 REFERENCES

Environmental Protection Authority, 2010. Environmental Protection (Noise) Regulations 1997 (As Amended).

Environmental Protection Authority, 2005. Guidance Statement No 3, Separation Distance between Industrial and Sensitive Land Uses.

Standards Australia, 2005. Occupational noise management Part 1: Measurement and assessment of noise immision and exposure, AS/NZS 1269.1:2005, Standards Australia, NSW.

VIPAC Engineers & Scientists, 2015. Allawuna Environmental Noise Assessment.