Appendix L – Hazards and risks study

SITA Australia Pty Ltd

Lucas Heights Resource Recovery Park Project

Hazards and Risks Study

August 2015

Executive summary

SITA Australia (SITA) is proposing a number of activities at the Lucas Heights Resource Recovery Park (LHRRP) in Lucas Heights. This report has been prepared by GHD Pty Ltd to provide an assessment of hazards associated with the proposal, and in particular, to determine if the proposal is a 'potentially hazardous industry', as per the *State Environment Planning Policy No.33* (SEPP33), as an input to the environmental impact statement.

A preliminary risk screening of the proposal was undertaken in accordance with the requirements of SEPP 33. SEPP 33 sets out a risk screening methodology to determine if a proposed development is 'potentially hazardous industry' or 'potentially offensive industry'.

Following the preliminary risk screening, a qualitative hazard identification study was completed to identify any potential offsite impacts.

The results of the SEPP 33 preliminary risk screening indicate that the screening thresholds for Dangerous Goods storage and transportation would not be exceeded. As a result, the proposal is not deemed a 'potentially hazardous industry' or a 'potentially offensive industry'. Therefore there is no requirement for a preliminary hazard analysis.

The hazard identification study did not identify any hazards with the potential for significant offsite impact that would not be suitably controlled.

Adequate safeguards, such as those proposed in the hazard identification, are required to ensure the risk scenarios that were identified are controlled to an acceptable level.

New equipment should have procedures developed for their safe operation. This is particularly important for the handling of Dangerous Goods.

This report addresses the Secretary's Environmental Assessment requirements and concludes that the proposal would meet the following objective:

- No significant impact on the community or environment
- No hazards with potential for significant offsite impact that would not be suitably controlled
- Risks are controlled to an acceptable level.

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Glossary

Term	Definition
ANSTO	Australian Nuclear Science and Technology Organisation
ARRT facility	Advanced Resource Recovery Technology facility
EIS	Environmental Impact Statement
EPA	New South Wales Environment Protection Authority and any successor body.
EP&A Act	*Environmental Planning and Assessment Act 1979*
Currently approved landform	The currently approved landform heights and contours outlined in the 1999 EIS
HIPAP	Hazardous Industry Planning Advisory Paper
GIS	Geographic Information Systems
GO facility	The Garden Organics facility at LHRRP, that undertakes composting of waste including green and garden waste, but excluding waste types such as food waste and biosolids
GLALC	Gandangara Local Aboriginal Land Council
Landform reprofiling	Proposed changes to currently approved landform at the LHRRP.
LHRRP	Lucas Heights Resource Recovery Park
Mitigation	The application of techniques to reduce environmental impacts arising from the proposal
OEMP	Operational Environment Management Plan and all relevant future documents, these will be provided for the landfill, GO and ARRT and will detail how these projects can be managed to meet the environmental outcomes for the site
PCYC Mini-Bike Club	The mini-bike club operated by the Police and Community Youth Clubs NSW Limited (PCYC).
PHA	Preliminary Hazard Analysis
SSC	Sutherland Shire Council
SEAR	Secretary's Environmental Assessment Requirements (formerly known as Director-General's Requirements or DGRs)
SEPP33	State Environment Planning Policy No.33
SICTA	Sydney International Clay Target Association and any successor body
SITA	SembSITA Australia Pty Ltd (SembSITA) is the holding company for the SITA Australia (SITA) group of companies in Australia. SembSITA is the parent company of both SITA and WSN Environmental Solutions Pty Ltd (WSN). WSN owns part of the land on which the LHRRP is situated, and leases the remainder from ANSTO. SITA holds the environmental protection licence (EPL), and so is the operator of the facilities at LHRRP. For simplicity, the term 'SITA' is used to refer to all of these organisations in this report.

1. Introduction

1.1 Purpose of this report

SITA Australia (SITA)[1] is proposing a number of activities at the Lucas Heights Resource Recovery Park (LHRRP) in Lucas Heights (referred to in this report as 'the proposal'). This report has been prepared by GHD Pty Ltd to determine if the proposal is a 'potentially hazardous industry', as per the *State Environment Planning Policy No.33* (SEPP33) as an input to the environmental impact statement. Due to the existing operational arrangements at LHRRP, Sutherland Shire Council (SSC) is a joint applicant for the proposal. The environmental impact statement is being prepared by GHD in accordance with the requirements of Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (the EP&A Act).

The report addresses the requirements of the Secretary of the NSW Department of Planning and Environment (the Secretary's Environmental Assessment Requirements (SEARs No SSD-6835) dated 3 February 2015 (as outlined in Section 1.6).

In addition to addressing the SEARs requirements, this report provides an assessment of how well the proposal meets SITA's objectives of having no significant impacts on the community or environment. Environmental management and mitigation measures related to hazards are proposed (where necessary) to mitigate potential impacts and ensure that they are managed in accordance with statutory requirements, regulations and community expectations.

1.2 Objectives

The following objectives have been identified:

- No significant impacts on the community or environment
- No hazards with potential for significant offsite impact that would not be suitably controlled
- Risks are controlled to an acceptable level.

1.3 Proposal overview

The LHRRP consists of approximately 205 hectares (ha) in two ownerships. 89 ha is owned by SITA and 116 ha owned by Australian Nuclear Science and Technology Organisation (ANSTO) and leased to SITA for waste management or other agreed purposes. The following activities are proposed at the LHRRP and are collectively referred to as 'the proposal'. The proposal would not have a significant impact on the community. In addition to the proposal detailed below, SITA are committed to better environmental outcomes by the application of best practice prevention, mitigation and rectification measures:

- **Reprofiling of existing landfill areas to provide up to 8.3 million cubic metres of additional landfill airspace capacity.** This is equivalent to approximately 8.3 million tonnes of waste, assuming 1 tonne of waste utilises 1 cubic metre of waste disposal airspace. As the process of reprofiling would include removal and replacement of capping material over previously landfilled waste and augmentation of gas and leachate collection systems, the environmental performance of the site would be ultimately

[1] SembSITA Australia Pty Ltd (SembSITA) is the holding company for the SITA Australia (SITA) group of companies in Australia. SembSITA is the parent company of both SITA and WSN Environmental Solutions Pty Ltd (WSN). WSN owns part of the land on which the LHRRP is situated, and leases the remainder from ANSTO. SITA holds the environmental protection licence (EPL), and so is the operator of the facilities at LHRRP. For simplicity, the term 'SITA' is used to refer to all of these organisations in this report.

improved by reducing the infiltration of stormwater into the landfill (resulting in reduced landfill leachate in the longer term) and increase the overall amount of landfill gas recovered from the site.

As part of the proposal, SITA is seeking permission to increase the approved quantity of waste landfilled at the site from 575,000 to 850,000 tonnes per year. This would enable the reprofiling of the site to be completed in 2037.

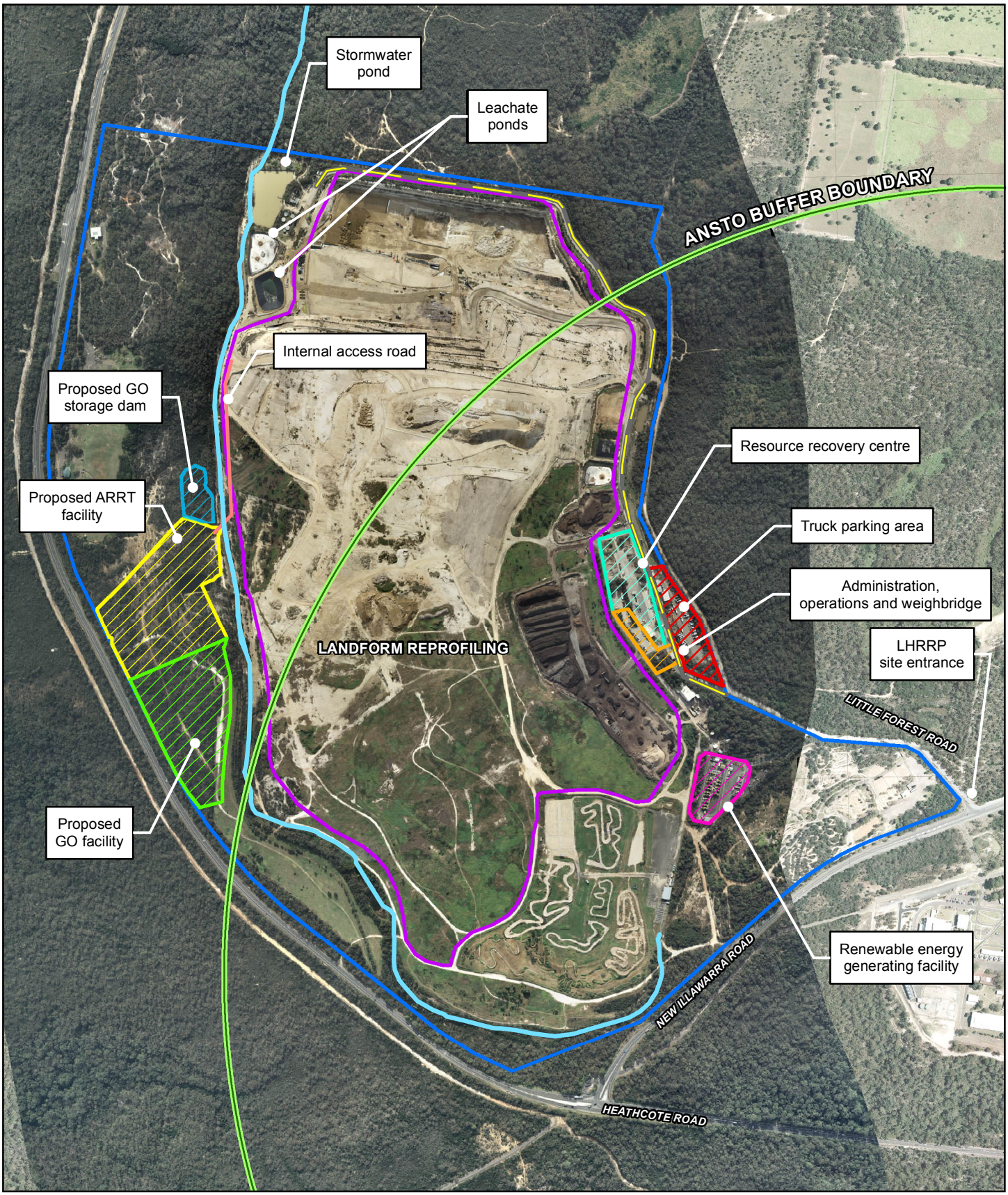
- **Relocation and expansion of the existing garden organics (GO) facility**. The existing garden organics facility would be relocated to the western side of the site adjacent to Heathcote Road. Approval is being sought to increase the approved capacity from 55,000 to 80,000 tonnes of green waste and garden waste received per year at the facility. The new facility would include the partial enclosure, active aeration and covering of the first four weeks of the active composting process, which coincides with the period of highest potential for odour generation, to enable more effective control of odour . Relocation of the facility would result in increased separation distances from the current nearest occupied land at ANSTO, existing residential areas and the proposed new residential area at West Menai.
- **Construction and operation of a fully enclosed advanced resource recovery technology (ARRT) facility**. The ARRT would be located on the western side of the site adjacent to the GO facility and would process and recover valuable resources from up to 200,000 tonnes of general solid waste per year, reducing the amount of waste disposed to landfill to approximately 60,000 tonnes per year. This would divert up to 140,000 tonnes of waste per year from landfill. SSC and other councils would have the opportunity to have their municipal waste processed by the ARRT facility.
- **Community parkland**. The landfill reprofiling would increase the area available for future passive recreation following site closure from 124 ha (existing approved parkland) to a total of 149 ha, an increase of approximately 25 ha. Landfilling would cease in 2037 after which time the site would be rehabilitated and converted to a community parkland, with capping and landscaping to be completed and the site made available for community use in 2039.

As part of the proposal SITA has committed to entering into an agreement with SCC in the form of a Voluntary Planning Agreement which includes ‘environmental undertakings’. In addition operational environmental management plans have been prepared for the landfill, GO facility, ARRT facility and post closure measures to manage potential environmental impacts, reflect regulatory requirements and provide guidance for site operators to undertake activities in an environmentally sound manner.

A Planning Proposal is being submitted in parallel with this State Significant Development Application. The Planning Proposal seeks to include new local provisions on the LHRRP site within the Sutherland Local Environmental Plan 2015 (SLEP), which would allow the proposal (a waste or resource management facility) to be undertaken on the proposal site.

The expansion of the LHRRP which is outlined in this EIS would not prevent the proposed future use of the land for recreational purposes, which is currently approved and would occur when the existing facility ceases operation in 2025. The proposal would however extend the timeframe for which the land would be unavailable for recreational purposes until 2037, due to the extension of operations at the proposed LHRRP.

The key components of the proposal are shown on Figure 1.1. The proposed final landform and preliminary masterplan for the parkland is shown in Figure 1.2.



LEGEND

- ANSTO buffer boundary
- Mill Creek
- Internal access road
- Existing access road
- Proposed GO facility
- Proposed ARRT facility
- Resource Recovery Centre
- Administration, operations and weighbridge
- Renewable energy generating facility
- Lucas Heights Resource Recovery Park boundary
- Landform reprofiling boundary
- Truck parking area

Paper Size A4

0 100 200 400

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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GHD

SITA Australia
Lucas Heights Resource Recovery Park

Job Number 21-23482
Revision A
Date 28 May 2015

Key existing infrastructure and proposed facility layout

Figure 1.1

N:\AU\Sydney\Projects\21\23482\GIS\Maps\MXD\21-23482-Z046_KeyProposedInfrastructure.mxd 15/133 Castlereagh Street Sydney NSW 2000 Australia **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com **W** www.ghd.com

Aerial Imagery: ESRI, 2014. Works: GHD/SITA, 2014. Roads: NSW LPMA, 2012. Created by:jrichardson

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SITA Australia
Lucas Heights Resource Recovery Park

Job Number 21-23482
Revision A
Date 24 June 2015

Proposed parkland master plan **Figure 1.2**

Level 15, 133 Castlereagh Street Sydney NSW 2000 **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com.au **W** www.ghd.com.au

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Data source: Taylor Brammer Landscape Architects Pty Ltd. Created by:jrichardson

1.4 Definitions

The following terms are used within this report when referring to the proposal site and surrounding areas:

- The 'LHRRP' refers to the entire Lucas Heights Resource Recovery Park. The boundary of the LHRRP is shown as the blue line on Figure 1.3.
- The 'proposal site' refers to the areas where the activities described in Section 1.3 would be located. The boundary of the proposal site is shown as the red line on Figure 1.3.

1.5 Location of the proposal

1.5.1 Existing

The proposal would be located within the boundary of the existing LHRRP. The LHRRP is located within the Sutherland local government area, approximately 30 kilometres (km) south west of the Sydney city centre. The site is bound to the west by Heathcote Road and New Illawarra Road to the south.

Specifically, the proposal would be located on:

- Lot 101 DP 1009354
- Lot 3 DP 1032102
- Lot 2 DP 605077

It is noted that the proposal directly affects only a portion of each of these lots. There is minimal encroachment into the SICTA leased land (part of Lot 3 DP 1032102).

The proposal site, within the boundary of the LHRRP, is shown on Figure 1.4.

The site is currently accessed from Little Forest Road, off New Illawarra Road.

Current facilities at the LHRRP include:

- Landfill
- Resource recovery centre and waste collection point
- GO facility for processing garden organics
- Renewable energy production (operated by Energy Developments Ltd)
- Truck parking area
- Community use areas (mini bike area at the southern extent of the site run by the Sutherland Police Citizens Youth Club and the Sydney International Clay Target Association (SICTA) leased land on the north western side of the site)

There are also several ancillary buildings and structures (e.g. weighbridge, machinery workshop, administration offices, stormwater and leachate dams).

The following land uses are located in the immediate vicinity of the LHRRP:

- Bushland areas that form part of ANSTO's exclusion zone (to the east and south)
- ANSTO's facilities (to the east on the opposite side of New Illawarra Road)

Land uses in the surrounding area include:

- Holsworthy Military Reserve (to the west, northwest and southwest)

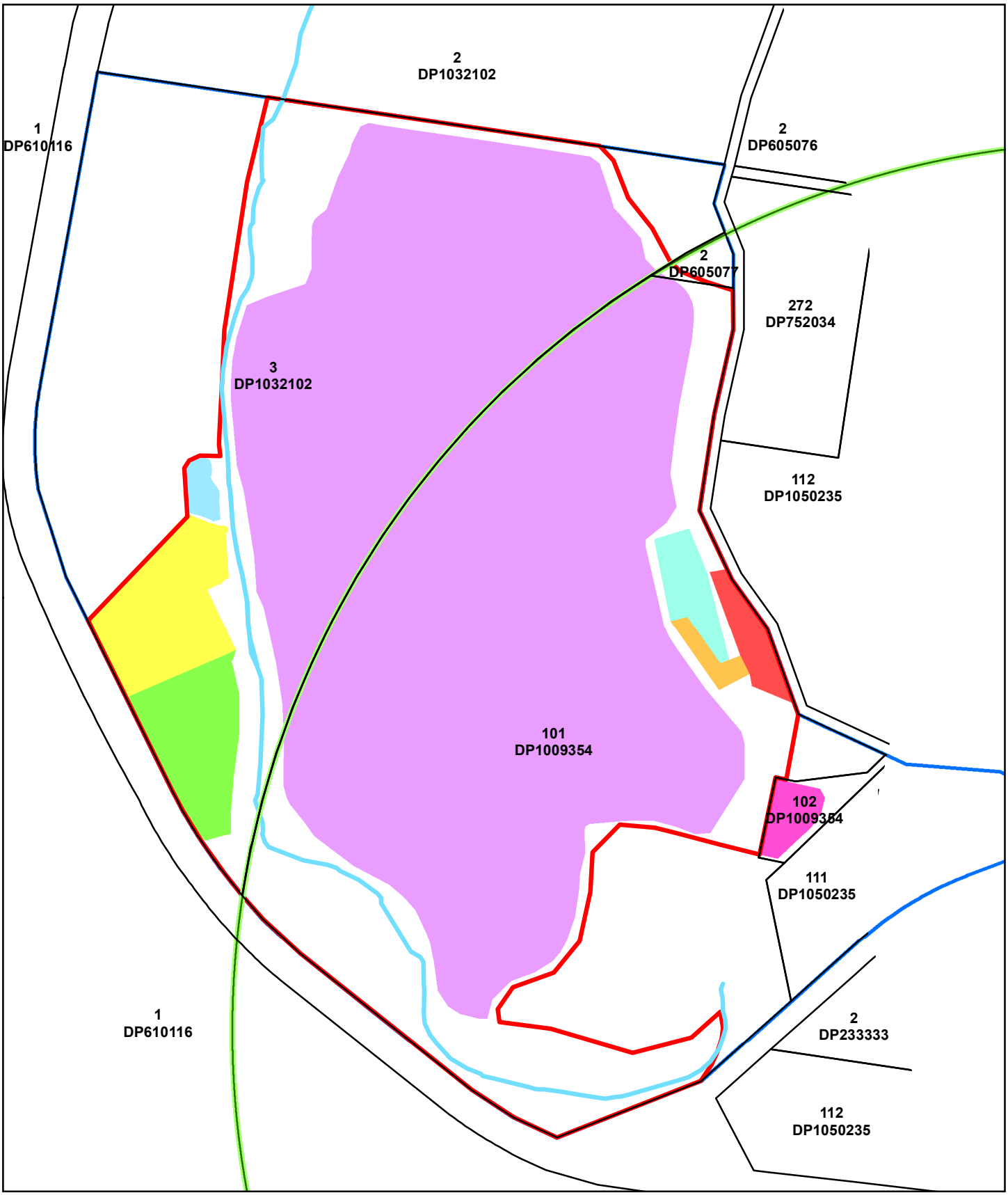
- The Ridge Sports Complex, a major regional sporting facility being developed on the site of the former Lucas Heights Waste and Recycling Centre (approximately 2.5 km to the north east)
- Lucas Heights Conservation Area (immediately to the north of the LHRRP)
- The suburbs of North Engadine (approximately 2 km to the east) and Barden Ridge (approximately 3 km to the north east)

Figure 1.4 shows these key areas.

1.5.2 Potential future surrounding land uses

The Gandangara Local Aboriginal Land Council (GALC) is proposing a development in the West Menai area. The West Menai State Significant Site contains 849 ha of mostly undeveloped land, covering parts of Menai, Barden Ridge and Lucas Heights.

The western boundary of the proposed development is Heathcote Road and the site extends east across Mill Creek to the edge of the existing Menai residential area close to New Illawarra Road. The location of the proposed West Menai State Significant Site is shown on Figure 1.4.



LEGEND

- ANSTO buffer boundary
- Mill Creek
- Cadastre
- Proposal site boundary
- Lucas Heights Resource Recovery Park boundary
- Truck parking area
- Proposed GO facility
- Proposed ARRT facility
- Resource Recovery Centre
- Administration, operations and weighbridge
- Renewable energy generating facility
- Landform reprofiling boundary

Paper Size A4

0 45 90 180 270 360

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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GHD

SITA Australia
Lucas Heights Resource Recovery Park

Job Number	21-23482
Revision	A
Date	25 Jun 2015

The proposal site

Figure 1.3

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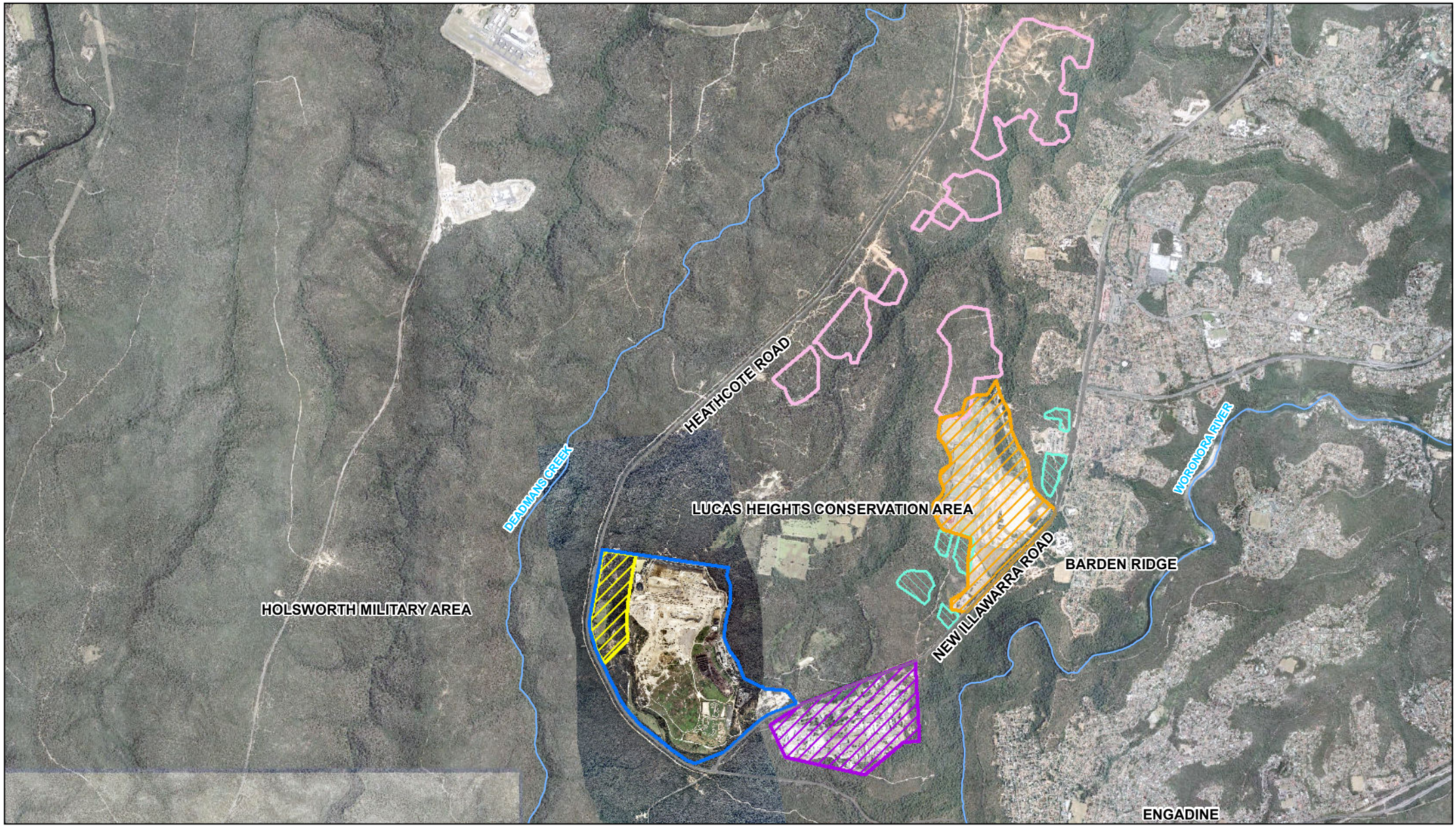
15/133 Castlereagh Street Sydney NSW 2000 Australia **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com **W** www.ghd.com

Aerial Imagery: ESRI, 2014. Works: GHD/SITA, 2014. Roads: NSW LPMA, 2012. Created by:afoddy



Paper Size A4

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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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Legend

- LHRRP boundary
- SICTA boundary
- ANSTO
- Barden Ridge Sports Complex
- Potential future receptors
- Future receptors – Residential

SITA Australia
Lucas Heights Resource Recovery Park

Job Number 21-23482
Revision B
Date 14 Aug 2015

Surrounding landuses

Figure 1.4

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15/133 Castlereagh Street Sydney NSW 2000 Australia T 61 2 9239 7100 F 61 2 9239 7199 E sydmail@ghd.com W www.ghd.com

Aerial Imagery: SITA, 2014. Works: GHD/SITA, 2014. Roads: NSW LPMA, 2012. Created by:apmiller

1.6 Secretary's Environmental Assessment Requirements and agency requirements

The specific SEARs and agency requirements addressed in this report are summarised in Table 1.1.

Table 1.1 Secretary's Environmental Assessment Requirements and agency requirements

Assessment requirements	Where addressed in report
Including a preliminary risk screening completed in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* and *Applying SEPP 33* (DoP 2011a), with a clear indication of class, quantity and location of all dangerous goods and hazardous materials associated with the project.	Chapter 3
Should a preliminary screening indicate that the project is "potentially hazardous," a Preliminary Hazard Analysis (PHA) must be prepared in accordance with *Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis* (DoP 2011c) and *Multi-Level Risk Assessment* (DoP 2011d).	n/a the preliminary risk screening indicated that a PHA is not required.
Agency requirements	
Nil	n/a

1.7 Scope and structure of this report

1.7.1 Scope of report

SEPP 33 presents a systematic approach to planning and assessing proposals for potentially hazardous and offensive development for the purpose of industry or storage. SEPP 33 applies to any proposals which fall under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'.

For development proposals classified as 'potentially hazardous industry', the policy establishes a comprehensive test by way of a preliminary hazard analysis (PHA) to determine the risk to people, property and the environment at the proposed location and in the presence of controls.

This report provides hazard and risk screening in accordance with the requirements of SEPP 33, to identify if SEPP 33 applies, and therefore if a PHA is required. The report includes a description of the proposed development (the proposal), screening of Dangerous Goods as per SEPP 33 and an assessment that reviews potential hazards that may arise during the operation of the facility.

Assessments of fire, surface water, ground water and soil contamination risks are provided in the EIS main report (chapters 18, 13, 14 and 16 respectively) and Volume 2 Appendices (specialist studies).

1.7.2 Structure of report

The report outlines the methodology applied during the hazard and risk screening (Chapter 2), the results of the preliminary risk screening (Chapter 3) and hazard identification (Chapter 4), followed by the conclusions and recommendations (Chapter 5).

2. Methodology

2.1 Preliminary risk screening

The need for a PHA under SEPP 33 is determined by a preliminary risk screening of the proposal. The preliminary screening methodology concentrates on the storage of specific Dangerous Goods classes that have the potential for significant offsite effects. Specifically, the assessment involves the identification of classes and quantities of all Dangerous Goods to be used, stored or produced on site with an indication of storage depot locations. Details of the methodology are described in NSW Department of Planning (DoP 2011a) Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines.

If a PHA is not required, the process is completed at this step. For development proposals classified as a 'potentially hazardous industry', a PHA is completed to determine the risk to people, property and the environment at the proposed location and in the presence of controls. Criteria of acceptability are used to determine if the development proposal is classified as a 'hazardous industry'. If this is the case, the development proposal may not be permissible within most industrial zonings in NSW.

If a PHA is required, the methodology is outlined in DoP (2011b) publication Hazardous Industry Planning Advisory Paper No. 4 'Risk Criteria for Land Use Safety Planning' (HIPAP 4) and DoP (2011c) Hazardous Industry Planning Advisory Paper No. 6 'Guidelines for Hazard Analysis' (HIPAP 6). The overall risk screening process, as outlined in SEPP 33, is summarised in Figure 2.1.

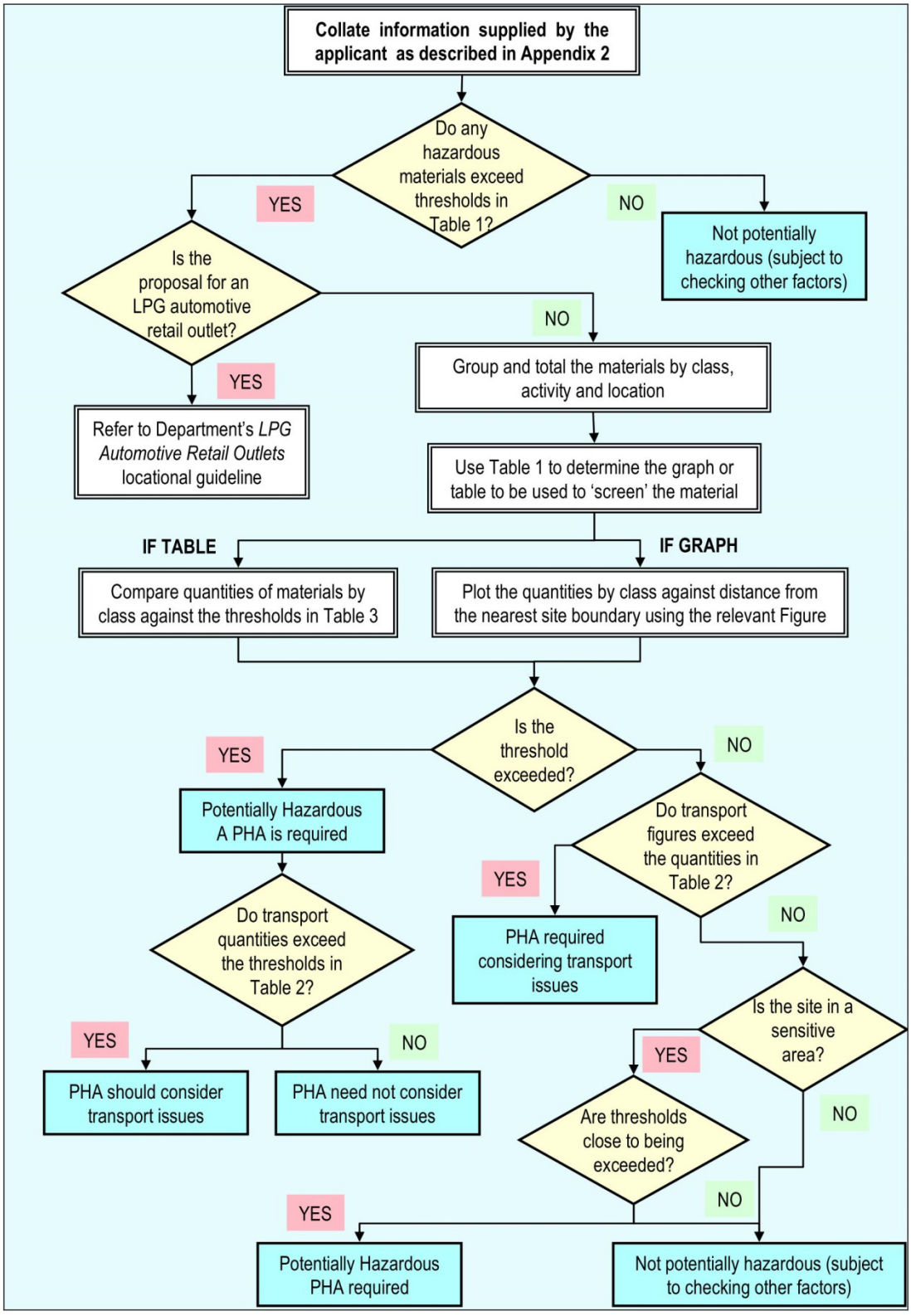

Figure 2.1 SEPP 33 Risk Screening Process

2.2 Hazard identification

The aim of the hazard identification process is to highlight any residual risks associated with the interaction of the facility (as a whole) with the surrounding environment i.e. a systematic process to identify any potential offsite impacts.

Hazard identification is a form of qualitative risk assessment and involves documenting all possible events that could lead to a hazardous incident. It is a systematic process listing

potential causes and consequences (in qualitative terms). Reference is also made to proposed operational and organisational safeguards that would prevent such hazardous events from occurring, or should they occur, that would mitigate the impact on the facility, its equipment, people and the surrounding environment. This process enables the establishment, at least in principle, of the adequacy and relevancy of proposed safeguards.

3. Preliminary risk screening

3.1 Dangerous goods inventory

SITA has three storages of Dangerous Goods above NSW WorkCover's threshold quantities as shown in Table 3.1.

Table 3.1 Dangerous goods storage

Chemical	UN	Class	Packing group	Hazchem code	Storage capacity
Sodium hypochlorite	1791	8	III	2R	1,500 L (1.8 tonne)
Sodium hydroxide	1824	8	II	2X	1,500 L (2.25 tonne)
Diesel	1202	3	III	3Z	20,000 L (17 tonne)
Diesel	1202	3	III	3Z	50,000 L (42.5 tonne)

3.2 Dangerous goods storage screening

Under SEPP 33, Class 8 Dangerous Goods are arranged by their packing group and evaluated against a threshold above which the site would be deemed to be 'potentially hazardous industry'. The proposed inventory of Dangerous Goods to be stored and utilised on site are provided in Table 3.2.

Table 3.2 Dangerous goods screening

Chemical	Maximum quantity on site	Threshold
Sodium hypochlorite	1.8 tonne	25 tonne
Sodium hydroxide	2.25 tonne	50 tonne
Diesel	59.5 tonne	• Must be at least 5 m from facility boundary • Must be at least 8 m from a sensitive receptor

In accordance with SEPP 33, the sodium hypochlorite and sodium hydroxide inventories do not exceed the screening threshold for onsite storage of Dangerous Goods.

In order to avoid exceeding the screening threshold, the inventory of diesel must be stored more than five metres from the site boundary and more than eight metres from a sensitive receptor.

If changes occur to the inventories or types of Dangerous Goods to be stored on site, it is recommended that the screening process be repeated in order to determine if those changes trigger the need for a PHA to be conducted.

3.3 Transportation screening

During operation, the proposal would involve a number of vehicles entering the surrounding road network. Many of these vehicles would be trucks that would deliver material to the facility including waste to the receivals area. Workers and visitors to the site would also generate additional traffic on the surrounding road network.

Due to the small quantity of Dangerous Goods stored on site, it is expected that vehicles transporting Dangerous Goods would only make up a very small portion of the total vehicle movements. The transportation screening thresholds for the movement of Dangerous Goods (both incoming and outgoing) are listed in Table 3.3. The SEPP 33 threshold only applies to

movements greater than 2 tonne. SEPP 33 provides a single threshold for all movements of Class 8 Dangerous Goods. It does not differentiate between Packing Groups.

Table 3.3 Vehicle movements of Dangerous Goods

Chemical	Monthly movements	Annual threshold	Peak weekly threshold
Sodium Hypochlorite	1	500	30
Sodium Hydroxide	5		

As the total weekly movements of Class 8 Dangerous Goods would be below the peak weekly and the annual threshold, it is concluded that the transport of Dangerous Goods is not potentially hazardous and therefore does not require a route evaluation.

3.4 Summary of the risk screening results

According to SEPP 33, if any of the screening thresholds are exceeded then the proposed development (the proposal) should be considered a 'potentially hazardous industry' or a 'potentially offensive industry' and a PHA is required.

The results of the Dangerous Goods storage and transport screening indicate that the proposal would not result in any of the thresholds being exceeded. As a result, the proposal is not considered to be a 'potentially hazardous industry' and a PHA is not required.

However, to demonstrate that potential hazards have been identified and control measures are in place, a hazard identification process has been completed, as outlined in Chapter 4.

4. Hazard identification and management

Following the SEPP33 Preliminary Risk Screening process, a range of possible hazard scenarios were developed based on information provided by SITA. This was conducted as a desktop exercise on 3 September and 9 September 2014 by GHD Risk Consultant, Mat Collin, GHD Senior Environmental Engineer, Anna Montgomery and GHD Waste Management Service Line Lead, David Gamble.

The results of the hazard identification are provided in Appendix A. The hazard identification study did not identify any hazards with the potential for significant offsite impact that would not be suitably controlled. Adequate safeguards (outlined in Appendix A) are required to ensure the risk scenarios that were identified are contained or at least controlled to an acceptable level.

The LHRRP handles a variety of bio-organic matter that has the potential to cause illnesses that could temporarily or permanently affect a workers health or even lead to death. Hazards with the potential to cause these illnesses have been identified in Appendix A.

Potential discharges that may become offensive (as per SEPP 33) have also been identified in the hazard identification, for example, leachate, bio-aerosols, dust and landfill gas. It is considered that the quantity of such emissions will be minimal and that sufficient safeguards will be in place to minimise such emissions, including compliance with relevant licence requirements, and therefore the proposal is not deemed potentially offensive.

5. Mitigation

5.1 Identified hazards

The hazard identification study identified a number of safeguards that would be required to ensure the identified risk scenarios are contained or at least controlled to an acceptable level. The safeguards that would be implemented are provided in Appendix A.

5.2 Dangerous Goods management

The only Dangerous Goods identified during the screening process are diesel, sodium hypochlorite and sodium hydroxide. These chemicals would be transported to site and stored in accordance with the Commonwealth Government (2014) 'Australian Code for the Transport of Dangerous Goods by Road and Rail' (known as the Australian Dangerous Goods Code).

Appropriate safe work procedures would also be implemented in line with SITA's existing procedures for the safe handling of the Dangerous Goods, including spill prevention and clean up requirements.

Any smaller quantities of Dangerous Goods (aerosols, paints, cleaners etc.) that may be used on site for maintenance purposes would be stored and used in accordance with the Australian Dangerous Goods Code, including appropriate labelling, separation where necessary and disposal.

5.3 SICTA shooting range safety management

Part of the ARRT facility would be located within the existing SICTA boundary and within proximity of operations at the shooting range.

Preliminary discussions with a SICTA representative has indicated that a safety exclusion zone applies within 205 m of the firing point. The pad for the ARRT building is approximately 120 m from the southernmost firing point and the building approximately 130 m away. Vertically, the pad for the ARRT building is approximately 3 m higher than the firing point and so the ARRT building would also penetrate the exclusion zone in the vertical plane.

Should there be a commitment to implement the ARRT facility, a detailed safety study would be undertaken to confirm the safety exclusion zone from SICTA operations and identify the hazard of constructing and operating the ARRT facility in the proposed location. A number of mitigation measures may be necessary including use of increased thickness of building walls (e.g. metal or concrete). Other options may include relocating the southernmost firing point northward or the installation of purpose built protection structures. These and other mitigation options would be detailed in the future safety study. The costs of implementing the mitigation measures would be borne by SITA should the ARRT facility development proceed.

5.4 Emergency preparedness

An emergency management strategy has been developed for the overall LHRRP, which includes the emergency preparedness plan (ERP) and measures to reduce potential for emergency to occur and minimise risk to persons, equipment and buildings if an emergency does occur.

All procedures provided in the ERP have been developed in accordance with Australian Standard AS 3745-2010 "Planning for emergencies in facilities". The objective of the ERP is to equip SITA workers with the knowledge and skills to control and coordinate an emergency until the arrival of attending emergency services.

The Emergency Control Organisation (ECO), which includes a Chief Warden and other Wardens as relevant to the site, must initiate and control an appropriate response to emergency situations. Their primary role is to ensure that life safety takes precedence over asset protection. Training for ECO members on all procedures within the ERP must be conducted in accordance with the requirements of the Emergency Management Procedure. Training must be conducted upon appointment to the relevant position. Re-training must occur when procedures within this Plan are revised.

The ERP contains Action Plans which are designed to assist ECO members to respond to any incident with potential to cause injury to persons or damage to property. These procedures take into consideration such factors as the use and characteristics of the facilities on-site as well as other structures and workplaces, appropriateness and adequacy of physical facilities, organisational structures, human resources and communication systems for all envisaged emergencies.

The ERP would be subject to continuous review and update.

A comprehensive list of prevention, mitigation and rectification strategies to manage emergency preparedness have been identified and they are detailed in the LHRRP OEMP (SITA Australia 2015a), ARRT Facility (SITA Australia 2015b) and GO Facility OEMP (SITA Australia 2015c). The identified mitigation and rectification measures would be implemented as required and their exact details would be based on a case by case situation depending on the issue and technical solutions available at the time.

The features of the emergency management strategy are detailed in the LHRRP OEMP (SITA Australia 2015a). Examples of key strategies that are included in the OEMPs are provided in the sections below.

5.4.1 LHRRP

- Updating the existing ERP
- Training of staff
- Regular drills to ensure understanding of the ERP
- Provision of first aid treatment posts, which are equipped and maintained, and at all times, at least one staff member trained and certified in first aid to be on site

5.4.2 GO facility and ARRT facility

- Provision of adequate resources including staffing, fire-fighting equipment, first aid equipment and personal protective equipment
- Training and retraining of staff so that a high level of preparedness is maintained by all people who may be involved in an emergency
- Periodic review and update of the emergency procedures for the site
- Reporting incidents to relevant authorities
- Notification of community members who may be affected by the incident

6. Conclusions and recommendations

A preliminary risk screening of the proposal in accordance with the requirements of SEPP 33 was undertaken. The results indicate that the screening thresholds for Dangerous Goods storage and transportation are not exceeded. As a result, the proposal is not deemed a 'potentially hazardous industry' or a 'potentially offensive industry'. Therefore there is no requirement for a preliminary hazard analysis.

While a PHA is not required, a qualitative hazard identification study was completed as a systematic way to identify any potential offsite impacts. The hazard identification study did not identify any hazards with the potential for significant offsite impact that would not be suitably controlled. Adequate safeguards, such as those proposed in the hazard identification, are required to ensure the risk scenarios that were identified are controlled to an acceptable level.

New equipment should have procedures developed for their safe operation. This is particularly important for the handling of Dangerous Goods.

Meets identified objectives

This report addresses the SEARs requirements (section 1.6) and concludes that the proposal would meet the following objectives as identified in section 1.2:

- No significant impact on the community or environment
- No hazards with potential for significant offsite impact that would not be suitably controlled
- Risks are controlled to an acceptable level.

7. References

Commonwealth Government 2014, *Australian Code for the Transport of Dangerous Goods by Road and Rail*, 7th Edition, Volume 2, Technical Appendices, 2007

Department of Planning 2011a, *Applying SEPP 33: Hazardous and Offensive Development Application Guidelines*, NSW

Department of Planning 2011b, *Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Safety Planning*, NSW

Department of Planning 2011c*, Hazardous Industry Planning Advisory Paper No 6 – Guidelines for Hazard Analysis*, NSW

Department of Planning 2011d*, Multi-Level Risk Assessment*, NSW

Commonwealth Government 2014, *Australian Code for the Transport of Dangerous Goods by Road and Rail*

Standards Australia 2012, *Routine Service of Fire Protection Systems and Equipment*, AS1851-2012, Standards Australia, NSW

8. Limitations

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Appendices

Appendix A – Hazard Identification

Advanced Resource Recovery Technology facility

Hazard Scenario	Causes	Consequences	Identified / recommended safeguards
Exposure to dust	• Dust generated during the initial delivery • Dust generated during sorting of raw waste • Dust generated during mechanical handling of waste	• Health risk	• Use of mist spray • Machinery operator to keep cabin door closed, air conditioned cabin • Other workers on site to avoid standing close and/or to use respiratory protection • Floor cleaning • Dust control procedure
Release of bio-aerosols	• Moving or turning raw or actively composting material	• Health risk	• Machinery operator to keep cabin door closed. • Other workers on site to avoid standing close and/or to use respiratory protection
Contact with incoming bio-hazardous material	• Incoming material contains bio-hazardous material (contains miscellaneous infectious material from animal faeces, used tissues, spoiled food, etc.)	• Health risk	• Negative air pressure ventilation system • Additional air extraction at sorting cabin • Staff to wear full overalls, boots, disposable and puncture resistant gloves and respiratory protection as required • Staff to wash hands frequently during course of the day
Contact with hazardous incoming material	• Incoming material contains hazardous material (contains batteries, asbestos, chemicals, gas bottles etc.)	• Health Risk • Contaminated product	• Negative air pressure ventilation system • Additional air extraction at sorting cabin • Staff to wear full overalls, boots, disposable and puncture resistant gloves and respiratory protection as required • Hazardous household items sent to the existing resource recovery centre
Handling of finished compost if skin is injured, irritated or infected	• Contact with bio-hazardous material	• Health risk	• Staff to wear full overalls, boots, disposable and puncture resistant gloves and respiratory protection as required
Ponding of stagnant water	• Release of aerosols from stagnant water	• Health risk	• Site to be adequately drained so water is not able to accumulate and become stagnant.

Hazard Scenario	Causes	Consequences	Identified / recommended safeguards
Vehicle interactions	• Vehicle/loader movements in vicinity of personnel	• Personal injury	• Traffic management plan including standard traffic rules, signage etc. • Site speed limits to be imposed and monitored • Site layout to minimise vehicle reversing • Designated pedestrian areas • Driver competency • Workplace Health and Safety plan • Safe Work Method Statements (SWMS) • Machine inductions/licensing • Reversing alarms • Fixed mirrors • High visibility PPE
Natural hazards	• Flooding, earthquake, lightning	• Personal injury • Possible fire	• Buildings designed to appropriate codes • Housekeeping standards • Site drainage • Flood study completed for building levels
Warehouse / storage fire	• Nearby bushfire • Diesel fire • Arson • Electrical fault • Incompatible materials	• Asset damage • Personal injury	• Any diesel storage tanks will be purpose designed above ground • Fire protection systems • Housekeeping standards • Fire break surrounding site • Inspection and maintenance regime
Fire in composting hall	• Spontaneous combustion	• Asset damage • Personal injury	• Control over aeration of material • Moisture management • Temperature monitoring • Fire protection systems
Loss of containment of diesel	• Damage to tank (external impact) • Corrosion • Wear & tear • Misalignment of valves and connections during filling	• Environmental damage • Personal injury	• Any diesel storage tanks will be purpose designed above ground • Self bunded purpose designed storage tank • Inspection and maintenance regime • Procedure for filling diesel tank • Housekeeping standards

Hazard Scenario	Causes	Consequences	Identified / recommended safeguards
Entanglement	• Caught in rotating or moving equipment	• Personal injury / fatality	• Isolation procedures • Guarding • Interlocks • Emergency stop system
Fall from heights	• Working at height, working adjacent to drops	• Personal injury / fatality	• Working at heights procedures • Working at heights training • Fall prevention equipment • Guarding • Signage
Contact with electricity	• Contact with live electrical source	• Personal injury / fatality	• Isolation procedures • Fit for purpose electrical systems • Qualified electricians
Struck by flying/falling object	• Incorrect use of processing equipment • Dropped object from height • Material falls from belt with no bin in place	• Personal injury / fatality	• Inspection and maintenance of equipment • Procedure for use of equipment
Crushed	• Travelling compost turning equipment	• Personal injury / fatality	• Exclusion zones • Sensors
Manual handling	• Poor sorting cabin ergonomics	• Personal injury	• Rotation of job roles • Use of specialist equipment suppliers
Slips, trips, falls, collisions, egress	• Poor design	• Personal injury / fatality	• Building to use Australian Standards • Building Code of Australia compliant
Gas accumulation or release	• Decomposition of organics	• Fire / explosion / asphyxiation	• Ongoing gas monitoring at facility •
Exposure to radiation	• Incident at neighbouring ANSTO site	• Personal injury / fatality	• Evacuation plan • Consultation with ANSTO during design
Exposure to live firing from SICTA operations	• Gun club operations in proximity to the ARRT facility construction and or operation	• Personal injury / fatality	• Detailed safety study to be conducted prior to development to inform mitigation measures to be adopted.

Garden Organics facility

Hazard Scenario	Causes	Consequences	Identified / recommended safeguards
Exposure to dust	• Dust generated during handling of organic material	• Health risk	• Use of water to wet down dust generating material • Machinery operator to keep cabin door closed • Other workers on site to avoid standing close and/or to use respiratory protection • Floor cleaning • Dust control procedure
Release of bio-aerosols	• Moving or turning raw or actively composting material	• Health risk	• Machinery operator to keep cabin door closed, air conditioned cabin. • Other workers on site to avoid standing close and/or to use respiratory protection
Contact with incoming hazardous or bio-hazardous material	• Incoming material contains bio-hazardous material (contains miscellaneous infectious material from animal faeces, used tissues, spoiled food, etc.) • Incoming material contains hazardous material (contains batteries, asbestos, chemicals, gas bottles etc.)	• Health risk • Contaminated product	• Outdoor area has good ventilation • Staff to wear full overalls, boots, disposable and puncture resistant gloves and respiratory protection as required • Staff to wash hands frequently during course of the day • Hazardous household items sent to the existing resource recovery centre
Handling of finished compost if skin is injured, irritated or infected	• Contact with bio-hazardous material	• Health risk	• Staff to wear full overalls, boots, disposable and puncture resistant gloves and respiratory protection as required
Ponding of stagnant water	• Release of aerosols from stagnant water	• Health risk	• Site to be adequately drained so water is not able to accumulate and become stagnant.

Hazard Scenario	Causes	Consequences	Identified / recommended safeguards
Vehicle interactions	• Vehicle/loader movements in vicinity of personnel	• Personal injury	• Traffic management plan including standard traffic rules, signage etc. • Site speed limits to be imposed and monitored • Site layout to minimise vehicle reversing • Designated pedestrian areas • Driver competency • Workplace Health and Safety plan • Safe Work Method Statements (SWMS) • Machine inductions/licensing • Reversing alarms • Fixed mirrors • High visibility PPE
Natural hazards	• Flooding, earthquake, lightning	• Personal injury • Possible fire	• Buildings designed to appropriate codes • Housekeeping standards • Site drainage • Flood study completed for building levels
Fire	• Nearby bushfire • Diesel fire • Arson • Electrical fault • Incompatible materials	• Asset damage • Personal injury	• Any diesel storage tanks will be purpose designed above ground • Fire protection systems • Housekeeping standards • Fire break surrounding site • Inspection and maintenance regime
Fire in composting area	• Spontaneous combustion	• Asset damage • Personal injury	• Control over aeration of material • Moisture management • Fire protection systems
Loss of containment of diesel	• Damage to tank (external impact) • Corrosion • Wear & tear • Misalignment of valves and connections during filling	• Environmental damage • Personal injury	• Any diesel storage tanks will be purpose designed above ground • Self bunded purpose designed storage tank • Inspection and maintenance regime • Procedure for filling diesel tank • Housekeeping standards

Hazard Scenario	Causes	Consequences	Identified / recommended safeguards
Entanglement	• Caught in rotating or moving equipment	• Personal injury / fatality	• Isolation procedures • Guarding • Interlocks • Emergency stop system
Fall from heights	• Working at height, working adjacent to drops	• Personal injury / fatality	• Working at heights procedures • Working at heights training • Fall prevention equipment • Guarding • Signage
Contact with electricity	• Contact with live electrical source	• Personal injury / fatality	• Isolation procedures • Fit for purpose electrical systems • Qualified electricians
Struck by flying/falling object	• Incorrect use of processing equipment • Dropped object from height	• Personal injury / fatality	• Inspection and maintenance of equipment • Procedure for use of equipment
Manual handling	• Removing foreign objects from organic material • Repairs to equipment	• Personal injury	• Rotation of job roles • Use of specialist equipment suppliers
Slips, trips, falls, collisions, egress	• Poor design	• Personal injury / fatality	• Formed surface • Water management – adequate and rapid drainage
Gas release	• Decomposition of organics	• Fire / explosion / asphyxiation	• Ongoing gas monitoring at any buildings • Outdoor area will not have accumulation
Exposure to radiation	• Incident at neighbouring ANSTO site	• Personal injury / fatality	• Evacuation plan • Consultation with ANSTO during design
Engulfment	• Windrow collapse	• Personal injury / fatality	• Maximum size, shape and gradient of windrow to be specified
Leachate outbreak	• Rainfall	• Environmental damage	• Maintain leachate and stormwater collection systems

Landfill

Hazard Scenario	Causes	Consequences	Identified / recommended safeguards
Exposure to dust	• Dust generated during handling of material • Vehicle movements on unsealed surfaces	• Health risk	• Use of water to wet down dust generating material • Machinery operator to keep cabin door closed • Other workers on site to avoid standing close and/or to use respiratory protection • Dust control procedure
Release of bio-aerosols	• Moving of waste	• Health risk	• Machinery operator to keep cabin door closed, air conditioned cabin. • Other workers on site to avoid standing close and/or to use respiratory protection
Contact with incoming bio-hazardous material	• Incoming material contains bio-hazardous material (contains miscellaneous infectious material from animal faeces, used tissues, spoiled food, etc.)	• Health risk	• Outdoor area has good ventilation • Staff to wear full overalls, boots, disposable and puncture resistant gloves and respiratory protection as required • Staff to wash hands frequently during course of the day
Contact with hazardous incoming material	• Incoming material contains hazardous material (contains batteries, asbestos, chemicals, gas bottles etc.)	• Health Risk • Contaminated product	• Outdoor area has good ventilation • Staff to wear full overalls, boots, disposable and puncture resistant gloves and respiratory protection as required • Incoming waste monitoring procedures • Hazardous household items sent to the existing resource recovery centre
Contact with hazardous material	• Scraping off existing cap	• Health risk	• Staff to wear full overalls, boots, disposable and puncture resistant gloves and respiratory protection as required
Ponding of stagnant water	• Release of aerosols from stagnant water	• Health risk	• Site to be adequately drained so water is not able to accumulate and become stagnant.

Hazard Scenario	Causes	Consequences	Identified / recommended safeguards
Vehicle interactions	• Vehicle/loader movements in vicinity of personnel	• Personal injury	• Traffic management plan including standard traffic rules, signage etc. • Site speed limits to be imposed and monitored • Site layout to minimise vehicle reversing • Designated pedestrian areas • Driver competency • Workplace Health and Safety plan • Safe Work Method Statements (SWMS) • Machine inductions/licensing • Reversing alarms • Fixed mirrors • High visibility PPE
Natural hazards	• Flooding, earthquake, lightning	• Personal injury • Possible fire	• Buildings designed to appropriate codes • Housekeeping standards • Site drainage • Flood study completed for building levels
Warehouse / storage fire	• Nearby bushfire • Diesel fire • Arson • Electrical fault • Incompatible materials	• Asset damage • Personal injury	• Any diesel storage tanks will be purpose designed above ground • Fire protection systems • Housekeeping standards • Fire break surrounding site • Inspection and maintenance regime
Fire	• Nearby bushfire • Diesel fire • Arson • Electrical fault • Incompatible materials • Fault in gas line between LH1 and LHRRP	• Asset damage • Personal injury	• Any diesel storage tanks will be purpose designed above ground • Fire protection systems • Housekeeping standards • Fire break surrounding site • Inspection and maintenance regime • Emergency preparedness plan and procedures
Fire in landfill	• Spontaneous combustion	• Asset damage • Personal injury	• Soil available for extinguishing fire • Water truck available extinguishing fire • Fire management and emergency response procedures

Hazard Scenario	Causes	Consequences	Identified / recommended safeguards
Loss of containment of diesel	• Damage to tank (external impact) • Corrosion • Wear & tear • Misalignment of valves and connections during filling	• Environmental damage • Personal injury	• Any diesel storage tanks will be purpose designed above ground • Self bunded purpose designed storage tank • Inspection and maintenance regime • Procedure for filling diesel tank • Housekeeping standards
Struck by flying/falling object	• Incorrect use of processing equipment • Dropped object from height	• Personal injury / fatality	• Inspection and maintenance of equipment • Procedure for use of equipment
Crushed	• Landfill compactor (dozer) • Vehicle tipping over	• Personal injury / fatality	• Exclusion zones
Manual handling	• Repairs to equipment	• Personal injury	• Rotation of job roles • Use of specialist equipment suppliers
Slips, trips, falls, collisions, egress	• Poor design • Sharp objects on surface	• Personal injury / fatality	• Formed surface • Water management – adequate and rapid drainage
Landfill gas release, migration or accumulation	• Decomposition of waste • Failure in gas line between LH1 and LHRRP	• Fire / explosion / asphyxiation	• Landfill gas extraction system installed and maintained • Operating procedures • Training of personnel • Gas monitoring (including boundary and buildings) • Physical barrier against gas migration • Landfill gas management plan • Fencing and signage
Exposure to radiation	• Incident at neighbouring ANSTO site	• Personal injury / fatality	• Evacuation plan • Consultation with ANSTO during design
Engulfment	• Tipping face collapse • Poor compaction leads to unstable surface	• Personal injury / fatality	• Operating procedures • Exclusion zones
Leachate outbreak	• Rainfall	• Environmental damage	• Leachate and stormwater collection system • Pump water levels down • Maintain cap /cover
Noise	• Heavy machinery	• Personal injury	• Hearing protection

Post closure (park land)

Hazard Scenario	Causes	Consequences	Identified / recommended safeguards
Leachate outbreak	• Water infiltration to landfill	• Environmental degradation	• Leachate management plan • Maintenance of cap integrity
Slips, trips, falls	• Uncontrolled settlement leads to uneven surfaces	• Personal injury	• Future users of site to accommodate settling
Pipe break	• Uncontrolled settlement	• Environmental degradation	• Future users of site to accommodate settling
Penetration of cap	• Tree Root	• Environmental degradation	• Tree species selection

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