

MAJOR PROJECT ASSESSMENT Whytes Gully Landfill Extension Project Project (MP 11_0094)



Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

April 2013



Cover photos: Overview plan for the Whytes Gully Landfill Extension Project
Inside photo: Whytes Gully Landfill active tipping face
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EXECUTIVE SUMMARY

Wollongong City Council (the Proponent) owns and operates the Whytes Gully Resource Recovery Park (RRP) at Kembla Grange, in the Wollongong local government area (LGA). The Whytes Gully RRP receives all municipal solid waste (putrescible and non-putrescible) generated within the Wollongong LGA for recycling or landfilling. The landfill has operated since 1984 and based on current trends, is expected to reach its approved capacity by the end of 2013.

The Proponent is seeking project approval for an expansion to landfill operations at the RRP (the Whytes Gully Landfill Extension Project) which proposes to create approximately 6 million m³ of additional landfill capacity, thereby extending the lifespan of the existing landfill to 2054.

The Project would generate 12 full-time equivalent construction jobs (during capping and liner construction) and 10 full-time equivalent jobs during operation. The Project also has a capital investment value (CIV) of around \$80 million.

The Project constitutes a transitional 'Major Project' under Part 3A of the *Environmental Planning and Assessment Act 1979*, as it involves development for the purpose of a resource recovery or waste facility with a capacity to receive more than 75,000 tonnes per year of putrescible waste, and requires the Minister's (or delegates) approval. As the Director-General's environmental assessment requirements (DGRs) were issued in respect of this Project prior to 1 October 2011, the Project is a transitional Part 3A Project.

The Department exhibited the Environmental Assessment for the proposal from 6 August 2012 until 7 September 2012 and received seven (7) submissions, including six (6) from public authorities and one (1) public submission. All agencies generally supported the Project in principle and provided recommended conditions for inclusion in the project approval. One community submission objected to the Project based on potential impacts on surrounding businesses and environmental impacts.

Key issues raised in submissions related to potential noise impacts on two nearby private properties, stormwater and flood management, the capacity and effectiveness of the proposed leachate management system, groundwater and surface water interactions, dust impacts, biodiversity offsets and groundwater dependent ecosystems.

To address the issues raised in submissions, the Proponent prepared a Preferred Project Report (PPR) which was submitted with the Department in December 2012. The PPR sought to address all of the issues raised in submissions, particularly in relation to potential noise impacts on private properties. As part of the PPR, the Proponent proposed to split Stage 4-2 into 2 stages (Stage 4-2A and Stage 4-2B) and exclude the use of Stage 4-2B (where worst-case noise impacts are predicted) as part of landfilling operations. Due to unacceptable noise impacts on one residence, the Department is not considering Stage 4-2B as part of this project. Any future use of Stage 4-2B would be the subject of a separate application and assessment process.

The Department is satisfied that the impacts of the proposal as presented in the PPR are acceptable and can be adequately mitigated and managed. The Proposal represents a logical continuation of landfilling operations at an existing landfill site and the proposed landfilling rates would be consistent with historical landfilling rates undertaken at the site. In addition, the projected resource recovery rate for the Wollongong LGA in 2014 is 66 per cent, which would meet the *NSW Waste Avoidance and Resource Recovery Strategy (WARR)* target for municipal solid waste. The Department also considers that the Project is consistent with Clause 123 of *State Environmental Planning Policy (Infrastructure) 2007*.

The Department is therefore satisfied that the applied landfilling rate is comparable to demand in the LGA and that the Proponent is committed to maximising resource recovery from waste such that they are in line with the NSW Government's current targets. Finally, the Department is satisfied that the provision of future resource recovery infrastructure embedded in Wollongong City Council's adopted Waste Strategy is likely to further improve resource recovery rates in the LGA.

On balance, the Department believes that the benefits of the proposal sufficiently outweigh its costs and that it is therefore in the public interest and should be approved, subject to conditions.

1 BACKGROUND

1.1 Introduction

Wollongong City Council (the Proponent) proposes to extend the life of the existing landfill at the Whytes Gully Resource Recovery Park (RRP) at Kembla Grange. The Whytes Gully RRP is located approximately 80 kilometres (km) south of Sydney in the Wollongong local government area (LGA) (see Figure 1).

In August 2011, the Proponent submitted a Part 3A Major Project Application with the Department to create approximately 6 million m³ of additional landfill capacity. The increased capacity is proposed to be achieved through the construction of a new landfill cell adjacent to the existing waste footprint and the staged filling of the new cell by overfilling (i.e. piggy backing) the existing landfill operations.

The Environmental Assessment (EA) was prepared by Golder Associates (Golder), and was exhibited from Monday 6 August 2012 to Friday 7 September 2012.

A number of issues were raised in submissions during the exhibition period, particularly in relation to potential noise impacts on two nearby private properties. To address the issues raised in submissions, the Proponent prepared a Preferred Project Report (PPR) which was submitted with the Department in December 2012. The PPR sought to address all of the issues raised in submissions, particularly in relation to potential noise impacts on private properties. As part of the PPR, the Proponent proposed to split Stage 4-2 into 2 stages (Stage 4-2A and Stage 4-2B) and exclude the use of Stage 4-2B (where worst-case noise impacts are predicted) as part of landfilling operations. Due to unacceptable noise impacts on one residence, the Department is not considering Stage 4-2B as part of this project. Any future use of Stage 4-2B would be the subject of a separate application and assessment process.

The PPR represents the Proponent's final position in respect of the proposal and this report assesses the proposal as put forward in the PPR.

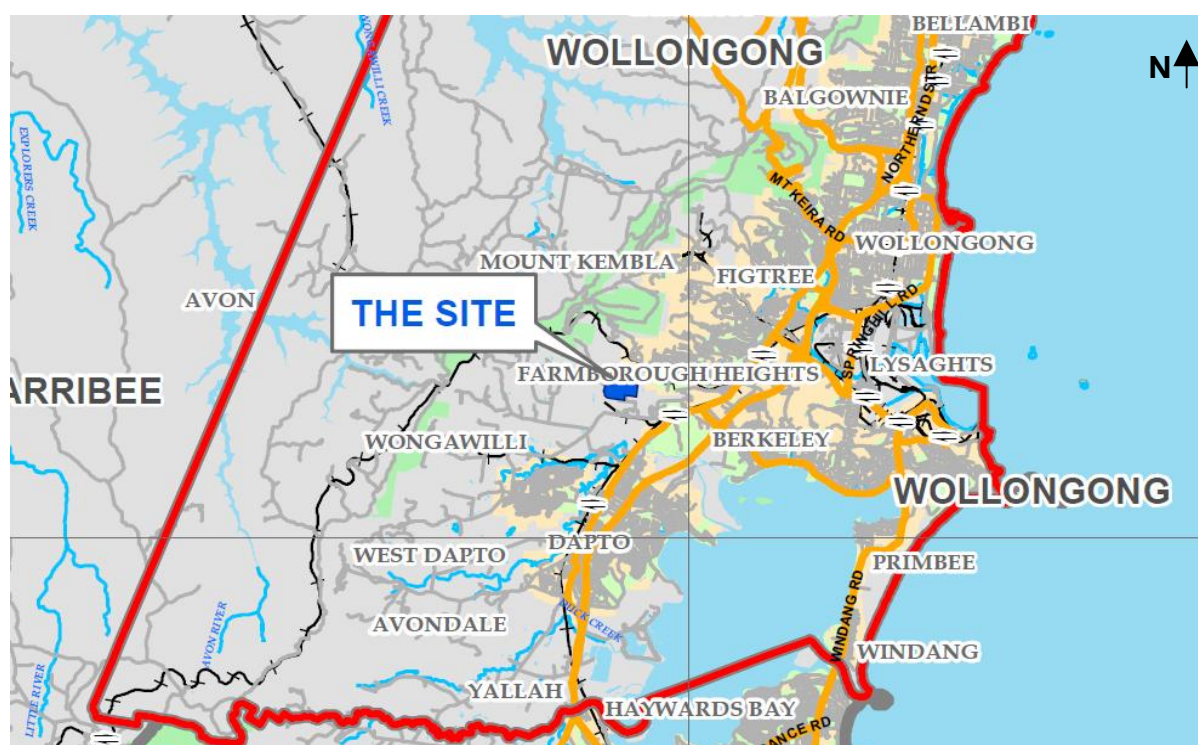


Figure 1: Regional Context – Whytes Gully RRP

1.2 Whytes Gully Resource Recovery Park

T owns and operates the Whytes Gully RRP which is located off Reddalls Road, Kembla Grange in the Wollongong LGA (see Figure 1).

The Whytes Gully RRP is located approximately 10 km to the south west of the Wollongong central business district (CBD) and is approximately 65 hectares (ha) in size (see Figure 1).

The major components of the existing Whytes Gully RRP are described below and outlined in Figure 2 and include:

- the Whytes Gully Landfill;
- a Materials Recycling Facility (MRF);
- a Green Waste Processing Area;
- small vehicle waste transfer station;
- a recyclables and waste oil drop off and buy-back area/s;
- leachate and stormwater treatment ponds;
- a leachate treatment plant (LTP); and
- weighbridge and site entrance.

Waste accepted at the Whytes Gully RRP includes putrescible and non-putrescible general solid waste (GSW) that originates from domestic waste collection and commercial waste drop off, as well as waste dropped off directly to the site by private customers.

Waste accepted at the site is processed at one or more of the existing resource recovery facilities/areas (e.g. MRF or waste transfer station) within the Whytes Gully RRP, before residual waste is sent to the Whytes Gully Landfill for final disposal.

Whytes Gully Landfill

The Whytes Gully landfill was originally granted consent in 1982 and is comprised of two main components, the Western and Eastern gully. Landfilling activities commenced in the Western Gully (an unlined landfill) in 1984 and was completed in 1993. All current landfilling activities take place in the Eastern Gully which commenced landfilling in 1993, is lined and is expected to reach its approved capacity by the end of 2013.

Waste accepted at the Whytes Gully Landfill includes putrescible and non-putrescible GSW, although non-putrescible waste (i.e. construction and demolition) does not form a large component of the waste received (approximately 3.4% in 2010/11).



Figure 2: Local Context – Whytes Gully Landfill within the Whytes Gully RRP

1.3 Site Description and Surrounding Landuse

The site is separated by a north-south trending ridgeline defining two distinct gullies known as the western and eastern gullies where landfilling has previously (Western Gully) and is currently (Eastern Gully) occurring. The site rises from RL 15m in the south-west to RL 100m to the north-east, while a flat area of land to the south accommodates the Whytes Gully RRP and its supporting infrastructure (see Figure 2).

The majority of the site is covered by exotic grassland with patches of scrub and woodland/open forest which is generally in poor condition with weeds in the understorey. However, an area of forest and subtropical rainforest is located on the north-east boundary of the site which is in good condition (see Figure 2). Aquatic habitats across the site are man-made and include three stormwater ponds, five small dams and several other additional water bodies which provide varying habitat for a range of flora and fauna.

The site is generally bounded by Reddalls Road to the south and west, rural residential lands to the north, north-east and a water treatment plant to the south-east. The residential suburb of Farmborough Heights is located to the north-east over a ridgeline, with the closest residents of this suburb approximately 360m from the site.

The two closest residents are located within 100m to the north-east and 200m to the north-west of the Project's boundary (see Figure 2).

1.4 Existing Consents

A number of consents have been issued by the Proponent for development within the Whytes Gully RRP. These are summarised in Table 1.

Table 1: History of Approvals at the Whytes Gully RRP

DA No.	Site Description	DA Description
DA-1982/459	Western Gully (Landfill)	Waste disposal site
DA-1984/228	Western Gully (Landfill)	Construction and operation of a waste disposal depot
DA-1992/662	Eastern Gully (Landfill)	Upgrade of existing Western Gully Landfill and extension into the adjacent Eastern Gully
DA-1994/131	MRF	Construction and operation of a MRF
DA-1996/8256 DA-1996/6256	SWERF	Construction and operation of a SWERF
DA-1996/256	Landfill Gas and infrastructure	Landfill gas infrastructure
DA-1999/533	Site access and road realignment	Deviation of Reddalls Road, Kembla Grange
DA-2002/2240	Leachate and surface water ponds	Construction of new leachate and stormwater treatment ponds
DA-2003/532	Leachate treatment plant (LTP)	Construction and operation of a LTP
DA-2005/1635	MRF	Extension of the MRF
DA-2006/463	Weighbridge and new site entrance	Weighbridge and new site entrance
DA-2010/1088	Small vehicle transfer station	Small vehicle waste transfer station

As part of this application, the existing development consents identified in Table 1 would be surrendered for the Whytes Gully RRP by the Proponent, with the exception of DA-1994/131 and DA-2005/1635 for the Materials Recycling Facility (MRF). The MRF would continue to operate under its existing consents and would not be affected by the Project.

1.5 Environmental Performance and Regulation

Regular Annual Environmental Management Reports (AEMRs) have been prepared for the Whytes Gully Landfill as required by the existing consents for the facility. Generally, these AEMRs confirm good environmental performance for the operations.

Isolated 'one-off' cases of leachate impact to groundwater were recorded in historical monitoring samples taken for the site in 1991 and 1992 from boreholes and temporary wells that were later destroyed during cell development. These were considered likely to have been caused by the old Western Gully landfill being unlined and uncertainties about the current performance of the existing Eastern Gully leachate barrier.

Despite this, recent groundwater monitoring results from the current monitoring well network, as well as data available from the Proponent since 1996, indicates very limited evidence of leachate impacting groundwater at the site.

Complaints received during the latest AEMR reporting period were predominantly related to odour, the source of which is thought to be from the on-site kerbside collected green waste processing facility. It is noted that as of March 2012, this facility has been relocated off-site to an indoor building at an alternate location.

The Whytes Gully Landfill also operates under an Environmental Protection License (EPL - No. 5862) issued by the NSW Environment Protection Authority (EPA). The Department notes general compliance with the EPL, with the exception of a number of minor incidents which occurred in 1999, 2000, 2007 and 2008.

1.6 Project Need

The Wollongong LGA includes two landfills owned and operated by the Proponent, a small non-putrescible landfill at Helensburgh and the existing putrescible and non-putrescible landfill at the Whytes Gully RRP.

The Helensburgh landfill has limited capacity and accepts dry domestic waste, builders waste and garden organics only. The Eastern Gully of the Whytes Gully landfill is expected to reach its approved capacity by the end of 2013.

No other sites within the Wollongong LGA are available to accept the Municipal Solid Waste (MSW). Therefore, as no known alternative waste technology (AWT) can currently achieve a 100% diversion rate of resource recovery, there is a critical need for the Proponent to secure adequate future landfill capacity for disposal of residual MSW within the Wollongong LGA.

2 PROPOSED PROJECT

2.1 Project Description

The Project is known as the Whytes Gully Landfill Extension Project (the Project).

The major components of the Project are summarised in Table 2, and depicted in Figures 3 & 4. The Project is described in full in Golder Associates' Environmental Assessment (EA) (Appendix E) and the Response to Submissions/Preferred Project Report (Appendix D).

Table 2: Main Project Components

Aspect	Description
Project Summary	<ul style="list-style-type: none"> The creation of approximately 6 million m³ of additional landfill capacity through the construction of a new landfill cell adjacent to the existing waste footprint and staged filling of the new cell by overfilling (i.e. piggy backing) the existing landfill operations.
Landfill Capacity	<ul style="list-style-type: none"> 6 million m³ of additional landfill capacity from 2013 until 2054; and maximum annual waste input rate of 180,000 tonnes per annum (tpa).
Supporting Infrastructure	<ul style="list-style-type: none"> surface water dams and ponds; leachate ponds and landfill gas extraction system; and construction of temporary and permanent internal landfill access roads.
Staging	<ul style="list-style-type: none"> construction and filling of the new landfill cell would be staged in seven stages (1, 2A, 2B, 3, 4-1, 4-2A and 4-2B – see Figure 5 and detail in section 2.2).
Rehabilitation	<ul style="list-style-type: none"> progressive rehabilitation and revegetation of the landfill site.
Hours of Operation	<ul style="list-style-type: none"> Monday to Friday – 7.30am to 4.30pm; and Saturday, Sunday and Public Holidays – 8.00am to 4.00pm.
Capital Investment Value	<ul style="list-style-type: none"> \$80 million.
Employment	<ul style="list-style-type: none"> 12 full-time equivalent during construction (capping and liner construction); and 10 full-time equivalent during operation.
Construction	<ul style="list-style-type: none"> construction of the new landfill cell, surface water dams and ponds, leachate ponds, gas extraction system and internal roads.
Demolition	<ul style="list-style-type: none"> existing infrastructure would be progressively demolished in stages as the new landfill cell is constructed.

A summary of the approved operations at the Whytes Gully Landfill and changes being sought by the Proponent as part of the Project is provided in Table 3.

Table 3: Existing approved versus proposed operations at the Whytes Gully Landfill

Aspect	Existing Approved Operations	Proposed Operations
Maximum Throughput	<ul style="list-style-type: none"> Up to 180,000 tpa of General Solid Waste (putrescible and non-putrescible)*. 	<ul style="list-style-type: none"> no change
Hours of Operation	<ul style="list-style-type: none"> Monday to Friday – 7.30am to 4.30pm; and Saturday, Sunday and Public Holidays – 8.00am to 4.00pm. 	<ul style="list-style-type: none"> no change
Physical Works	As per existing consent/s	<ul style="list-style-type: none"> landfill cell construction, operation and progressive rehabilitation and revegetation; construction of surface water ponds and drains; construction of leachate ponds and landfill gas extraction system; demolition of existing amenities building; and construction of temporary and permanent landfill access roads.
Equipment	Excavator/s, loader/s, bulldozer/s, dump truck/s, roller/s, water truck/s, truck and dog).	No change.
Landfill Footprint	20 ha.	35 ha.
Site Boundary	65 ha.	No change.
Employment	10.	No change.

* throughput based on highest tonnage received at the landfill in the last 5 years (i.e. at 2007)

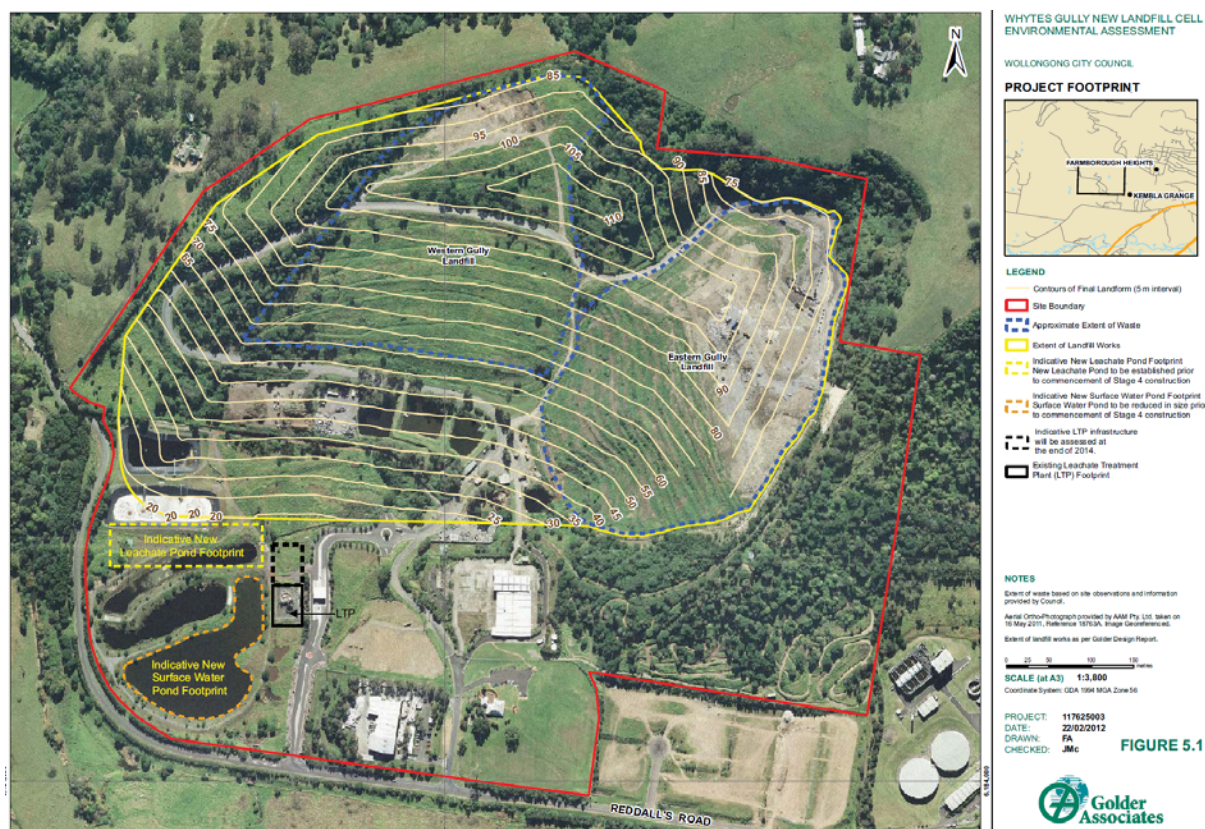


Figure 3: Overview Plan of the Project

2.2 Project Staging and Volumes

It is anticipated that the Project would be constructed, capped and operated in six key stages, as outlined in Table 4 and depicted in Figure 4.

Table 4: Project volumes, liner and capping construction and operations staging periods

Stage	Area (m ²)	Life of Cell (years)	Liner Construction Period	Capping Construction Period	Operational Period
1	82,000	4.4	2013 - 2016	2016 - 2019	2013 - 2018
2A	22,500	2.4	2017 - 2018	2020 - 2021	2018 - 2020
2B	81,200	15.2	2019 - 2031	2023 - 2036	2020 - 2035
3	67,200	11.3	2035 - 2041	2038 - 2047	2035 - 2046
4-1	27,000	1.1	2046	2048	2046 - 2048
4-2A	9,000	2.1	2047	2051	2048 - 2050
4-2B*	33,000	4.0	2049	2054-2055	2050 - 2054

*Stage 4-2B would not be approved as part of this Project (see 'Noise and Vibration' in Section 5.2 of this report)

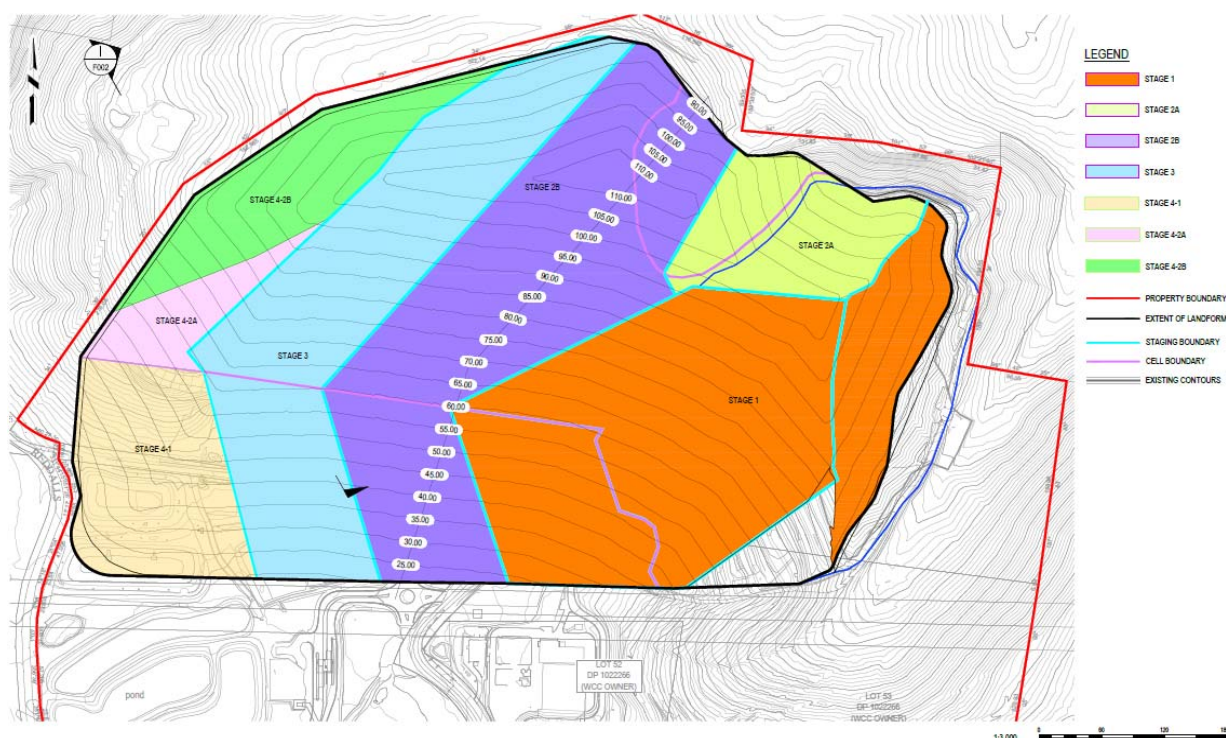


Figure 4: Revised Staging Plan

3 STRATEGIC AND STATUTORY CONTEXT

3.1 Strategic Context

NSW 2021 aims to increase recycling to meet 2014 NSW waste recycling targets in the *NSW Waste Avoidance and Resource Recovery Strategy 2007* (WARR Strategy). The Department has considered the overall need for the proposal, including consideration of resource recovery levels, in Section 5.1, and found that the project is consistent with NSW 2021 and the WARR Strategy.

The Department also considers that the proposal is consistent with the *Illawarra Sub-Regional Strategy 2006-2031*. This strategy incorporates specific regional infrastructure requirements identified in the NSW Infrastructure Strategy to inform infrastructure investment in the region. Waste management is a key consideration of this strategy.

3.2 Major Project

The Project is classified as a Major Project under the now repealed Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act), as it includes development for the purpose of a

resource recovery or waste facility with a capacity to receive more than 75,000 tonnes per year of putrescible waste.

3.3 Continuing Operation of Part 3A

Part 3A of the EP&A Act, as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A to the EP&A Act, continues to apply to transitional Part 3A Projects. Director-General's environmental assessment requirements (DGRs) were issued in respect of this project prior to 1 October 2011 and the project is therefore a transitional Part 3A Project.

Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated regulations, and the Minister (or his delegate) may approve or disapprove of the carrying out of the project under Section 75J of the EP&A Act.

3.4 Approval Authority

The Minister has delegated his functions to determine Part 3A applications to the Executive Director, Development Assessment Systems and Approvals where any one of the following occurs:

- the relevant local council has not made an objection;
- there are less than 25 public submissions objecting to the proposal; and/or
- a political donation disclosure statement has not been made in relation to the application.

There has been 1 objection received from a member of the public and although Wollongong Council's City Planning Division has made a submission, they did not object to the proposal, rather made general comments for consideration in the assessment of the proposal. There has been no political disclosure statement made for this application. No disclosures have been made by the persons who have lodged an objection to this application.

Accordingly the application is able to be determined by the Executive Director, Development Assessment Systems and Approvals in accordance with the Minister's Instrument of Delegation, dated 27 February 2013.

3.5 Other Approvals

Under Section 75U of the EP&A Act, a number of other approvals have been integrated into the Part 3A approval process and are not required to be separately obtained for the project. These include:

- water-related approvals under the *Water Act 1912* and *Water Management Act 2000*.

The Department has consulted with the NSW Office of Water (NOW) and considered the relevant issues relating to water approvals in its assessment of the project including recommended conditions of approval (see Section 5 of this report).

Under Section 75V of the EP&A Act, a number of further approvals are required to be obtained for the project and must be approved in a manner that is consistent with any Part 3A approval for the project. These include:

- a variation to the existing Environmental Protection Licence (EPL) held for the Whytes Gully Landfill under the *Protection of the Environment Operations Act 1997*.

The Department has consulted with the Environment Protection Authority (EPA) and considered the relevant issues relating to the grant of an EPL variation in its assessment of the project application (see Section 5 of this report).

The Proponent has also made a referral to the Department of Sustainability, Environment, Water, Populations and Communities (DSEWPAC) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The project may be deemed a Controlled Action under the EPBC Act and may require separate approval from DSEWPAC.

3.6 Permissibility

The site is zoned as IN2 Light Industrial under the *Wollongong Local Environmental Plan (West Dapto) 2010* (LEP 2010). Waste or Resource Management Facilities are permissible with consent within the IN2 Light Industrial zone.

In addition, the proposal is permissible with consent under Division 23 of *State Environmental Planning Policy (Infrastructure) 2007* (the Infrastructure SEPP), as a waste or resource management facility that is located within an equivalent or prescribed zone.

3.7 Exhibition and Notification

Under Section 75(3) of the EP&A Act, the Director-General is required to make the Environmental Assessment (EA) of a Project publicly available for at least 30 days.

After accepting the EA for the Project, the Department:

- made it publicly available from Monday 6 August 2012 until Friday 7 September 2012;
 - on the Department's website;
 - at the Department's Head Office Information Centre in Sydney;
 - at the Department's Regional Office in Wollongong;
 - at the Nature Conservation Council's Head Office in Sydney; and
 - at Wollongong City Council's administrative building;
- notified landowners in the vicinity of the site about the exhibition period by letter;
- notified relevant State government authorities and Wollongong City Council's City Planning Division by letter; and
- placed the exhibition notice in the Illawarra Mercury.

This satisfies the requirements in Section 75H (3) of the EP&A Act.

During the assessment process, the Department also made a number of documents available for download on the Department's website. These documents included the:

- Project application;
- Director-General's environmental assessment requirements;
- EA;
- submissions received; and
- Response to Submissions/Preferred Project Report.

3.8 Environmental Planning Instruments

Section 75I of the EP&A Act requires the Director-General's report to include a copy of or reference to environmental planning instruments that substantially govern the carrying out of the projects. Those instruments are:

- *State Environmental Planning Policy (Major Development) 2005* (MD SEPP);
- *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP);
- *State Environmental Planning Policy No. 33- Hazardous and Offensive Development* (SEPP 33);
- *State Environmental Planning Policy No. 44 - Koala Habitat* (SEPP 44);
- *State Environmental Planning Policy No. 55 - Remediation of Land* (SEPP 55); and
- *Wollongong Local Environmental Plan (West Dapto) 2010* (West Dapto LEP).

The Department has assessed the projects against these instruments and is satisfied that:

- the project represents a Major Project as defined by the MD SEPP (see Section 3.1);
- there is an assessment of the proposal against the matters for consideration in Clause 123 of the Infrastructure SEPP in Section 2.1.3 of the EA and Section 5.1 of this report, which concludes that it is consistent with the ISEPP;
- that the proposal is not potentially hazardous or offensive and that it is generally consistent with the aims, objectives and requirements of SEPP 33;
- that based on the assessment, none of the vegetation in the Whytes Gully RRP is classified as 'core koala habitat' under SEPP 44;
- that based on the assessment, the land is suitable for the proposed use and is not contaminated in a manner that requires remediation under SEPP 55; and
- the proposal satisfies the relevant provisions of West Dapto LEP.

Section 2.1.3 of the EA also includes an assessment of the proposal against relevant environmental planning instruments. A copy of all of these instruments is included as Appendix B.

3.9 Objects of the *Environmental Planning and Assessment Act 1979*

In determining the application, the Minister should consider whether the Project is consistent with the relevant objects of the EP&A Act.

The Department has fully considered the objects of the EP&A Act, including the encouragement of Ecologically Sustainable Development (ESD), in its assessment of the application. The Department considers that objects (ii), (iv), (vi) and (vii) are relevant to the merit assessment of this application.

The Department considers that the project represents the orderly and economic use of the land (i.e. a 'piggy back' landfill design at an existing and suitably zoned landfill site) for the social and economic welfare of the regional community.

In particular, the project responds to the critical need to ensure Wollongong's landfill capacity for disposal of municipal waste is secured for the future. Further, the Department considers that through an emphasis on avoidance of impacts, careful design, management and mitigation measures, the Project would not adversely impact on any important ecological areas, threatened ecological species or communities and is consistent with the principles of ESD.

4 ISSUES RAISED IN SUBMISSIONS

During the exhibition period, the Department received a total of seven (7) submissions on the Project:

- Six (6) from public authorities; and
- One (1) from a member of the general public.

A summary of the issues raised in submissions is provided below. A full copy of these submissions is attached in Appendix C.

4.1 Public Authorities

The **EPA** did not object to the project, but requested some clarification regarding the Proponent's air quality (dust) assessment and raised some concern regarding the predicted noise levels at nearby sensitive receivers (N1 and N2). The EPA also recommended a number of conditions of approval for odour, dust, noise and leachate (liner specification) management.

Wollongong Council City Planning Division (Council's City Planning Division) did not object to the project, but requested that the project be considered against relevant provisions of the West Dapto LEP and the *Wollongong Development Control Plan 2009*. Council's City Planning Division also raised issues of concern in relation to the adequacy of stormwater drainage infrastructure and existing and potential water quality impacts.

NOW did not object to the project, but requested that the Proponent undertake a combined surface and groundwater monitoring program (prior to determination) to gain an understanding of surface and groundwater interaction and the potential impacts on the downstream environment including Dapto Creek and groundwater dependent ecosystems.

The **Office of Environment and Heritage (OEH)** did not object to the project, however requested additional information regarding vegetation offsets and potential flooding impacts.

RMS did not object to the project, subject to the upgrade of the intersection of West Dapto Road and the Princes Highway to traffic lights, prior to the receipt of more than 180,000 tonnes a year of waste at the Whytes Gully RRP in any calendar year.

Sydney Water did not object to the project, but requested the Proponent take precautions to ensure Sydney Water infrastructure is not affected by the project (e.g. from contaminated groundwater).

4.2 General Public

One (1) submission from a member of the general public, the owner of two nearby vehicle storage and processing facilities on Reddalls Road, objected to the project. The submission raised a number of concerns, in particular:

- the potential for increased dust settling on vehicles and impacts to site operations (e.g. increased need for vehicle cleaning);

- the potential for increased fauna and subsequent impacts to site operations (e.g. increased bird droppings on cars and vehicle maintenance through cleaning);
- the potential impacts of the project on flood behaviour and implications to site operations; and
- the need to ensure the project maintains adequate capacity for disposal of leachate to sewer.

4.3 Response to Submissions / Preferred Project Report

The Proponent lodged a combined Response to Submissions/Preferred Project Report (PPR) in December 2012 (see Appendix D).

The PPR seeks to address all of the issues raised in submissions, in particular potential noise impacts. The PPR sought to address all of the issues raised in submissions, particularly in relation to potential noise impacts on private properties. As part of the PPR, the Proponent proposed to split Stage 4-2 into 2 stages (Stage 4-2A and Stage 4-2B) and exclude the use of Stage 4-2B (where worst-case noise impacts are predicted) as part of landfilling operations. Due to unacceptable noise impacts on one residence, the Department is not considering Stage 4-2B as part of this project (see Section 5.3 of this report). Any future use of Stage 4-2B would be the subject of a separate application and assessment process.

The PPR represents the Proponent's final position in respect of the proposal and this report assesses the proposal as put forward in the PPR.

5 ASSESSMENT

In assessing the merits of the Project, the Department has considered:

- the relevant environmental planning instruments (see Appendix B);
- the EA, submissions and the Proponent's response to those submissions (PPR, see Appendices C to E);
- The Public Review – Landfill Capacity and Demand 2009 (the Wright Review) commissioned by the former Minister for Planning, to assess (among other things) the continuing need for putrescible waste landfill capacity in NSW and estimated take up of Alternative Waste Technology (AWT);
- Waste policy and legislation including (but not limited to);
 - *Waste Avoidance and Resource Recovery WARR Act 2001* (WARR Act);
 - *NSW Waste Avoidance and Resource Recovery Strategy 2007* (the WARR Strategy);
 - *NSW Waste and Environment Levy*; and
 - *Reducing Waste: Implementation Strategy 2011-15*.
- the objects of the EP&A Act, including the object to encourage ecologically sustainable development.

The Department considers the key issues associated with the Project are:

- Waste Management;
- Noise and Vibration; and
- Groundwater and Leachate Management.

The Department's assessment of the key issues is provided below and the Department's assessment of all other issues is provided in Table 7 of this report.

5.1 Waste Management

Issue

Whether or not there is justified demand for the Project and an appropriate level of resource recovery in accordance with the Infrastructure SEPP.

Consideration

Justified Demand

The Department considers that a landfill should only be approved if there is a genuine demand for landfill space.

The proposed annual waste input rate for the project is 180,000 tonnes per annum (tpa).

The NSW Government is committed to resource recovery. This commitment is embedded in various policies and legislation, including the WARR Act and associated Strategy. At the same time, it is acknowledged that at present, and for the foreseeable future, not all waste can be recycled and reused. That is, there is a need for on-going capacity to dispose of residual waste to landfill.

The existing landfill airspace at the Whytes Gully RRP is projected to expire in late 2013 and no further sites within the Wollongong local government area (LGA) are available to accept Municipal Solid Waste (MSW).

Under the *Local Government Act 1993*, the Proponent has a responsibility to collect and dispose of waste from domestic premises within the LGA.

The volume of waste input to the Whytes Gully Landfill has decreased over the last 5 years from 180,000 tpa in 2007 to 125,000 tpa in 2011 due to community education and the Proponent's current resource recovery initiatives and infrastructure at the Whytes Gully RRP (see Table 5). Prior to 2007, weighbridge data indicates that total material accepted at the Whytes Gully RRP was consistently above 180,000 tpa and was 225,080 tpa in 2002.

Table 5: The Proponent's current resource recovery infrastructure at the Whytes Gully RRP

Facility	Description	Waste Receipt
<i>Materials Recycling Facility (MRF)</i>	<ul style="list-style-type: none"> operated by Thiess Services Pty Ltd and owned by the Proponent; and receives comingled recyclables from kerbside collection and the small vehicle drop off area and produces recycled mixed paper, polyethylene, HDPE, mixed plastic, steel, aluminium and glass. 	~ 26,000 tpa
<i>Green Waste Processing Area</i>	<ul style="list-style-type: none"> processes waste kerbside collection and drop-off; green waste is shredded on a regular basis and subsequently exported off-site for reuse; and undertaken under contract by Soilco Pty Ltd (Soilco) under EPL no. 13171. 	~ 29,000 tpa*
<i>Small Vehicle Transfer Station</i>	<ul style="list-style-type: none"> all small vehicles are directed to this area where waste is dropped off, sorted and loaded into bins; and recyclables are removed and residual waste is transported by a hook lift truck to the tipping face. 	~ 2,500 tpa
<i>Recyclables Drop-off and Buy-back</i>	<ul style="list-style-type: none"> customers drop off reusable items, where they are sold back to the public. 	~ 1,000 tpa

*relocated off-site to an alternate indoor facility in 2012

Population growth in the Wollongong LGA is predicted to increase 0.7% a year from June 2011 to June 2036. The EA predicts that material placed in the Whytes Gully Landfill (including daily cover) would increase from 125,000 tpa to 180,000 tpa by 2051 due to population growth and considering anticipated improvements in resource recovery within the LGA, which are generally consistent with the provisions of the WARR Strategy (see 'resource recovery' below). This equates to an annual compound increase in waste to landfill of around 0.9%.

As such, despite the pressures of population growth in Wollongong over the next 25 years, and allowing for expected improvements in resource recovery within the LGA, the applied annual landfilling rate to 2051 is comparable to population growth and equal to and less than historical waste acceptance rates at the Whytes Gully RRP.

Other project alternatives were considered in the EA, in particular, the transport of waste to facilities outside the Wollongong LGA (see Table 6). However, it was determined that these alternatives would result in significant and unnecessary economic, social and environmental costs.

Table 6: Project alternatives considered in the EA

Alternative	Outcome
Do nothing alternative	Significant economic, social and environmental implications for the Wollongong LGA.
Alternatives to landfill	No known resource recovery system can achieve a 100% landfill diversion performance and consequently resource recovery activities still require the disposal of residual material to landfill.
Project Design and Location Alternatives	
Alternate existing landfill sites in Wollongong	No other existing sites in the Wollongong LGA are suitable to accept MSW.
Alternate existing landfill sites outside Wollongong	Significant cost of waste transport outside LGA, increased greenhouse gas emissions and resulting increased traffic impacts.
Alternate new landfill sites in Wollongong	Increased waste footprint in the Wollongong LGA, significant time required for the design, approval and construction of a new landfill and no other supporting resource recovery infrastructure is available.
Alternate landfill design at Whytes Gully	Landfill airspace implications, significant environmental impacts, safety implications and property acquisition requirements.

Based on the above, the Department is satisfied that there are no suitable/viable project alternatives or alternate sites within the Wollongong LGA that are available to accept MSW. Further, the Department is satisfied that the proposed waste input rate of 180,000 tpa is appropriate and comparable to the established demand for landfill space within the Wollongong LGA.

Resource Recovery

Under Clause 123 (1a) of the Infrastructure SEPP, an approval authority for any new landfill is also required to consider whether a Project demonstrates a suitable level of resource recovery of waste so that the amount of waste is minimised before being landfilled.

The Department considers that the matters for consideration in the Infrastructure SEPP are relevant to the current project and in the public interest. The matters are highly relevant to the main objects of the Act and the principles of Ecologically Sustainable Development.

Resource recovery and reduction in waste diversion rates are generally driven by two key mechanisms in NSW including:

- progressively increasing the NSW *Waste and Environment Levy*; and
- the WARR Strategy.

The *NSW Waste and Environment Levy* is a progressively increasing levy imposed on waste operators to make it more expensive to dispose of waste to landfill each year. This provides economic incentive to reduce waste disposal and stimulate Alternative Waste Technology (AWT) development.

The WARR Strategy is the key NSW Government policy driving diversion of waste from landfills, and promoting recycling, increased processing of residual waste and safe disposal of waste to minimise environmental harm. The WARR Strategy sets out the following specific targets for resource recovery by 2014:

- 66% of municipal waste;
- 63% of commercial and industrial waste (C&I); and
- 76% of construction and demolition (C&D) waste.

Given that the C&D, C&I, and green waste (as of March 2012) are stored and processed off-site, the scope for resource recovery at the Whytes Gully RRP is limited to those wastes which can be recovered from the Municipal Solid Waste (MSW) stream.

At the local level, the WARR Strategy is implemented through the Proponent's adopted Waste Strategy '*Wollongong City Council Waste & Resource Recovery Strategy: 2012 to 2022*' (Waste Strategy) which sets out the strategic direction for waste management in the LGA to 2022. Key aims of the Waste Strategy include minimising waste to landfill, maximising recovery of resources and maximising landfill life.

Historical and predicted MSW resource recovery levels at the Whytes Gully RRP indicate an upward trend in resource recovery increasing from 30% in 2007/08 to around 57% in 2011/12.

Some of the Proponent's current resource recovery initiatives/facilities for MSW are detailed in Table 5 above. The Department considers it is evident that the Proponent is focused on promoting resource recovery within the LGA, encouraging source separation through initiatives such as community education programs and the provision of a number of waste recovery facilities such as the MRF and small vehicle waste transfer station within the Whytes Gully RRP.

With these resource recovery initiatives in place and considering additional potential future resource recovery facilities (such as the provision of a new Alternate Waste Technology facility) within the Whytes Gully RRP as identified in the Proponent's adopted Waste Strategy, the Proponent predicts that it would meet the WARR Strategy resource recovery target for municipal waste of 66% by 2014.

The Department is therefore satisfied that the Project demonstrates a suitable level of resource recovery, effectively minimising as far as practicable the amount of municipal waste that is eventually directed to the Whytes Gully Landfill.

The Environment Protection Authority (EPA) agrees with the Department's assessment that the current and predicted resource recovery rates are in line with NSW Government's current targets and best practice. Both the EPA and the Department also consider that these resource recovery rates are likely to improve should the Proponent decide to introduce a new Materials Recycling Facility (MRF) or AWT in line with its adopted Waste Strategy.

Other Considerations Under the Infrastructure SEPP

Under Clauses 123 (1b to d) of the Infrastructure SEPP, an approval authority for any landfill is required to consider a number of other matters before determining a development application.

The Department has reviewed the EA, PPR and all other information provided by the Proponent and is satisfied that the project:

- adopts best practice landfill design and operation (in particular, see Chapter 8, Appendices O and P of the EA);
- would reduce the long-term impacts of the disposal of waste by minimising odour (see Table 7) and greenhouse gas emissions and maximising landfill gas capture (to be implemented by 2014);
- is located so as to avoid land use conflicts on suitable zoned land, would utilise ('piggyback') an existing landfill site (i.e. degraded land) prior to rehabilitation, is consistent with the overall intent of the Illawarra Regional Strategy and the Department of Planning's *EIS Guideline: Landfilling* (1996); and
- optimises transport links by utilising existing and established transport routes.

The Department is therefore satisfied that the project is consistent with Clause 123 (b to d) of the Infrastructure SEPP.

Conclusion

The Department is satisfied that there is established demand for landfill space within the Wollongong LGA and that the proposed waste input rate is appropriate.

Both the Department and the EPA are also satisfied that current and predicted resource recovery levels within the Wollongong LGA are in line with the WARR Strategy targets for MSW. Both the Department and the EPA are also satisfied that future resource recovery facilities embedded in the Proponent's adopted waste strategy and the progressively increasing NSW *Waste and Environment Levy* will continue to promote improvement in municipal waste diversion rates. The Department also considers the proposal to be consistent with Clause 123 of the Infrastructure SEPP.

To ensure ongoing performance in regard to waste minimisation at the site, the Department has recommended conditions of approval which would require the Proponent to:

- only receive waste at the site that is authorised for receipt by an Environment Protection License;
- implement all reasonable and feasible measures to recover resources from waste; and
- prepare and implement an on-going Waste and Resource Recovery Monitoring Program for the landfill including measures to monitor the effectiveness of the resource recovery measures.

5.2 Noise and Vibration

Issue

The project could result in increased noise impacts on nearby residences. As such, careful consideration needs to be given to the implementation of all reasonable and feasible measures to reduce noise and vibration.

Consideration

The EA for the Project included a noise impact assessment (NIA) carried out by Golder Associates (Golder) (Appendix E).

The site is located within an existing industrial area with industrial properties located to the south across Reddalls Road and rural residential properties to the immediate north. The landfill has operated on the site since 1984.

The closest residential receivers to the site are two individual residents located within 100m to 200m of the site's northern boundary at receivers N1 and N2 (see Figure 5). Residents in the suburb of Farmborough Heights are also located approximately 360m to the north-east of the site.

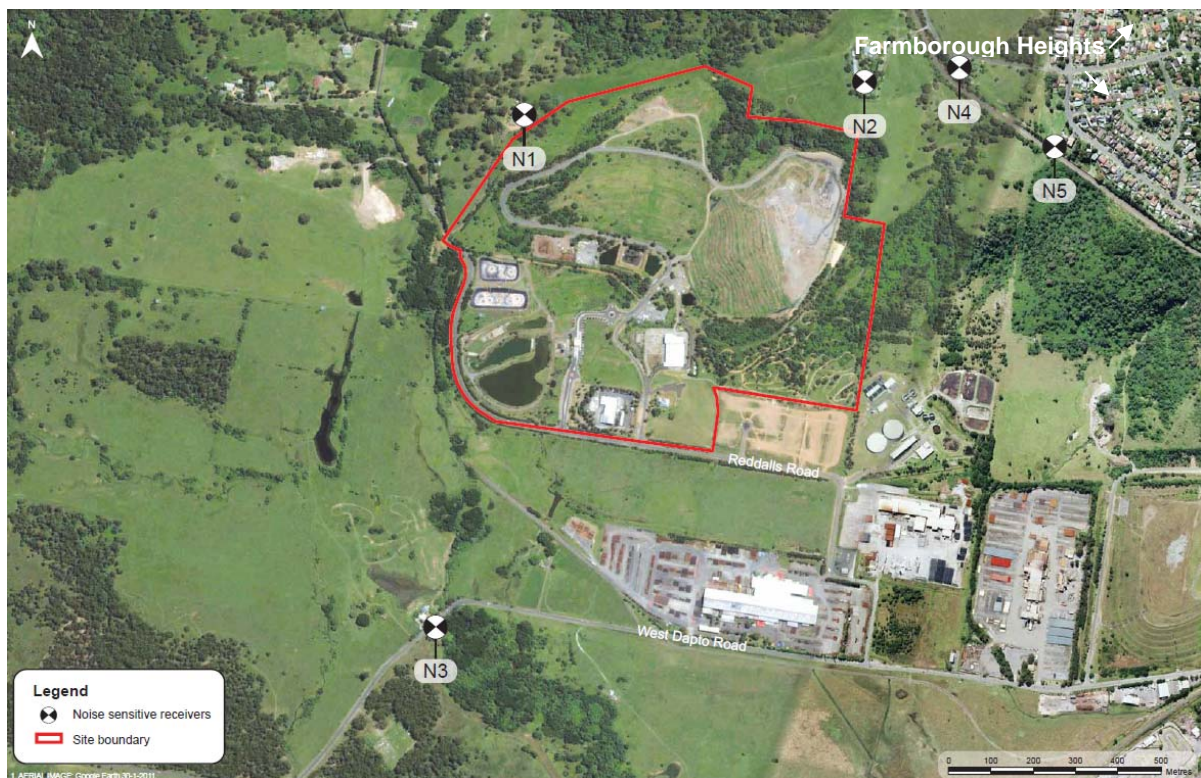


Figure 5: Noise Receivers

As both the construction and operation of the Project would be undertaken concurrently, both the EPA and the Department considered that noise from the Project should be assessed cumulatively against the EPA's *Industrial Noise Policy* (INP) to give a worst-case scenario.

Golder's NIA found that noise from the Project during a worst-case scenario would significantly exceed the relevant intrusive noise criteria [i.e. background plus 5dB(A)] of $39L_{Aeq,15\text{minute}}$ at N1 and $38L_{Aeq,15\text{minute}}$ at N2 by up to 17 dB(A) at N1 (during Stage 4-2) and 7 dB(A) at N2 (during Stages 1, 2A, 2B and 3).

The EPA recommended EPL conditions including noise limits for receivers N3, N4, and N5 but not N1 and N2. In this regard, the EPA noted they do not usually license limits significantly greater than the project specific noise limits (in this case, the intrusive criteria).

The Department met with Golder and the EPA on-site on 21 August 2012 and requested that the Proponent reduce the footprint of landfilled waste for Stage 4-2 to increase the buffer distance to the closest residence (N1) to reduce noise to an acceptable level at this location.

The Department also considered that in this instance, the relevant day-time rural residential amenity noise criteria of $50L_{Aeq (day)}$ would provide an acceptable and appropriate level of protection against noise impacts for nearby residents rather than the intrusive criteria. In arriving at this conclusion, the Department considered the following:

- the historical use of the site, which commenced in around 1984 (predating the development of a residence at N1¹) with minimal noise complaints;
- a general lack of nearby sensitive receivers;
- the site is located in an established industrial area on a rural residential/industrial interface;
- the general remoteness from other industrial noise sources;
- the hours of operation for the project would be limited to standard day-time hours only;
- the Proponent had already implemented all reasonable and feasible measure to reduce noise; and
- landowners at receivers N1 and N2 did not make a submission on the project.

Noise modelling in the NIA shows compliance with the day-time rural residential amenity criteria of $50L_{Aeq (day)}$ at all sensitive receivers, except N1 during Stage 4-2.

In response to the Department's request to reduce the landfill footprint, in the PPR the Proponent split Stage 4-2 into two sub-stages, 4-2A and 4-2B and modelled the noise impacts of these stages separately at N1.

Stage 4-2A would be located behind an existing ridgeline which provides substantial topographical shielding. Consequently, noise generated from Stage 4-2A was predicted at a maximum level of 47 dB(A) at N1 which would be 3 dB(A) below the amenity criteria.

Noise modelling undertaken to inform the PPR for Stage 4-2B showed it would exceed the amenity criteria of $50L_{Aeq (day)}$ at N1 (note the PPR did not specify the exact predicted noise level). As such, the Proponent proposed to undertake further noise modelling and assessment of noise mitigation measures to be implemented for Stage 4-2B, prior to construction of this stage.

However, the Department considered that this additional assessment should be undertaken upfront to ensure that Stage 4-2B would not result in unacceptable noise impacts on N1. Therefore, the Department is not currently considering Stage 4-2B as part of this project and has recommended a condition which excludes any landfilling or cell construction in the Stage 4-2B area as part of this Project.

With the exclusion of Stage 4-2B from consideration as part of this project, all stages would comply with the day-time rural residential amenity criteria of $50L_{Aeq (day)}$.

As previously discussed, the Department considers that this noise limit would provide an appropriate level of protection against noise impacts for nearby residents.

It is understood that in circumstances where the PSNL cannot be met, the EPA would normally look to having the negotiated agreement provisions of Chapter 8 of the INP implemented.

In the PPR, the Proponent has committed to entering into discussions with the view to entering into negotiated agreements with the landowners of N1 and N2 in accordance with Chapter 8 of the INP. Under these provisions of the INP, the Proponent would (at the landowner's request) negotiate the implementation of a range of reasonable and feasible measures (e.g. source controls and/or architectural treatments) to further reduce noise at these residences.

The EPA indicated that it would prefer to have these negotiated agreements in place prior to determination, but also acknowledged that the noise impacts of the project would be limited to daytime operations only, and that no public submissions were made from the landowners at N1 and N2.

¹ Conclusion based on inspection of historical aerial photographs of the site

As such, the Department is satisfied that the Proponent's commitment to enter into negotiated agreements post-determination is suitable in this instance and for the reasons outlined above (see dot points), considers that the likelihood of the project causing an adverse community reaction to noise is low.

As a final redundancy measure, the EPA has indicated that should the Proponent not proceed or be unable to enter into an agreement with the landowners and should unacceptable noise impacts occur, it would investigate the matter and potentially look to independently implement a negotiated agreement process under the INP Policy through its EPL for the site.

Traffic Noise

Construction

Key roads that would be utilised by construction traffic include Reddalls Road, West Dapto Road and the Princes Highway. The predicted increase in traffic noise would be 1-2 dB(A) on Reddalls Road, 1 dB(A) on West Dapto Road and an inaudible increase along the Princes Highway.

As such, the noise assessment concludes that the project would result in negligible adverse effects from increased construction traffic noise including residential receivers located along West Dapto Road and Princes Highway

Operation

As discussed in Section 5.1 of this report, the estimated landfilling rate to 2054 is equal to and less than historical waste acceptance rates at the Whytes Gully RRP. As such, Golder concludes that operational traffic (and resulting traffic noise) would not increase from current and historic levels.

Based on the above, the Department is satisfied that the traffic noise impacts of the project would be negligible.

Conclusion

The Department has considered the revised staging in the PPR to address noise impacts, however it has concluded that there still potentially could be unacceptable noise impacts on the closest sensitive receiver at N1 during Stage 4-2B. As such, the Department has recommended that Stage 4-2B be excluded from any landfilling activities as part of this Project.

The Department is satisfied that the day-time rural residential amenity noise criteria would provide an acceptable and appropriate level of protection against noise impacts for nearby residents. With the exclusion of Stage 4-2B, all stages would comply with the amenity criteria. The Department is also satisfied that the traffic noise impacts of the project would be negligible.

To ensure noise is effectively minimised and managed, the Department has also recommended a number of key conditions to ensure noise impacts are adequately managed during the construction and operation of the Project. This includes requirements for the Proponent to:

- implement best management practice, including all reasonable and feasible noise (including traffic noise) management and mitigation measures;
- comply with the predicted noise limits;
- only operate during standard day-time hours; and
- prepare and implement a Noise Management Plan prior to the commencement of construction including (but not limited to):
 - a description of the proposed noise management system;
 - a noise monitoring program to ensure compliance with the noise limits in the approval and that protocols are in place to respond to complaints; and
 - remedial actions to be implemented in the event of a non-compliance.

Finally as outlined above, the Proponent has also committed to entering into discussions with the landowners of N1 and N2 with the view to entering into a negotiated agreement to address potential noise impacts in accordance with Chapter 8 of the INP.

5.3 Groundwater and Leachate Management

Issue

The project has the potential to result in contamination of groundwater from leachate if the proposed leachate collection system fails.

Consideration

Existing Groundwater Quality

Groundwater occurrence at the site is generally associated with two shallow systems, groundwater present in the upper weathered and fractured profile of the local bedrock geology and groundwater present in the colluvium/alluvium deposits that infill the two gullies at the site at the toe of its sloping topography.

Both the Department and Council's City Planning Division raised concern about the extent of existing leachate impact to groundwater.

In the PPR, the Proponent confirmed that isolated 'one-off' cases of leachate impact on groundwater were recorded in historical monitoring samples taken for the site in 1991 and 1992 from boreholes and temporary wells that were later destroyed during cell development. These were considered likely the result of the old Western Gully landfill being unlined and uncertainties about the current performance of the existing Eastern Gully leachate barrier.

Despite this, recent groundwater monitoring results from the current monitoring well network, as well as data available from the Proponent since 1996, indicate very limited evidence of leachate impact on groundwater at the site. The Proponent considered that based on the results of monitoring data gathered over the last 15 years, there was very little evidence to suggest significant leachate impact on groundwater at the site. The Proponent committed to continued groundwater monitoring as part of future annual reviews and EPL requirements but considered it premature to consider remedial action.

The Department generally concurs with this conclusion. Both the Department and Council's City Planning Division did not raise any further issues in relation to existing groundwater quality.

In this regard, the Department notes that future prevention of groundwater contamination at the site from landfilled waste would predominantly rely on the successful installation and performance of the proposed leachate management system. This system is discussed in detail in the "Leachate Management" section below.

Groundwater Dependent Ecosystems

Dapto Creek is the closest natural water body located down gradient of the site which may receive base flow from groundwater in the alluvial deposits. There are no known high value groundwater dependent ecosystems (GDEs) present within the vicinity of the site. NOW requested the Proponent undertake a combined surface and groundwater monitoring program to gain an understanding of surface and groundwater interaction and the potential impacts of the project on the downstream environment including Dapto Creek and local GDEs, prior to determination. NOW's request relates to the potential for leachate or other contamination to migrate away from the site and adversely impact on the downstream environment.

In the PPR, the Proponent noted that a comparison of water table elevation to creek bed elevation (a general indicator of potential for surface water/groundwater interaction) could not be made because the creek bed elevation is currently unknown. Notwithstanding this, the Proponent has committed to undertaking a combined surface and groundwater monitoring program as required by NOW, following determination.

The Department is satisfied that the Proponent's commitment is adequate in this instance and has incorporated this requirement into the recommended conditions of approval which have been reviewed by (and revised) in consultation with NOW. This is because the Department is satisfied that the leachate collection and management system (see detailed discussion below) and stormwater management system (see Table 7) would be effective in preventing contamination of the downstream environment. In the unlikely event that contamination does migrate away from the site, the

Department is satisfied that the surface and groundwater management and monitoring program (which would be required to be in place prior to operation of the new landfill cells) would detect this and allow swift remedial action to either of the above systems to be implemented so that adverse impacts on the downstream environment such as local GDEs and Dapto Creek do not occur.

Leachate Management

Leachate is formed by rainwater percolating through a landfill and collecting the by-products of decomposing waste. The main risk of impact from the project is the potential release of leachate to groundwater resulting in impacts such as elevated nutrients, algal blooms, and impacts to GDEs and/or aquatic organisms downstream.

Consideration of this issue is set-out in two parts:

- a description of the existing environment; and
- a description of the existing and proposed leachate management system including the measures to minimise the risk of downstream impacts.

Existing Environment

As outlined above, Dapto Creek is considered to be the closest natural water body located down gradient of the site.

The EA concludes that the hydrogeological setting of the site (upward hydraulic gradient, relatively low permeability formations, limited water supply development and no high-value GDEs in the vicinity of the site) is conducive to the site's use as a landfill, and would appear to represent a relatively low risk to the downstream environment in the unlikely event of a leachate release to groundwater.

Further, the EA concludes that the clayey nature of the shallow alluvial/colluvial soils would promote attenuation of leachate in the event of a release and would likely limit the migration potential of leachate to groundwater.

Based on the available information, the Department generally concurs with these conclusions and is satisfied that the characteristics of the existing environment of the site are suitable for its continued use as a landfill.

Existing Leachate Management System

The Western Gully landfill is unlined and ceased operations in 1993 while the Eastern Gully landfill, where landfilling currently occurs, is lined with a 2mm thick high density polyethylene (HDPE) geomembrane. Both gullies are underlain with leachate collection pipes to convey leachate to collection pits and onto the leachate ponds for treatment.

The leachate treatment system at the site currently incorporates aeration and biological treatment with the primary and secondary leachate ponds and subsequent treatment in the leachate treatment plant, prior to licensed discharge to sewer under a trade waste agreement (TWA, 11205) with Sydney Water.

Proposed Leachate Management System

The Project proposes to retain the existing leachate treatment system, however a new leachate barrier (liner) and conveyance system (collection pipes) would be installed in the new landfill areas. Three different types of ground conditions would be encountered including:

- non-landfilled areas that are disturbed by existing site infrastructure such as roads or ponds;
- non-landfilled area that are undisturbed; and
- landfilled areas.

Three different variations of liner would be required for the project depending on ground conditions, including a 'piggyback' liner over existing landfilled areas of the site. Each liner would generally comprise from (bottom to top):

- a 200mm bearing layer (clay rich soil);
- a geosynthetic clay liner;
- a 1.5mm to 2mm HDPE textured membrane liner;
- a cushion geo-textile layer;

- a leachate collection layer (geocomposite drainage net) with filter geotextiles and periodic pipes; and
- 300mm soil protection layer.

The preliminary design of the 'piggyback' liner is illustrated in Figure 6 below.

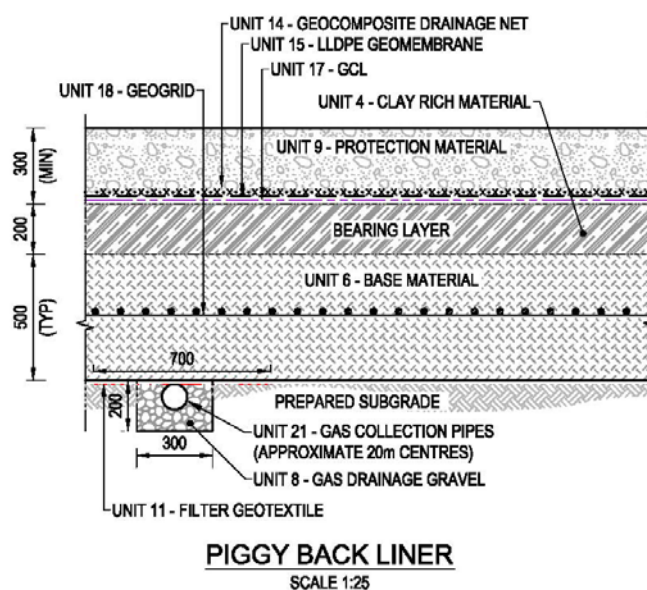


Figure 6: Proposed 'Piggyback' Liner Composition

The preliminary design of the proposed liner system was peer reviewed in the EA by Dr. J.P. Giroud, a qualified engineer with extensive experience in designing and conducting performance analysis on over 100 liner systems internationally. Dr. Giroud found that the methodology used for all aspects of the preliminary (50%) design and analysis of the liner in regards to settlement, stability and deformation/s were correct. Dr. Giroud concluded that in his experience the design is consistent with international practice and is likely to be adequate from a regulatory standpoint.

A Construction Quality Assurance (CQA) system would be implemented by the Proponent for cell construction because the performance of this infrastructure, particularly the base liner, 'piggyback' liner and cap barrier is highly dependent on the quality of its construction. The CQA system comprises a combination of approval and documentation requirements for the cell construction contractor including independent testing, certification, monitoring and inspection to ensure that the construction and installation of the final leachate-barrier management and collection system is effective and quality assured.

The EPA recognised that a complex landfill liner system would be required to ensure that environmental impacts are appropriately managed during the proposed expansion, particularly given that there would be areas where waste would be placed over existing landfilled waste. The EPA noted that the EA proposed several measures, including the installation of reinforcement and gas relief layers to protect the integrity of the landfill liner from settlement of the underlying waste in areas where waste is to be 'piggy-backed' on top of pre-existing waste.

The EPA also noted that the precise engineering of the liner (100% design) is not generally finalised until the licence variation stage. Nonetheless, the EPA recommended flexible conditions specifically addressing the technical design of the lining system which the Department has incorporated into the conditions of approval, along with the requirement for a CQA Plan.

Both the Department and the EPA are satisfied that, with these conditions in place, the proposed leachate barrier, including the 'piggyback' liner, would be effective in minimising the risk of groundwater contamination underneath the landfill.

As a final redundancy measure, should any aspect of the leachate containment system fail in a manner that cannot be directly observed and fixed, a surface and groundwater monitoring program would be installed to detect any leachate migrating away from the site. This would allow timely remediation work, which might include one or a combination of repairs to the barrier or containment

system or cut-off trenches to prevent further movement of groundwater. Any detection of leachate outside the containment system would need to be reported to and remediated in consultation with the EPA.

Leachate Pond Capacity

Peak cumulative leachate volumes requiring storage and treatment would occur during the third month of the Project (Stage 1A) at 18,000 kilolitres (kL).

The Department initially raised concern about the capacity of the existing and proposed leachate treatment ponds to cater for high rainfall events and long wet periods. In the PPR, the Proponent confirmed that the ponds would have 300mm freeboard for wave action and would be able to receive up to a 1 in 25 Year ARI (24 Hour) storm event consistent with the Benchmark Techniques outlined in the EPA's *Environmental Guidelines: Solid Waste Landfills*. Further, the Proponent has confirmed that, based on modelling of worst-case wet weather occurring over two consecutive years, the ponds would have sufficient capacity to store a peak cumulative leachate volume of 18,000 kL.

Notwithstanding this, the Proponent also outlined a number of contingency measures in the EA for the disposal of excess leachate. This includes the reinjection of leachate to the landfill, provision of a temporary 'package' treatment plant, upgrade of the existing treatment plant, trucking of leachate to a sewage treatment plant for disposal or using shut-off valves in the leachate lines to stop leachate flow from the landfill when at capacity. Reinjection of leachate to landfill was not supported by the EPA and has therefore been excluded as part of the recommended conditions.

Based on the above, the Department is satisfied that the leachate ponds would have sufficient capacity to cater for the project and that suitable contingency measures are in place in the unlikely event that disposal of excess leachate is required.

Conclusion

The Department is satisfied that the characteristics of the existing environment at the site (soil, rock and surrounds) are suitable for its continued use as a landfill, such that the Project represents a low risk to the downstream environment in the unlikely event of leachate release to groundwater.

The proposed leachate management system would be designed in accordance with the EPA's industry best practice standards to the satisfaction of the EPA. A CQA would also be implemented for the leachate containment (liner) system.

Both the Department and the EPA are satisfied that the proposed leachate barrier would be effective in minimising the risk of groundwater contamination underneath the landfill, subject to strict conditions (see below).

In the unlikely event that leachate migrates from the collection areas, the Department is satisfied that it would be detected by surface and groundwater monitoring and if necessary, enable timely remedial action to occur.

Key conditions of approval recommended by the Department include the requirement for the Proponent to:

- design the waste liner system to the satisfaction and specification of the EPA;
- prepare and implement a CQA Plan for the final leachate barrier system outlining the measures taken (e.g. by testing, certification, monitoring and inspection) to ensure that its construction and installation would be successful and quality assured;
- design and install the proposed leachate management and collection system in accordance with the conceptual design in the EA, applicable Australian Standards and industry standard best practise guidelines, or otherwise approved by the EPA;
- prepare and implement a Soil and Water Management Plan in consultation with Council (City Planning Division), NOW and the EPA including (but not limited to):
 - a Leachate Management Plan that includes final design details of the proposed system and a remedial action plan should leachate escape containment; and
 - a surface, groundwater and leachate monitoring program.
- ensure a TWA is in place with Sydney Water for leachate disposal for the life of the project.

5.4 Assessment of Other Issues

Table 7 below presents the Department's assessment of other issues.

Table 7: Assessment of Other Issues

Issue	Assessment	Recommendation
Stormwater Management	<ul style="list-style-type: none"> Surface water contamination from leachate and/or increased sediment load could occur if the proposed stormwater management system is not adequate in terms of design and capacity. This could potentially result in polluted water being discharged downstream to Dapto Creek. The Department requested more information on how clean, dirty (stormwater) and waste affected (leachate) water would be separated to prevent cross contamination. In the PPR, the Proponent clarified that clean and dirty (sediment laden) water would be separated by a network of swale and regular stormwater drains. All clean water run-off would be conveyed via a purpose built 'clean' drain directly offsite, while dirty water run-off would be captured in swale drains and directed to the stormwater reed beds and polishing ponds for sediment removal, prior to discharge to Dapto Creek. Construction of a perimeter bund and drain from clay rich soil around the active landfilling area would prevent waste affected (leachate) water from mixing with dirty and clean water and visa versa. Both the Department and Council's City Planning Division raised concerns about the design capacity of the existing and proposed stormwater ponds and drainage infrastructure to ensure post-development runoff from the site is restricted to pre-development flows. In the PPR, the Proponent confirmed that all stormwater ponds and drainage infrastructure would meet the design requirements of Landcom's Blue Book, would have sufficient capacity to hold/convey stormwater up to a 1 in 100 ARI storm event and that it would ensure peak stormwater discharge rates for each stage of the project do not exceed pre-development values. The Department has incorporated the above into the recommended conditions including the requirement for a stormwater quality monitoring program to monitor for any potential impacts on Dapto Creek. The Department is satisfied that, with these conditions in place, stormwater would be effectively managed on-site. 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> design and install the stormwater management and collection system generally in accordance Chapter E14 of the <i>Wollongong DCP 2009</i>; ensure peak stormwater discharge rates from the site at each stage of the project do not exceed pre-development values; prevent cross-contamination of clean and sediment or leachate laden water; and prepare and implement a Soil and Water Management Plan in consultation with Council (City Planning Division), NOW and the EPA including: <ul style="list-style-type: none"> a Stormwater Management Plan; and a surface water monitoring program.
Flooding	<ul style="list-style-type: none"> Part of the site is located on the Mullet Creek floodplain. As such, if a large flood event occurs, the project could result in changes to flood behaviour, and uncontrolled release of pollutants into the local environment if the integrity of the stormwater ponds is compromised and/or human safety issues. The Proponent's <i>Mullet Creek Floodplain Study</i> shows that the south-western corner of the site (and site of the stormwater treatment ponds) is within the <u>interpreted</u> flood planning level for a 1 in 100 ARI flood event. OEH requested that the Department consult with Council's City Planning Division to ensure flood related risks (e.g. pond failure during are large flood) are adequately managed. A public submission also raised concern about the impact of the Project on flood behaviour and subsequent impacts on their site. As a result, a site-specific flood modelling and routing analysis was undertaken by the Proponent as part of the PPR which found that floodwater would not inundate the site during a 1 in 100 Year ARI flood event, therefore would not affect the integrity of stormwater ponds or cause human safety issues. Given this, and that post-development run-off would be limited to pre-development flows (see above), the Project is also considered 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> prepare and implement a Flood Emergency and Evacuation Plan, prior to the commencement of construction including: <ul style="list-style-type: none"> measures to ensure the project is designed in accordance with Chapter E13 of <i>Wollongong DCP 2009</i>, Council's <i>Mullet</i>

Issue	Assessment	Recommendation
	<p>unlikely to alter flood behaviour.</p> <ul style="list-style-type: none"> • Council's City Planning Division requested that the Project be designed in accordance with the <i>Wollongong DCP 2009</i>, the relevant floodplain risk management study and the NSW Floodplain Development Manual, taking into account its conduit blockage criteria. • The Department has incorporated Council's request into the recommended conditions. • Based on the available information, the Department is satisfied that the site would not be inundated by a 1 in 100 Year ARI flood event. • Notwithstanding, as a contingency measure, the Department has also recommended a further condition that would require the Proponent to prepare a Flood Emergency and Evacuation Plan for the site (see recommendation). 	<p>and Brooks Creeks Floodplain Risk Management Study and Plan and the NSW Floodplain Development Manual, taking into account Council's conduit blockage criteria; and</p> <ul style="list-style-type: none"> - contingency actions to be implemented in the event that the site is inundated during a major flood event to protect the integrity of stormwater ponds and human safety.
Odour	<ul style="list-style-type: none"> • The main sources of odour at the site include the green waste processing area, the active tipping face and leachate storage/treatment ponds. • Previous odour complaints have been recorded over the last few years, primarily from the green waste processing facility which has now been relocated off-site. • The EA included a quantitative odour assessment prepared in accordance with the EPA's guidelines. • The assessment found that the Project would comply with the relevant EPA Odour Unit (OU) criteria of 5OU for the closest individual residential receivers and 20OU for the closest residential area (Farmborough Heights). • A worst-case odour concentration of 3OU was predicted at the nearest individual residences, well below the EPA criteria of 5OU. • The EPA considered that effective leachate management, coupled with the use of adequate daily, intermediate and final cover would reduce odour and odour-related complaints from the site. • The EPA recommended that the Proponent implement the mitigation measures outlined in the EA and recommended conditions to limit the size of the active tipping face to minimise odour and prepare an Air Quality Management Plan for the landfill. • The EPA's recommendations have been incorporated by the Department into the recommended conditions. • The Department is satisfied that the recommended on-site controls and proposed management measures would ensure odour is adequately managed. 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> • not cause or permit any offensive odour; • limit the size of the active tipping face, waste relocation area, daily cover and 90 day cover areas to the EPA's specifications; and • prepare and implement an Air Quality Management Plan, prior to the commencement of operations, including an air quality monitoring program and procedures for responding to complaints.
Flora	<ul style="list-style-type: none"> • The Project would result in the removal of approximately 25.56 hectares (ha) of non-native or disturbed vegetation and approximately 0.49ha of native vegetation. • Clearing for the purposes of bushfire protection would be restricted to non-native vegetation communities. • The native vegetation to be removed comprises of 0.48ha of Forest Red Gum Open Forest/Closed Woodland (FR) and 0.01ha of Illawarra Subtropical Rainforest (ISTR), an endangered ecological community (EEC) under the <i>Threatened Species Conservation Act 1997</i>. • This represents approximately 1.8% of the ISTR mapped within the Whytes Gully RRP and 0.05% of the ISTR mapped within the locality. • The FR is in poor condition while the ISTR is in poor to moderate 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> • prepare and implement a Vegetation Management Plan including: <ul style="list-style-type: none"> - a Biodiversity Offsets Strategy prepared in accordance with the relevant

Issue	Assessment	Recommendation
	<p>condition. Removal of ISTR would be limited to the south-western edge of the EEC in areas containing high levels of weed invasion.</p> <ul style="list-style-type: none"> • The Proponent has committed to ensuring the project maintains or improves the biodiversity values of the region by preparing a Vegetation Management Plan outlining measures to offset native vegetation removal and monitor the success of these measures. • The OEH requested more details on the proposed offset measures and recommended that any approval include a condition requiring the Proponent to prepare a Biodiversity Offset Package in accordance with the relevant OEH guidelines detailing the proposed offset measures and how they would be managed, funded and monitored over the life of the project. • The Department has incorporated this requirement into the recommended conditions of approval in consultation with OEH. • No threatened aquatic flora species were identified in the Whytes Gully RRP. • Overall, the Department is satisfied that the impacts of the project on flora would be acceptable and result in a 'maintain or improve' outcome, subject to the imposition of key conditions. 	<p>OEH guidelines for clearing native vegetation;</p> <ul style="list-style-type: none"> - measures to ensure the project maintains suitable buffer distances to nearby waterways in accordance with the relevant NOW guidelines to protect riparian land; and - details of the site-wide ecological management and monitoring program/s to be implemented for the life of the project.
Fauna (including Pests and Vermin)	<ul style="list-style-type: none"> • Field surveys identified two threatened species, the Grey-headed Flying-fox and Southern Myotis (probable detection) and a further 7 threatened species were determined as possibly occurring in the area. • The ecological assessment concluded that provided the recommended avoidance and mitigation measures were implemented, the Project was unlikely to significantly impact on identified threatened species, populations or ecological communities. • The OEH did not raise any issues in relation to fauna. • The Department is satisfied that the potential ecological impacts of the Project are not significant, provided the recommended mitigation measures are implemented. • A public submission raised concern about the potential for increased pests and vermin (such as rabbits and birds) as a result of the Project and associated amenity, health and safety impacts. • In the PPR, the Proponent indicated that an increase in pests and vermin is not expected as a result of the project as the intensity of operations would not be increasing above historical levels and would be managed in accordance with existing mitigation measures already in place at the site. • The Department considers this to be a management issue for the Proponent and has recommended conditions of approval to ensure the potential impacts of the project on amenity and public health from pests and vermin are effectively controlled at the site. 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> • carry out the project in accordance with the EA and Statement of Commitments; and • implement suitable measures to manage pests, vermin and declared noxious weeds on site and inspect the site on a regular basis to ensure that these measures are working effectively.
Traffic	<ul style="list-style-type: none"> • The EA indicated that no changes to the existing main site access entrance or secondary entrance are proposed, however, the internal site layout would be reconfigured. • The Traffic Impact Assessment (TIA) in the EA indicated that under a worst-case construction scenario, where both liner construction and capping occur simultaneously, up to: <ul style="list-style-type: none"> - 48 truck movements a day would occur, equating to an extra 8 truck movements during peak hour; and - 30 staff vehicle movements a day would occur, equating to an extra 12 light vehicle movements during peak hour. • The Project proposes no increase to the amount of waste historically accepted at the Whytes Gully RRP. • The TIA includes a worst-case assessment of the cumulative traffic impact (where construction, operation and capping traffic occur 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> • ensure all internal roads, driveways and parking are constructed in accordance with the relevant Australia Standards; • prepare and implement a Construction Traffic

Issue	Assessment	Recommendation
	<p>simultaneously) of the project on the three key intersections that would be utilised by project related vehicles.</p> <ul style="list-style-type: none"> • The TIA concluded that all three key intersections would continue to operate at an acceptable level of service (LOS A or B). • This assessment is based on the assumption that the intersection of the Princes Highway/West Dapto Road has been signalised, which is scheduled to occur separately of the Project and is not expected to be completed by the Proponent until the end of 2013. • RMS raised no objection to the project, subject to the upgrade of the intersection of the Princes Highway/West Dapto Road to traffic lights, prior to the receipt of more than 180,000 tpa of waste in any calendar year at the Whytes Gully RRP. • The Department has incorporated RMS's request into the recommended conditions. • All internal roads would be constructed and maintained in accordance with the relevant Australian Standards. • Council's City Planning Division recommended a condition of approval for a Construction Traffic Management Plan. • Based on the above, the Department is satisfied that the traffic impacts of the project would be acceptable and would not impact on the safety and efficiency of the surrounding road network, subject to recommended conditions. 	<p>Management Plan as part of the CEMP in consultation with Council (City Planning Division) and RMS; and</p> <ul style="list-style-type: none"> • upgrade the junction of West Dapto Road and the Princes Highway to traffic signals to the satisfaction of RMS, prior to the receipt of more than 180,000 tpa at the Whytes Gully RRP.
Soil Management	<ul style="list-style-type: none"> • Soil across the site generally comprises a mixture of fill material (landfill cover and capping material), previously landfilled waste, colluvial, alluvial and residual soils. • Prior to landfilling, the site was used as a rural farm, therefore landfilling of the site was considered to be the most likely source of any soil contamination present. • A contamination investigation undertaken as part of the EA found no level of contaminants above the adopted criteria for commercial/industrial landuse. • As such, the site was considered to be suitable for the proposed development. • The site is also considered to have a low probability for the occurrence of acid sulfate soils (ASS). • The Proponent has committed to preparing and implementing a CEMP for the project including: measures to manage and dispose of ASS and measures to manage and dispose of contaminated soil. • The Department has formalised and built upon these commitments in the recommended conditions (see recommendation). • The EPA and Council's City Planning Division did not raise any issues in relation to soil management or contamination. • The Department is therefore satisfied that contaminated soil would be effectively managed. 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> • implement suitable erosion and sediment controls during construction in accordance with Landcom's Blue Book; • prepare and implement a Soil and Water Management Plan for the project, prior to the commencement of operation including an Erosion and Sediment Control Plan; • prepare and implement a Contamination Management Plan for the project, prior to construction, detailing the protocols to be put in place and followed in the event that contaminated soil (ASS) or is encountered during construction.
Dust	<ul style="list-style-type: none"> • The Project may generate dust during construction and operation primarily from vehicles on unpaved surfaces, excavating and dumping fill, shaping the tipping face and from wind erosion. • The potential for increased dust deposition on a nearby site, a vehicle storage facility, was a concern raised in a public submission. • Measured levels of dust, in the absence of any contribution from the Project, indicated a number of background exceedances of the EPA's PM₁₀ 24 hour average dust criteria. • The EA's air assessment concluded that the project would not 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> • implement best management practice, including all reasonable and feasible dust mitigation

Issue	Assessment	Recommendation
	<p>result in any <u>additional</u> exceedances of the relevant EPA criteria for short-term and long-term particulate matter (i.e. PM₁₀ concentrations and Total Suspended Particulate Matter) which is used to assess health impacts.</p> <ul style="list-style-type: none"> • Further, the Project is predicted to comply with the EPA's annual deposited dust criteria which is used to protect public amenity and manage dust nuisance, including dust deposited on vehicles. • The EPA originally requested some minor clarifications regarding the dust assessment which were addressed by the Proponent in the PPR. • Following this, the EPA did not raise any further issues in relation to dust. • The Department is satisfied that the dust impacts of the project would be negligible, subject to recommended conditions. 	<p>measures;</p> <ul style="list-style-type: none"> • comply with the dust limits specified in the project approval; and • prepare and implement an Air Quality Management Plan for the project including a monitoring program to ensure compliance with the dust limits.
Heritage	<ul style="list-style-type: none"> • One locally listed heritage item (Glengarry Cottage) is located within the Project site, however would not be directly impacted upon. • The Heritage Assessment in the EA concluded that the Project would not impact upon the Cottage's identified heritage significance. • Further, Aboriginal artefact scatters identified within Potential Archaeological Depositions (PADs) are not within the development footprint of the Project and would not be impacted upon. • The OEH and Council's City Planning Division did not raise any issues in relation to heritage. • The Department is therefore satisfied that the heritage impacts of the project would be negligible and has recommended conditions to deal with any unexpected finds. 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> • protect identified heritage/ archaeological sites outside of the landfill footprint, in consultation with the Local Aboriginal Land Council for the life of the project; and • conduct heritage education inductions for all construction personnel and cease works and notify the relevant authorities in the event that any Aboriginal cultural object(s) or human remains are uncovered on-site.
Hazards	<ul style="list-style-type: none"> • A qualitative Preliminary Hazard Analysis (PHA) was undertaken in the EA which identified a number of key hazards associated with the Project, such as fuel spillages, fire at the landfill, building and bush fires, bushfires and explosion in the gas extraction system. • The Department is satisfied that the PHA has been carried out systematically and clearly identifies events and their causes, potential consequences and prevention and protection measures. • Given the small quantities of dangerous goods handled at the facility, the proposed safeguards, mitigation strategies and measures, the PHA concluded that the Project would not pose a significant off-site risk. • The Department is satisfied that the PHA provided sufficient information on the hazards and risks associated with the project and that the estimated risks would be below the relevant land use safety criteria adopted in NSW. 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> • prepare a Bushfire Risk Management Strategy and Hazard and Operability Study (pre-construction studies); • prepare and implement a comprehensive Safety Management System for the project (pre-commissioning); and • prepare a compliance report confirming all relevant pre-startup hazards and risk conditions have been satisfied.
Greenhouse Gas Emissions	<ul style="list-style-type: none"> • A quantitative Greenhouse Gas Assessment of Scope 1 and 2 emissions was completed as part of the EA which calculated the project would generate a peak emission of approximately 56,290 	<p>Conditions are recommended that would require the</p>

Issue	Assessment	Recommendation
	<p>tonnes per annum of CO_{2e} in 2053 with a conservative 50 percent landfill gas capture efficiency.</p> <ul style="list-style-type: none"> The majority of these emissions would be a result of methane emissions from the landfill, fuel and electricity consumption. Overall, this represents approximately 0.036% of total greenhouse gas emissions in NSW in 2010 which is considered to be negligible. The Commonwealth's Clean Energy Legislative Package and carbon pricing mechanism also commenced on 1 July 2012. The legislation aims to provide a coordinated nationwide response to greenhouse gas management, reduce Australia's carbon pollution and provide incentives for industry to move to using clean energy. Given this, and that the Proponent has committed to the installation of an active landfill gas management system including flaring to reduce potential GHG emissions, the Department is satisfied that the GHG emissions of the project would be acceptable and are likely to continue to improve as a result of recommended conditions and the new Commonwealth legislation. 	<p>Proponent to:</p> <ul style="list-style-type: none"> implement all reasonable and feasible measures to minimise energy use on site and greenhouse gas emissions; and prepare and implement an Air Quality and Greenhouse Gas Management Plan for the landfill, detailing the measures that would be implemented to manage the greenhouse gas impacts of the project.
Visual	<ul style="list-style-type: none"> The Visual Impact Assessment in the EA identified approximately 24 separate view situations across roads, industrial / employment areas, residences and recreational areas, with three of the key view situations identified as having a moderate to high impact pre-treatment. Supplementary assessment incorporating existing and future vegetation cover and screening resulted in a revised impact of low to negligible at the three sites. The Department is therefore satisfied that the visual impacts will be negligible and can be appropriately managed through recommended conditions. 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> establish vegetative cover on landfill slopes as soon as practicable; and provide ongoing and progressive revegetation of land following landfill activities.
Final Landform	<ul style="list-style-type: none"> The EA proposes progressive capping and rehabilitation of the total landfill footprint (approximately 35 ha). The Department is satisfied that an appropriate final landform will be achieved through the preparation of a Rehabilitation Management Plan in consultation with the EPA and has recommended conditions to ensure a suitable final landform is achieved. 	<p>Conditions are recommended that would require the Proponent to:</p> <ul style="list-style-type: none"> prepare and implement Landfill Rehabilitation Management Plan for the Landfill in consultation with the EPA considering the changes associated with expanded operations.

6 CONCLUSION

The Department has assessed the merits of the Project having regard to the objects of the EP&A Act and the principles of ecologically sustainable development.

This assessment has concluded that with the implementation of the recommended conditions of approval, the potential impacts of the Project, such as noise, groundwater and odour, can be mitigated and/or managed to ensure an acceptable level of environmental performance.

The Proponent has reviewed and accepts the imposition of these conditions.

Overall, the assessment has found that:

- the 180,000 tpa of additional landfill capacity being sought is acceptable from an environmental perspective;

- the additional annual landfill capacity being sought is comparable to established demand in the Wollongong LGA;
- the project demonstrates a suitable level of resource recovery, is consistent with the WARR Strategy targets and Clause 123 of the Infrastructure SEPP;
- the project is a critical piece of waste infrastructure that would meet the need for future putrescible waste disposal in the Wollongong LGA; and
- subject to the recommended conditions, the proposal would have an acceptable environmental performance.

Further, the Department has found that the Project has additional public benefits including the use of an existing landfill site, landfill gas capture and the retention of approximately 10 full-time jobs. The Department considers the public benefits of the Project out way any potential impacts.

Consequently, the Department considers that the Whytes Gully Landfill Extension Project is in the public interest and should be approved, subject to conditions.

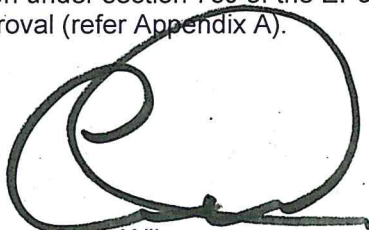
7 RECOMMENDATION

It is recommended that the Executive Director, Development Assessment Systems and Approvals:

- **consider** the findings and recommendations of this report;
- **approve** the project application under section 75J of the EP&A Act; and
- **sign** the attached project approval (refer Appendix A).


3/4/13

Chris Ritchie
Manager - Industry



3.4.13

Chris Wilson
Executive Director
Development Assessment Systems and Approvals

APPENDIX A: CONDITIONS OF APPROVAL

APPENDIX B: ENVIRONMENTAL PLANNING INSTRUMENTS

APPENDIX C: SUBMISSIONS

APPENDIX D: PREFERRED PROJECT REPORT

APPENDIX E: ENVIRONMENTAL ASSESSMENT