

Environmental Assessment

Modification Application – Spring
Farm Advanced Resource Recovery
Technology (ARRT) Facility

NA89913061



Prepared for
SITA Australia Pty Ltd

30 October 2013

Document Information

Prepared for SITA Australia Pty Ltd
Project Name Modification Application – Spring Farm Advanced Resource Recovery Technology (ARRT) Facility
File Reference NA89913061_Spring Farm Tank Farm Project
Job Reference NA89913061
Date 30 October 2013

Contact Information

Cardno NSW/ACT
Trading as Cardno NSW/ACT
ABN 95 001 145 035

Level 9
The Forum
203 Pacific Hwy
St Leonards
NSW 2065

Telephone: (02) 9496 7700
Facsimile: (02) 9439 5170
International: +61 2 9496 7700

john.ogrady@cardno.com.au
www.cardno.com.au

Document Control

Version	Date	Author	Author Initials	Reviewer	Reviewer Initials
Draft for adequacy	26.07.13	John O'Grady		John O'Grady	JOG
Draft for exhibition	21.10.13	John O'Grady Lucie Clifton		John O'Grady	JOG

© Cardno 2012. Copyright in the whole and every part of this document belongs to Cardno and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person other than by agreement with Cardno.

This document is produced by Cardno solely for the benefit and use by the client in accordance with the terms of the engagement. Cardno does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by any third party on the content of this document.

Certificate.

I certify that I am the principal author of this Environmental Assessment and the information contained in the report is neither false nor misleading.

A handwritten signature in black ink, appearing to read 'John O'Grady', with a large circular flourish at the end.

Signature

Name	John O'Grady
Qualifications	B.Land.Arch; M.Planning; Certified Practicing Planner
Date	21 October 2013

Executive Summary

Introduction

SITA Australia Pty Ltd (SITA) is Australia's leading specialist in resource recovery, recycling and waste management. Through its national network of advanced resource recovery facilities, material recycling facilities, organic processing facilities and customer service professionals. SITA offers unique, sustainable multi-channel approaches to one of Australia's most essential daily services - waste management.

The organisation has owned and operated the Spring Farm Advanced Resource Recovery Technology (ARRT) Facility since February 2011. The Facility was constructed and operated by WSN Environmental Solutions (formerly NSW Waste Services) up until the transfer of WSN's assets from the NSW Government to SITA in 2011. Since commissioning, the Facility had been subject to a number of technical difficulties and, notwithstanding substantial positive outcomes with regard to advanced waste treatment, it had not operated to optimum standards. As part of a strategy to improve the efficiency of its waste treatment facilities at Spring Farm, SITA began scaling back the operations of the ARRT in 2012.

In order to improve the efficiencies of the Facility, SITA now intends to revise the waste inputs to streams more suited to the available processes. This initiative will improve the viability of the ARRT to provide a sustainable waste management service that returns increased environmental, social and economic benefits to the local and regional community.

The proposed development

Under its current Major Project Approval (as Modified) the ARRT Facility is permitted to:

1. Receive:
 - 130,000tpa of mixed municipal waste classified as inert or solid waste under Schedule 1 of the *Protection of the Environment Operations Act, 1997*
 - 25,000tpa of garden waste; and
 - An additional 5,000tpa of garden waste or biosolids; and
2. Process:
 - 90,000tpa of mixed municipal waste classified as inert or solid waste under Schedule 1 of the *Protection of the Environment Operations Act, 1997*;
 - 25,000tpa of garden waste; and
 - An additional 5,000tpa of garden waste or biosolids.

The current consent provides that 40,000tpa of mixed municipal waste can be received at the ARRT Facility but not processed on site. This allowance has been made in order to provide for the operation of the receipt hall as a transfer station, allowing delivery to and storage of local waste material on the site prior to transfer to other waste management facilities within the metropolitan area.

SITA now intends to lodge an application to the Minister for Planning in accordance with Part 2A of *State Environmental Planning Policy (Major Development), 2005 (SEPP – Major Development)*, to modify the Transitional Part 3A Approval in order to permit, in addition to the currently approved waste quantities:

1. Receiving and processing of 520m³ per day of liquid waste (comprising organic liquid waste, leachate and industrial liquid waste) at the existing facility utilising existing on site infrastructure, for disposal to sewer; and
2. Processing of 130,000 tonnes per annum (tpa) of mixed solid waste (MSW) classified as inert or solid waste under Schedule 1 of the *Protection of the Environment Operations Act, 1997* again using existing infrastructure.

The proposal constitutes no additional quantities of MSW to be received at the site but involves processing of an additional 40,000tpa of MSW over and above the quantity permitted by the current planning approval. Organic liquid waste / leachate is a new waste stream, previously not treated at the ARRT.

Liquid waste to be treated at the site will comply with specifications for disposal to sewer as included in SITA's current Liquid Trade Waste Disposal Agreement with Sydney Water. With respect to site works, the proposal will involve only minor alterations to the existing tank farm facility in order to facilitate the treatment of liquid waste and leachate.

Need and justification

The strategic justification for the proposed Modification is at three levels:

- Suitability of the existing infrastructure on the site for the proposed activity ("Fit for Purpose");
- Need with respect to the regional waste framework and customer demand; and
- Environmental benefits that would result from the Modification.

Since the decommissioning of the ARRT Facility and the associated tank farm, it has been operating below its design capacity with the result that the environmental and social benefits resulting from the successful implementation of contemporary alternative waste treatment technologies have been less than anticipated.

SITA's current proposal is aimed at improving the waste management capacity of the ARRT Facility in order to maximise its capability as a sustainable waste management facility and its level of service to the local community.

Need for the proposal has been identified on two levels:

- Current SITA practices regarding liquid waste treatment in Sydney. Liquid waste is currently sent to soil injection from the SITA Camellia Waste Management Facility without sustainable processing for resource recovery. Implementation of this proposal will facilitate sustainable treatment of liquid waste and production of power via resource recovery practices currently not implemented by SITA.
- Existing demand for treatment of MSW. There is an existing need for sustainable treatment of MSW at the ARRT Facility under SITA's contract with the Macarthur Regional Organisation of Councils (**MACROC**). The proposed Modification will assist SITA's capacity to honour its obligations to the MACROC Councils under the contract.

The proposal is considered fully justifiable in that:

- It is positively consistent with relevant planning strategies (the NSW State Plan and the South West Regional Strategy of the draft Metropolitan Strategy for Sydney) and waste management objectives (the National Waste Policy, the Waste Avoidance and Recovery Act, 2001 and the Waste Avoidance and Recovery Strategy, 2007)
- It will return positive economic and social benefits and will not impact negatively on the biophysical environment.

Current planning framework and consent

The ARRT Facility currently operates under the Minister's Major Project Approval of the former Jacks Gully Alternative Waste Technology Facility (7 September 2006), as modified – granted under Part 3A of the *Environmental Planning and Assessment Act, 1979*.

Notwithstanding that the Part 3A Major Project approval process has been abandoned, a planning mechanism remains in place to modify existing Major Project Approvals under Section 75W of the Act.

The Director General of the NSW Department of Planning and Infrastructure has granted consent for the Modification Application to be lodged under this approvals mechanism and has issued Director General's Requirements (DGR's) for inclusions in the Environmental Assessment.

The proposal has been found to be consistent with the provisions of all relevant planning legislation, instruments and policies.

Consultations

The following Agencies and groups were invited in writing to make comment on the proposed modification:

- Camden Council
- Campbelltown Council
- NSW Roads and Maritime Services
- Sydney Water
- NSW UrbanGrowth
- NSW Environmental Protection Authority
- GFD Suez Australian Energy
- Spring Farm ARRT Community Reference Group

Additionally, SITA arranged notification of the proposal in the local press, provided notification on the SITA website and invited public submissions.

Written responses were received from Camden Council and NSW UrbanGrowth. SITA also received two emailed requests for information from members of the local community. Written responses were provided to each of these.

In direct response to the consultation process, the following amendments to the proposal have been made:

- The proposal to seek approval to receive additional quantities of MSW at the ARRT Facility has been deleted; and
- An assessment of acoustic impacts of the proposal has been carried out.

Principal issues raised in the consultations and responses to each are summarised in the following table.

Table 1-1 Consultations – issues and response summary

Issue in Consultations	Response in Environmental Assessment
Cumulative impact of odour on sensitive receiving environment	NSW UrbanGrowth made a specific comment that the proposal should not result in cumulative odour generated as a result of implementation of the proposal that is over and above levels stipulated in the current approval. Camden Council's more general request was for a cumulative impact assessment of odour impacts on sensitive receivers. Several other submissions from the general community raised the issue of odour impacts. The Air Quality and Odour Assessment prepared by Pacific Environment Ltd (Appendix C to this EA) includes odour contour modelling indicating that the cumulative 20U odour contour would not extend beyond the boundary with the SITA boundary with the Residential Release Area.
Acoustic impacts of increase in vehicle movements.	UrbanGrowth commented that any increase in truck movements prior to completion of the Liz Kernohan Drive / Haul Road will impact on the amenity of residents in Springs Road, with particular regard to acoustic impacts. Camden Council has made a request for assessment of noise impacts of the proposal on the surrounding residential environment. The proposal as amended will only generate additional truck movements from delivery and transfer of liquid waste. Cardno's assessment with regard to traffic impacts (Appendix D) has found that the amended proposal would generate 21 additional vehicle movements per day prior to closure of the landfill and 28 additional vehicle movements per day post closure of the landfill. The subsequent acoustic assessment (Appendix E) has found that using the temporary access road from Richardson Road (i.e. prior to the construction of the haul road) the proposal would result in an increase in road traffic noise levels on Richardson Road of +0.2 dB(A). With the haul road operational, road traffic noise levels on Link Road would increase by +0.8 dB(A). These are reported to be marginal increases that would not require additional mitigation measures under the requirements of the NSW Environmental Criteria for Road Traffic Noise. On that basis it is considered that the proposal can proceed prior to construction of the haul road without unacceptable acoustic impacts on the new Spring Farm residential community.
Pollution risk from handling and storage of liquid waste	Appendix F to the EA provides an assessment of hazards and risks associated with the proposal. The assessment included a Preliminary Hazard Analysis (PHA) consistent with the requirements of <i>State Environmental Planning Policy 33 – Hazardous and Offensive Development</i>. With respect to pollution risk from handling / storage of liquid waste, the PHA has found: • There would be a Low Risk for pollution arising from spillage or leakage of waste or interruptions to the operations treatment facility. • There would be a Moderate Risk of pollution through acceptance of un-licensed forms of liquid waste, accidental fuel spill. • No High Risks for pollution have been identified out of the PHA. The assessment concludes that with appropriate mitigation measures in place the identified risks of pollution would be sufficiently managed.
Traffic impacts on Liz Kernohan Rd and the haul road whilst being constructed and at the completion of the Spring Farm residential release.	The proposal will have no traffic impacts on Liz Kernohan Drive until the haul road is constructed and operational. Until that time, all traffic movements to and from the SRRP will be via the access road connecting to Richardson Road. With respect to movements post commissioning of the haul road, the traffic impact assessment that accompanies the EA (see Appendix D) has found: "The completion of the Spring Farm Eastern Village is expected to generate approximately 8595 vehicles daily on Richardson Road and 1146 vehicles per day on Liz Kernohan Drive. The addition of 28 Heavy Vehicles daily into the new road network will result in a 0.65% and 4.9% increase in traffic volumes on Richardson Road and Liz Kernohan Drive respectively. The marginal increase of heavy vehicle volumes of less than 5% is anticipated to have negligible impacts on the road network."

Issue in Consultations	Response in Environmental Assessment
Impacts on European and Aboriginal heritage	The proposal is for a change in the type and quantities of waste materials to be treated within the existing waste management infrastructure at the ARRT Facility within the Spring Farm RRP. No construction is proposed within the ARRT Facility and no changes are proposed to infrastructure within and outside the boundaries of the SFRRP. The proposal will thus have a nil impact on European and Aboriginal heritage.
Impacts on identified cultural and visual landscapes	Chapter 8 of this EA includes commentary on impacts of the proposal on cultural and visual landscapes. With respect to relevant sections of the Camden Development Control Plan, 2012 which provide controls for protection of Cultural and Visual Landscapes in the Local Government Area, the EA makes the following comments: Given that this proposed Modification involves no construction works and that all proposed activity, including storage and processing of materials will occur within existing built infrastructure, it is considered that the specific requirements of the DCP with regard to protection of Cultural and Visual Landscapes will not be relevant in the circumstances of this case.
Assessment against the Camden LEP and DCP.	Chapter 6 of this EA includes assessment of the proposal against the requirements of all relevant planning controls and legislation, including the Camden LEP and DCP. The proposal is permissible under the LEP zoning that applies to the subject site and is consistent with the zone objectives. The proposal has also been found to be consistent with all relevant controls in the DCP.
Query: Does 'Mixed Waste' equate to the approved 'Mixed Municipal Waste'?	The proposal is to receive Mixed Solid Waste (MSW) equivalent to General Solid Waste as defined by the Waste Classification Guidelines published by Department of Climate Change and Water (December 2009). In this regard, the waste material referred to as MSW in the proposal is not 'Special Waste', 'Liquid Waste', 'Hazardous Waste' or 'Restricted Solid Waste' as defined by the Guidelines. No change is proposed to the component of the existing Condition of Consent that refers to the waste as: <i>'waste classified as inert or solid waste under the Protection of the Environment Operations Act, 1997.'</i>
Request that proposal be amended to maintain maximum receiving level of 130,000tpa	SITA has reviewed its proposal in the light of these comments. The proposal as amended is to receive and process 130,000tpa of MSW and 520m ³ per day of Liquid Waste. The amended proposal now involves no change to the amount of MSW to be received at the ARRT Facility.
Provide details of quantum of liquid waste to be received / processed.	The proposal is to receive and process 520m ³ per day of liquid waste.
An approval for increase in waste received should not be permitted to commence until proposed new local roads are operational.	The traffic impact assessment at Appendix D and the acoustic impact assessment at Appendix E have found that the proposal would not result in adverse impacts on local acoustic amenity or the existing local road system and that all intersections would operate well within their capacity with the proposed Modification in place. It is thus considered that there is no necessity to delay the commencement of the operation until new roads are constructed.
There should be no change to currently approved hours of operation and / or prohibition on night time truck movements	The application includes no proposal to change hours of operation or other existing restrictions on vehicle movements.
Concern regarding transport of potentially hazardous liquid waste through residential streets.	The Preliminary Hazard Analysis completed consistent with the requirements SEPP 33 – Hazardous and Offensive Development (Appendix F) has found that with existing Environmental Management Plans and Safe Operating Practices in place, the proposal would represent a negligible risk with regard to transport to / from and processing of liquid waste at the ARRT Facility.
Concerns regarding SITA's proposal to construct a new rising sewer main across UrbanGrowth land.	This proposal is not part of this Modification application. SITA has engaged in discussions with UrbanGrowth regarding future plans to connect the SFRRP to sewer. SITA's eventual intention, which has been conveyed to UrbanGrowth, is to seek connection either to the existing rising main at Mount Annan or to the future rising main that will be installed by Urban Growth in Richardson Road.

Issue in Consultations	Response in Environmental Assessment
	Timing or location of any new connection has not been finalised at the time of preparation of this EA. In the medium term, processed liquid wastes will be trucked off site for disposal to sewer elsewhere. Records of discussion to date between SITA and UrbanGrowth regarding sewer connection are included in Appendix A.
Query: Are additional structures proposed on the ARRT site?	No additional structures are proposed as part of this Modification application. All additional quantities of waste materials will be stored and processed within the existing waste management infrastructure.

Environmental assessment

An environmental assessment (EA) of the proposed modification has been carried out with particular regard to the matters listed in the Director General's Requirements. An environmental risk analysis has been carried out as a basis for critical assessment of the potential impacts of the proposal on the local environment.

Waste management

The Environmental Risk Analysis identifies moderate risks for local and regional waste management arising from the sub-optimal use of the existing advanced waste treatment infrastructure at the ARRT Facility that would be the outcome of a failure to implement this project. Corresponding risks of actioning the proposal (essentially the risk of impacts on the physical environment and the safety and amenity of the local residential population) are individually addressed in the Environmental Assessment with an overall finding that each of these risks can be adequately addressed through proper environmental management practices.

MSW streams will be sourced from the Sydney Metropolitan Area and treated using environmentally sustainable techniques that maximise resource recovery and produce sustainable energy. Solid residues will be non-putrescible and will be sent to the Spring Farm landfill.

The proposed Liquid Waste stream will be treated on site to yield Biogas which will be converted to sustainable electric power. The liquid will then be disposed to Sydney Water's sewer under an agreement currently being sought. Forms and chemical composition of liquid waste to be treated at the ARRT Facility are dictated by SITA's current Trade Waste Agreement with Sydney Water (Consent to Discharge Industrial Trade Waste, July 2011).

Not proceeding with the proposal poses significant environmental risks associated with the failure to utilise sustainable waste management practices. Specifically, these include increased risks of generation of greenhouse gases from landfill and risks of soil pollution from soil injection of liquid waste. On this basis it is considered that the proposal should proceed in the interests of achieving best practices in sustainable waste management.

Essentially, the risks to sustainable waste management of not proceeding with the proposal are considered to substantially out-weigh the manageable environmental risks of proceeding.

Soil and water

Soil and water quality within the SFRRP are managed via a suite of Operational Environmental Management Plans (OEMP's) prepared in accordance with the various planning consents that apply to the site. Specific to this proposal, soil / water quality within the ARRT Facility is managed via the Macarthur Resource Recovery Park – EcoLibrium Mixed Waste and Organics Facility Operational Environmental Management Plan (WSN, 2008).

An assessment of impacts of the proposal on soil and water quality has made the following conclusions:

- No construction impacts associated with the site works are likely given that the proposed activities would occur within existing buildings/areas. Should any earthworks be proposed as part of connecting the site to the Sydney Water trade waste system any associated impacts should be assessed and managed accordingly;
- The proposed activities would have no significant impact on site hydrology. There would be no increase in impervious surface and therefore no increase in surface runoff. No significant

barriers to flow are proposed as part of the activities, allowing existing flowpaths on site to function effectively;

- Impacts to surface water quality during operation would be associated with accidental spills or breaches of containment units. These potential impacts can be effectively managed through the implementation of control measures listed in the site OEMP;
- Given that the existing facility is constructed on an impervious site, such that stormwater (and also process water within the facility) would not be able to infiltrate to groundwater, groundwater impacts are not considered likely; and
- There would be no discharge of leachate to the Nepean River during operation of the proposed activities. Up to 520m³ per day would be discharged to the Sydney Water trade waste system in accordance with relevant guidelines.

Current mitigation measures would be required to continue to ensure ongoing surface water quality management with the proposed new operations in place.

The overall finding of the assessment is that with the proposed revision to the existing on-site soil and water management system in place along with amendments to the OEMP to address liquid waste and leachate treatment, all risks arising with regard to soil / water quality are manageable.

Air quality and odour

Odour impacts have been and will continue to be a significant issue with regard to operations of the SFRRP, principally due to the ongoing changes to landuse in the locality from agricultural to residential. SITA is, however, actively working to reduce and manage odour being generated by operations on the site so as to minimize impacts on the developing residential neighbourhood.

Historically, and particularly during operations of the ArrowBio EcoLibrium technology, the SFRRP has been subject to some controversy due to ongoing odour complaints from nearby residents. Investigations into the technology after SITA acquired the SFRRP lead to the conclusion that the wet EcoLibrium process was not suited to the forms of waste being treated. The inefficiencies in the processing were identified as a substantial cause of odour being generated from the site. In 2011, SITA decommissioned the EcoLibrium Facility, principally to address operational issues and also, at least partly, due to odour impacts.

The risk of this proposal to exacerbate odour impacts on the surrounding residential neighbourhood as it develops is critical to its success. To address potential odour impacts of the proposal and to satisfy the relevant DGR's, an Odour Impact Assessment (OIA) has been carried out by Pacific Environment Limited (Appendix C). The outcomes of this report have been used to inform the assessment of the potential risks of the proposal with respect to air quality and odour.

An analysis of the history of odour impacts with regard to operations at the SFRRP is included in the body of this EA. This analysis indicates that the incidences of odour complaints received by SITA from residents in the vicinity of the SFRRP have reduced since the decommissioning of the EcoLibrium process. Notably, the trend towards reduced complaints has continued with the re-commissioning of MSW processing at the ARRT Facility during 2012, using dry processing. With the various monitoring, managing and reporting practices to control odour in place and based on the findings of the Odour Impact Assessment of this proposal, it can be concluded that the risk of the proposal contributing to additional odour impacts on the developing local residential neighbourhood would be acceptable.

The Air and Odour Impact Assessment of this proposal has concluded with respect to air quality:

“Results from the dispersion modelling indicate that the modified ARRT Facility would be likely to comply with the NSW EPA odour criteria at the nearest residential receptors. Predicted ground level odour concentrations are estimated to be below the criterion of 2 OU (99th percentile) for all of the nearest residential receptors.

Air quality issues relative to dust and oxides of nitrogen have also been discussed in this report. Due to the nature of the proposed upgrade, it was determined that emissions of this nature will be minor and do not warrant quantitative assessment.

Current mitigation measures are in place to keep emissions to a minimum. These will continue, along with others that have been undertaken.”

And with respect to odour:

“Results from the dispersion modelling indicate that the modified ARRT would be likely to comply with the EPA criteria at the nearest residential receptors. Predicted ground level odour concentrations are estimated to be below the criterion of 2 OU (99th percentile) for all of the nearest residential receptors. Mitigation measures have been suggested to keep emissions to a minimum.”

On the basis of these conclusions and the outcomes of the review of odour related environmental risks, it is considered that the proposal would have an acceptable impact with regard to odour.

Traffic and transport

Traffic impacts of this proposal will be contingent on the numbers of vehicle movements generated specifically by the proposed activities and the cumulative effects of those movements on the local road system. Two scenarios require assessment:

- Current access routes to the SFRRP while the Spring Farm Release Area is in its development stage; and
- Future planned access routes after completion of the Release Area development.

Cardno has prepared a Traffic Impact Statement (TIS) to address these potential impacts against the relevant Director General's requirements.

In summary, the Cardno Traffic Impact Assessment makes the following conclusions:

- It is expected that in the short term period (between October 2013 – April 2014), heavy vehicles accessing the site will continue to use Richardson Road and Springs Road as per the current arrangement until the completion of new access roads as part of the Spring Farms Eastern Village development works. The modification proposals will generate an additional 21 heavy vehicles daily, including 4 trips (2 In / 2 Out) in each peak period. This increase is considered to be marginal and is expected to have negligible impacts on the existing road network with Richardson Road and Springs Road still within acceptable range in regards to the environmental capacity; and
- For the assessment of the long term period (mid-2016 onwards), it is assumed that heavy vehicles will access the site via Liz Kernohan Drive to the new haul road located on the eastern boundary of Spring Farm Eastern Village. The completion of the Spring Farm Eastern Village is expected to generate approximately 8595 vehicles daily on Richardson Road and 1146 vehicles per day on Liz Kernohan Drive. The addition of 28 HVs daily into the new road network will result in a 0.65% and 4.9% increase in traffic volumes on Richardson Road and Liz Kernohan Drive respectively. The marginal increase of heavy vehicle volumes of less than 5% is anticipated to have negligible impacts on the road network.

The TIA endorses the proposed DA modification as having no material negative impacts on Liz Kernohan Drive, Richardson Road and Springs Road.

The overall findings of the Traffic Impact Assessment are that the proposed Modification would generate only minimal additional traffic movements and that these would result in numbers well within the capacity of local critical intersections both prior to and consequent to construction of the proposed haul road. On this basis, the proposal is considered acceptable with respect to risks of traffic impact.

Visual

This proposal will involve only alterations to the receiving and processing of waste streams within the existing waste management infrastructure at the ARRT Facility. No building works are proposed and there will consequently be no changes to the visual environment resulting from its implementation. The proposal will pose no environmental risks with regard to the visual quality.

Acoustic impacts

Acting on requests from Camden Council and Urban Growth NSW (in response to invitations from SITA to provide comment on the proposed Modification), an assessment was carried out of the potential acoustic impact of the proposal on adjoining residential development.

Noise impacts of operations within the SFRRP on the existing residential development have not been a significant issue to date. The proposal would be unlikely to generate additional noise from on-site operations. The only potential for acoustic impacts would be from traffic movements to and from the site and through local streets.

The Cardno acoustic assessment examined impacts generated by traffic noise levels on Richardson Road prior to commissioning of the new haul road and on Link Road after the haul road becomes operational.

Road traffic noise level on Richardson Road is predicted to increase by +0.2 dB(A) during temporary use for access purposes, prior to construction of the haul road.

With the haul road operational, road traffic noise levels on Link Road when compared to the Renzo Tonin assessment has been assessed as +0.8 dB(A) in the long term along Link Road.

Cardno has concluded that in both scenarios, these increases in traffic noise levels are marginal and they would not require additional noise mitigation measures, under the NSW Environmental Criteria for Road Traffic Noise (ECRTN).

Hazards and risk

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) and *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33 (DOP, 2011a)*, are of relevance to the proposed Modification Application. To address the Director General's Requirements, assure consistency with relevant planning controls and ensure potential risks to people and the environment resulting from this proposal are adequately managed, Cardno has carried out a Preliminary Hazard Analysis (PHA) in accordance with SEPP 33 and the DOP Guidelines.

The overall conclusion of the assessment of hazards and risks associated with the receiving, processing and transport of liquid waste at the ARRT Facility is that current Environmental Management Plans and Standard Operating Procedures that apply to the Facility are sufficient to manage all potential hazards and risks associated with the activities proposed in this Modification Application including:

- The treatment of additional quantities of MSW; and
- The treatment of Liquid wastes.

Cumulative impacts

The Director General's Requirements include an assessment of the cumulative impacts of the proposed modification at the ARRT Facility and all other existing operations at the Spring Farm Resource Recovery Park. The assessment makes a summation of the environmental and amenity impacts of the subject proposal as an incremental component of the ongoing development of the SFRRP and finds that the proposal would have minimal cumulative impacts on the physical and social environment.

Conclusion

This Environmental Assessment addresses the Director General's Requirements for assessment of SITA's proposal to modify the existing Major Project Approval for the Spring Farm Advanced Resource Recovery Technology Facility in order to permit processing of additional quantities of Mixed Solid Waste and Organic Liquid Waste.

The proposal has been assessed against and found to be consistent with all relevant Federal, State and Local legislation, Planning Instruments and Controls. A thorough assessment of all potential environmental and amenity impacts has also been completed. Specific impacts have been assessed with regard to:

- Soil and water;
- Air quality and odour ;
- Traffic;

- Noise; and
- Visual quality.

A cumulative impact assessment has also been conducted along with a Preliminary Hazard Analysis consistent with the requirements of *SEPP 33 – Hazardous and Offensive Development*. The outcome of this assessment process is that the proposal is well within acceptable bounds with regard to all assessed environmental impacts and risk.

A needs and justification analysis of the proposal has concluded that it is entirely consistent with current Federal and State government policy for waste management. It will return local and regional benefits with regard to diversion of waste from landfill, reductions in greenhouse gas emissions, resource recovery, sustainable power generation and reduction in landfill gas odour emissions.

The proposal also represents a measure towards efficient usage of existing advanced waste treatment technology which is operating below optimal utilisation levels under the current planning consent. The proposed Modification, if approved will free the facility up to sustainably process waste streams that are well suited to the technology available at the ARRT Facility. The Modification would also permit processing of quantities of waste closer to the capacity of the existing facility than is the case under the current consent conditions. Without the Modification in place, the facility will remain under-utilised and the social and environmental benefits outlined in this EA will not be fully realised.

On this basis, it is Cardno's opinion that the proposed Modification to the existing consent for the Spring Farm ARRT Facility will have substantial net benefits to the environment and the community. It is thus considered to be in the public interest and worthy of approval.

DIRECTOR GENERAL'S REQUIREMENTS

Director General's Requirements (DGR's) for the Environmental Assessment to accompany this proposal were issued to SITA on 18 October 2012. The following table lists the DGR's and provides references to relevant responses in the Environmental Assessment (EA).

REQUIREMENTS	LOCATION
General Requirements	
Executive Summary	
Detailed description of the following within the Spring Farm Advanced Resource Recovery Facility and any associated areas: - Historical operations / activities on site; - Existing and approved operations/ facilities, including any statutory approvals that apply to these operations and facilities; and - Existing environmental management and monitoring regime	Chapters 1, 2, 5
Detailed description of the project, including: - Need for the project; - Justification on economic, social and environmental grounds; - Its integration with the approved operations; - Design outline and treatment method; - Any likely staging of the project; and - Plans of any proposed building works	Chapters 3, 4
Risk assessment of the potential environmental impacts of the project, identifying the key issues for further assessment	Chapter 5
A detailed assessment of the key issues specified below, which includes: - Description of the existing environment, using sufficient baseline data; - An assessment of the potential impacts of all stages of the project, including any cumulative impacts, taking into consideration any relevant statutory provisions, technical or policy guidelines (see below); and - A description of the measures that would be implemented to avoid, minimise, mitigate, rehabilitate/remediate, monitor and/or offset the potential impacts of the project, including detailed contingency plans for the managing any potentially significant risks to the environment.	Chapter 9
Conclusion justifying the project on economic, social and environmental grounds, taking into consideration whether the project is consistent with the objects of the <i>Environment Planning & Assessment Act 1979</i>	Chapter 9
A signed statement from the author of the Environmental Assessment, certifying that the information contained within the document is neither false nor misleading	Report Preamble
Key Issues	
WASTE MANAGEMENT - Describe the strategic role of the project in the context of the broader waste management strategies - Details, project quantities and origin of incoming wastes to be treated - Details of the treatment process - Details of the waste output disposal and/or final use (i.e. sewer discharge, land application, resource recovery exemptions)	Section 8.2
SOIL & WATER - Detailed water balance for the project - Wastewater predictions, and the measures that would be implemented to treat, reuse and/or dispose of this water, with regard to cross contamination of wastewater from the project's different components - Proposed stormwater management system	Section 8.3
AIR QUALITY & ODOUR - Quantitative assessment of the potential air quality and odour impacts of the project and the effectiveness of the proposed air quality/ odour control measures - Odour modelling should consider cumulative impacts from the approved	Section 8.4

operations at the Spring Farm Advanced Resource Recovery Facility - Details of management protocols and procedures for preventing and/or minimising emissions - Details of how potential odour from any runoff (leachate & stormwater) <i>will be managed and mitigated</i>	
TRAFFIC & TRANSPORT - Accurate predictions of the traffic volumes likely to be generated during construction and operation - Detailed traffic impact study of the project - Cumulative impacts associated with the Spring Farm Advanced Resource Recovery Facility	Section 8.5
VISUAL - An assessment of the potential visual impacts of the project on the amenity of the surrounding area - A detailed description of the measures that would be implemented to minimise the visual impacts of the project	Section 8.6
HAZARDS AND RISKS - An assessment of the potential hazards and risks associated with the project. A preliminary risk screening must be completed in accordance with <i>State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) and Applying SEPP 33 (DoP 2011)</i>, and where necessary, a Preliminary Hazard Analysis (PHA) undertaken	Section 8.8
CUMULATIVE IMPACTS - Associated with existing operations at the Spring Farm Advanced Resource Recovery Facility	Section 8.9

SITA's initial proposed modification was to involve processing of Organic Liquid Waste at the ARRT. The DGR's of 18 October 2012 were issued to address an Environmental Assessment for this proposal. Subsequent to receipt of the initial DGR's, SITA advised the Department of its intention to also seek approval to receive and process the additional quantities of MSW at the ARRT Facility. The Department responded via an email on 12 December, 2012 instructing that the DGRs would not be revised or reissued, but SITA is to ensure that an adequate assessment of any associated impacts of the additional proposal is included in the Environmental Assessment. This assessment has been included as an integral part of the EA.

Table of Contents

Executive Summary	iv
1 Introduction	21
1.1 Overview	21
1.2 The purpose and structure of the Environmental Assessment Report	23
1.3 The Applicant	25
1.4 Background	25
1.5 Consent history	27
1.6 Director General's Requirements.	27
2 The site and its context	28
2.1 Site particulars	28
2.1.1 Spring Farm Resource Recovery Park	28
2.1.2 The Advanced Resource Recovery Technology Facility	28
2.2 Context and surrounding land use	33
2.2.1 Spring Farm Residential Release Area	33
3 The project	38
3.1 Statutory proposal	38
3.2 Technical detail	38
3.2.1 High Organic Liquid Trade Waste Treatment (320 m ³ /day design capacity)	39
3.2.2 Leachate treatment (200 m ³ /d design capacity)	40
3.2.3 Residual solids treatment	40
4 Need and justification	42
4.1 Overview	42
4.2 "Fit for Purpose"	43
4.3 State planning strategies	43
4.3.1 <i>The NSW State Plan (New South Wales 2021)</i>	43
4.3.2 <i>The draft Metropolitan Strategy for Sydney – South West Regional Strategy</i>	43
4.4 Federal waste management objectives	44
4.4.1 <i>The National Waste Policy: Less waste, more resources</i>	44
4.5 State waste management objectives	44
4.5.1 <i>Waste Avoidance and Resource Recovery Act, 2001 (the WARR Act)</i>	44
4.5.2 <i>Waste Avoidance and Resource Recovery Strategy, 2007</i>	44
4.6 SITA's role in achieving Federal and State waste management objectives and targets	45
4.7 Regional waste framework and demand	45
4.7.1 Environmental benefits	46
4.8 Need for the proposed new waste stream and additional capacity	46
4.9 Benefits and impacts of the Proposal	46
4.9.1 Biophysical considerations	46
4.9.2 Economic considerations	46
4.9.3 Social considerations	47
4.10 Justification for proposed new waste stream and additional capacity	47
4.11 The "do-nothing" option	47
5 Current consents, licensing and management plans	49
5.1 SFRRP planning consents, licencing and management plans	49
5.1.1 Planning Approvals	49
5.1.2 Environmental Protection Licences	50

6	Planning and Legislative Framework	51
6.1	Mechanism for approval of this Modification Application.	51
6.2	State Environmental Planning Policies (SEPP's)	51
6.2.1	State Environmental Planning Policy No.33 – Hazardous and Offensive Development	51
6.2.2	State Environmental Planning Policy No.55 – Remediation of Land	52
6.2.3	State Environmental Planning Policy (Infrastructure), 2007	53
6.3	Regional Environmental Plans	53
6.3.1	Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River	53
6.4	Other relevant State legislation	54
6.4.1	Protection of the Environment Operations Act, 1997	54
6.4.2	Waste Avoidance and Resource Recovery Act, 2001	54
6.5	Local Planning Controls	55
6.5.1	Camden Local Environmental Plan, 2010	55
6.5.2	Camden Development Control Plan, 2011	58
6.5.3	Camden Contributions Plan, 2011	58
7	Community and agency consultations	59
7.1	Camden Council	60
7.2	Campbelltown Council	60
7.3	NSW Roads and Maritime Services	60
7.4	Sydney Water	60
7.5	GDF Suez Australian Energy	60
7.6	NSW UrbanGrowth	60
7.7	Environmental Protection Authority	61
7.8	Spring Farm ARRT Community Reference Group and general community	61
8	Environmental Assessment	65
8.1	Environmental risk assessment	65
8.2	Waste Management	68
8.2.1	Director Generals Requirements	68
8.2.2	Environmental risks	70
8.3	Soil and Water	71
8.3.1	Director General's requirements	71
8.3.2	Environmental risks	76
8.3.3	Conclusions	77
8.4	Air Quality and Odour	78
8.4.1	Director General's Requirements	78
	Management protocols	80
	Mitigation measures	82
8.4.2	Environmental risks	83
8.4.1	Conclusions	84
8.5	Traffic and Transport	86
8.5.1	Director General's Requirements	86
8.5.2	Short Term (between October 2013 – April 2014)	87
8.5.3	Long Term (mid-2016 onwards)	87
8.5.4	Environmental risks	88
8.5.5	Conclusions	88
8.6	Visual	89
8.6.1	Director General's Requirements	89
8.6.1	Environmental risks	89

	8.6.2	Conclusions	89
8.7		Acoustic impacts	90
	8.7.1	Director General's Requirements	90
	8.7.1	Environmental risks	90
	8.7.2	Conclusions	90
8.8		Hazards and Risks	91
	8.8.1	Director General's Requirements	91
	8.8.1	Conclusions	92
8.9		Cumulative Impacts	93
	8.9.1	Director General's Requirements	93
	8.9.2	Waste management	93
	8.9.3	Soil and water quality	93
	8.9.4	Air quality and odour	93
	8.9.5	Traffic and Transport	94
	8.9.6	Visual	94
	8.9.7	Hazards and risk	94
	8.9.8	Cumulative impacts	94
9		Conclusion	95
	9.1.1	Director General's Requirements	95
		References	97

Appendices

Appendix A	SITA 'Fit for Purpose' Report
Appendix B	Community Consultation
Appendix C	Soil and Water Assessment
Appendix D	Air Quality and Odour Assessment
Appendix E	Traffic and Transport Assessment
Appendix F	Acoustic Assessment
Appendix G	Hazards and Risk Assessment

Tables

Table 1-1	Consultations – issues and response summary	vii
Table 1-1	Structure of the environmental assessment report	23
Table 7-1	Consultations - issues and response summary	62
Table 8-1	Environmental Risk Assessment Analysis	65
Table 8-2	Predicted 1-hour average (99 th percentile) odour concentrations at individual residences	78
Table 8-3	SITA odour complaint numbers – comparison 2011 and 2012 (extract from SITA internal report)	84
Table 8-4	Future Traffic Generation (Short Term)	86
Table 8-5	Future Traffic Generation (Long Term)	87
Table 8-6	Environmental Capacity Performance Review	87

Figures

Figure 1-1	The Spring Farm Resource Recovery Park – site location & regional context	22
------------	---	----

Figure 2-1	The Spring Farm Resource Recovery Park – site particulars	30
Figure 2-2	Existing infrastructure of the ARRT Facility	31
Figure 2-3	The Spring Farm Resource Recovery Park site – local context	32
Figure 2-4	Spring Farm Residential Release Area – Landcom masterplan	35
Figure 2-5	Spring Farm Residential Release Area –likely subdivision staging (NSW UrbanGrowth masterplan marked up by Cardno)	36
Figure 2-6	Spring Farm Release Area – likely infrastructure staging (NSW UrbanGrowth).	37
Figure 3-1	Existing on-site gas to energy engines (Double Jenbacher 1400 kW CHP)	39
Figure 3-2	SBR 1 (300 m ³)	40
Figure 3-3	Existing belt filter press (Siemens) within the ARRT processing hall.	40
Figure 3-4	Proposed tank farm operations (diagrammatic representation)	41
Figure 3-5	Proposed leachate / waste water process diagram	41
Figure 6-1	Land zoning (extract from Camden LEP, 2012)	56
Figure 6-2	Spring Farm Urban Release Area – toned blue (extract from Camden LEP, 2012)	57
Figure 8-1	ARRT Facility – Daily Water Balance with proposed Modification in place	72
Figure 8-2	Existing ARRT Facility Process Water Management – Dry Separation	74
Figure 8-3	SFRRP Proposed Soil and Water Management System	76
Figure 8-4	Predicted 99th percentile ground level odour concentration due to ARRT/MRF operations only	79
Figure 8-5	Predicted 99 th percentile ground level odour concentration due to combined emissions from Spring Farm ARRTF/MRF and Landfill and Camden Organics	80

TERMS AND ABBREVIATIONS

ARRT Facility	Advanced Resource Recovery Technology Facility
DGR's	Director General's Requirements
DP&I	NSW Department of Planning and Infrastructure
EMP	Environmental Management Plan
EPA	Environmental Protection Authority
EPA Act	<i>Environmental Planning and Assessment Act, 1979</i>
EPL	Environmental Protection Licence
GOP	Garden Organics Plant
Liquid Waste	Material classified as Liquid Waste under Schedule 1 (Clause 49) of the <i>Protection of the Environment Operations Act, 1997</i>
MRF	Materials Recycling Facility
MSW	Mixed Solid Waste classified as inert or solid waste under Schedule 1 (Clause 49) of the <i>Protection of the Environment Operations Act, 1997</i>
POEO Act	<i>Protection of the Environment Operations Act, 1997</i>
SEPP	State Environmental Planning Policy
SFRRP	Spring Farm Resource Recovery Park
The Proponent	SITA (Australia) Pty Ltd
Subject Modification Application	Application under S.75W of the EPA Act to modify Minister's Consent 05/0098 (7 September 2006) for the Jacks Gully Alternative Waste Treatment Facility.
Subject Site	Spring Farm Advanced Resource Recovery Technology Facility (within the Spring Farm Resource Recovery Park)

1 Introduction

This Environmental Assessment has been prepared to support an application to modify the existing planning consent for the Spring Farm Advanced Resource Recovery Technology Facility in order to permit the receiving and processing of liquid waste and processing of additional quantities of Mixed Solid Waste.

1.1 Overview

SITA Australia Pty Ltd (**SITA**) owns and operates the Spring Farm Resource Recovery Park (**SFRRP**) at Richardson Road, Spring Farm (Figure 1-1). The site incorporates a series of waste management operations including a non-putrescible landfill, a Materials Recycling Facility (**MRF**), a Small Vehicle Drop-off facility, Landfill Gas Power Generation Plant and the Spring Farm Advanced Resource Recovery Treatment Facility (**ARRT**). This latter facility includes a Garden Organics Plant (**GOP**), a mixed waste treatment plant and a Gas to Energy Tank Farm. These facilities and their layout on the SITA landholding are illustrated in Figure 1.3.

Various planning consents and Environmental Protection Licences apply to the operations across the SFRRP. In summary:

- The landfill operates under an historic agreement between Camden Council and the then NSW Metropolitan Waste Management Authority by virtue of the fact that at the time of its establishment, development approval was not required for landfill operations. Licencing of the landfill operation is subject to Environmental Protection Licence (**EPL**) No.5105
- The MRF, Small Vehicle Drop-off facility and Landfill Gas Power Generation Plant all operate under separate development approvals granted under Part 4 of the *Environmental Planning and Assessment Act, 1979* (**the EPA Act**). EPL No.20021 applies to the MRF
- The ARRT Facility operates under Minister's consent no. 05/0098 (7 September, 2006) granted for the then Jacks Gully Alternative Waste Treatment facility. The consent was granted under the now abandoned Part 3A of the EPA Act. It has been modified on a number of occasions since the original consent. EPL 12588 applies to all operations within the ARRT Facility.

Cardno (NSW/ACT) Pty Ltd has been commissioned by SITA to prepare an application to the Minister for Planning in accordance with Part 2A of State Environmental Planning Policy (Major Development), 2005 (**SEPP – Major Development**), to modify the Transitional Part 3A Approval in order to permit receiving and processing of various waste products within the ARRT Facility, in addition to the currently approved waste quantities.

This Environmental Assessment (**EA**) accompanies the Modification Application and responds to:

- Director General's Requirements issued on 18 October 2012 with respect to a proposal to receive and treat liquid waste at the ARRT Facility; and
- A subsequent email to SITA from the NSW Department of Planning and Infrastructure (**DP&I**) (12 December, 2012) in response to notification by SITA of a consequent proposal to increase quantities of solid waste to be treated at the Facility.

Full details of the proposal are included in Chapter 3 of the EA.



Figure 1-1 The Spring Farm Resource Recovery Park – site location & regional context

1.2 The purpose and structure of the Environmental Assessment Report

In accordance with Clause 6 (and Schedule 1) of *State Environmental Planning Policy (Major Development 2005 (the Major Development SEPP))*, the Minister is of the opinion that the proposed changes to the ARRT Facility are of a kind to which Part 3A of the EPA Act applies. Although Part 3A of the Act has since been repealed, the provisions of Part 3A still apply to this proposal as it is considered to be a transitional Part 3A Project under Schedule 6A of the EPA Act. As such, SITA is seeking approval to modify the existing Part 3A consent to permit this project to proceed (**Chapter 6** of the EA provides further discussion of the planning and assessment process).

This EA has been prepared to provide an assessment and analysis of key issues in relation to the Project in response to the Director General's Requirements issued to SITA on 18 October 2012, and the supplementary request for additional assessment issued by email on 12 December 2012. Some further additional assessment has occurred in response to requests from key stakeholders received during the consultation process carried out during preparation of the EA. The EA includes consideration of:

- Waste management;
- Soil and water;
- Air quality and odour;
- Traffic and transport;
- Visual;
- Noise;
- Hazards and risk; and
- Cumulative impacts.

Table 1-1 outlines the structure of the EA and provides a brief description of the information contained in each chapter.

Table 1-1 Structure of the environmental assessment report

Chapter	Description
Chapter 1: Introduction	This chapter provides a brief introduction to the proposed alterations to waste management at the ARRT Facility, a brief description of the Applicant and details of the structure of the Environmental Assessment.
Chapter 2: The site and its context	This chapter provides details of infrastructure and operations on the greater SFRRP site along with further detail about the specific infrastructure and operations within the ARRT Facility. Relevant landuses within the locality are also described and a synopsis is provided of the status of key new local developments including the Spring Farm Urban Release Area.
Chapter 3: The project	This chapter provides technical details of the proposed changes to operations at the ARRT Facility.
Chapter 4: Need and justification	This chapter provides a discussion on the need for and justification of the treatment of liquid waste and additional solid waste at the ARRT Facility. The

Chapter	Description
	strategic planning context of the Project is considered along with a discussion of the consistency of the Project with planning strategies and local, State and Federal waste management legislation, strategies and policies.
Chapter 5: Current consents, licensing and management plans	A synopsis is provided of planning consents, licensing and management plans relevant to the greater SFRP. Consents and Modifications of specific relevance to the ARRT Facility are then described in detail.
Chapter 6: Planning and legislative framework	This Chapter describes the planning and assessment process for this Modification Application. The proposal is reviewed for its consistency or otherwise with all relevant State and local government planning controls and policies.
Chapter 7: Community and agency consultations	This chapter describes the stakeholder and community consultations carried out as part of the Environmental Assessment process. The chapter includes outcomes of consultations with government agencies and the community as required by the DGR's. Outcomes of the consultations are detailed along with initial responses from SITA to issues raised by respondents.
Chapter 8: Assessment of environmental impacts	Guided by the Director General's Requirements this chapter identifies the potential environmental impacts associated with the proposed modification to the ARRT Facility operations. An Environmental Risk Assessment identifies specific risks associated with the proposal. Each identified issue has been assessed by specialist consultants and their individual reports have been included as Appendices to the EA and used as the basis of a comprehensive environmental planning assessment of the proposal, including potential impacts and measures for their mitigation. An assessment of potential cumulative impacts of the proposal is also included.
Chapter 9: Conclusion	This chapter provides a summary of the findings of the environmental assessment and gives consideration to the likely residual impacts of the proposal in light of the mitigation and management measure proposed.
Appendices	Appendices include reports prepared by specialist consultants along with supplementary technical information provided by SITA and full documentation of the consultation process conducted as part of the environmental assessment.

1.3 The Applicant

The Applicant, SITA Australia Pty Ltd, is owned under a joint-venture by parent companies Suez Environment, a major global provider of infrastructure services in the areas of energy, water and waste, and Sembcorp Industries, a leading utilities and marine group.

The Applicant currently owns and operates a number of facilities nationally including:

- The ARRT facility in Port Stephens.
- The ARRT facility in Cairns.
- Neerabup ARRT facility in Western Australia.
- The Kemps Creek SAWT facility and the Spring Farm ARRT facility, both in western Sydney.
- The BioWise composting facility in Perth as a joint venture with the Water Corporation of Western Australia.
- Waste recycling and transfer stations in Sydney, Melbourne and Perth.
- Open windrow composting operations in Victoria and NSW.
- Engineered landfills in Sydney, Melbourne and Perth.
- Numerous waste collection facilities in all mainland states serving over 800,000 households and more than 30,000 commercial/industrial clients.

In February 2011, SITA acquired the State Owned Corporation, WSN Environmental Solutions. This acquisition has expanded SITA's presence in NSW, with the addition of seven transfer stations, two putrescible landfills and resource recovery facilities for recycling, organics and MSW. SITA also has exclusive access to the Eastern Creek UR-3R Facility, which is capable of processing 220,000 tonnes per annum of waste.

1.4 Background

The SFRRP was operated by Camden Council as a local municipal landfill until NSW Waste (later to become WSN Environmental Solutions) took over operations in 1975. Over the period of its operations, the landfill area was progressively filled to capacity and rehabilitated to the point where its extent is now restricted to the south western portion of the site as indicated on Figure 1-3. During the mid to late 1990's, the more advanced forms of resource recovery technology that now occur on the site began to be progressively constructed and commissioned. The current configuration of landfill, MRF, gas to energy platform, small car drop-off / transfer and the ARRT Facility were all in place and operational by 2009.

Over the period of development and operations of the SFRRP, surrounding landuses have also progressively changed from largely agricultural to the current mix of agricultural, industrial and the expanding residential and recreational environment. This change has resulted in the increasing emergence of amenity impact issues that were of lesser concern when the waste facility operated in the context of a largely agricultural environment. Specifically, the cumulative impacts of the combined industrial uses in the locality, (the SFRRP and waste and resource management facilities to the immediate south east) on the emerging residential neighbourhoods to the north and north west of the site have resulted in a number of measures including:

- The cessation of putrescible waste acceptance in the landfill (2008); and
- A series of measures to address odour impacts including management measures and installation of odour mitigating infrastructure.
- When SITA acquired the facility, it was established that the ArrowBio EcoLibrium waste management technology (operating within what is now the ARRT Facility) was not suited to the material being processed. The technology was found to be economically unviable and also a significant contributor to production of offensive odours. For these reasons, the ArrowBio technology was ultimately decommissioned in 2011.
- SITA later re-commissioned the ARRT Facility using a dry treatment process. Since then, reports of incidences of odour impacts have decreased substantially (see Section 8.4 of this EA).

Also since the de-commissioning of the ArrowBio technology, SITA has carried out extensive investigations to identify appropriate processes that will utilise the existing high quality contemporary resource management infrastructure within the ARRT Facility and still maintain an appropriate level of amenity within the nearby emerging residential neighbourhood. The proposal to treat liquid waste and additional solid waste that is the subject of this Modification Application is the outcome of those investigations.

1.5 Consent history

At the time that landfill operations commenced on the Spring Farm site, such development for the purposes of municipal waste management did not require formal development consent. The landfill has operated since its commencement under an agreement between Camden Council and the then NSW Waste Management Authority. Later facilities on the site operate subject to development consents granted by Council under Part 4 of the EPA Act for:

- The Materials Recycling Facility (1995);
- The gas power station (1999); and
- A composting facility (1999).

The former AWT Facility (now the ARRT Facility) is subject to a Major Project Consent and a series of Modifications including:

- Minister's Consent 05/0098 (7 September 2006) under the former Part 3A of the EPA Act for construction and operation of the Jacks Gully Alternative Waste Treatment Facility;
- Modifications No 1. – Modification under S.75W to amend the project approval in order to reflect recent subdivision, and avoid confusion regarding the extent of land subject to the approval. (05_0098; 27 November 2006);
- Modification No 2. – Modification under S.75W to update lot numbers and description of land and modify air filtration technology (05_098; 3 April 2009);
- Modification No.3 - Modification under S.75W to permit additional inputs to the Garden Organics Plant and to construct / commission a gas pipeline from the landfill to the Tank Farm (05_0098; 10 December 2010); and
- Modification No.4 - Modification under S.75W to permit further additional inputs and treatment of additional quantities of garden waste at the Garden Organics Plant (05_0098 12 December 2010).

1.6 Director General's Requirements.

SITA has consulted with the NSW Department of Planning and Infrastructure (**DP&I**) with regard to an appropriate assessment and approvals process for this proposal. The Department has notified that the appropriate development assessment process is a Modification to the existing Major Project Approval via Section 75W of the *Environmental Planning and Assessment Act, 1979*. Accordingly, Director General's Requirements for the Environmental Assessment (EA) of the proposal have been issued. These are listed in the Executive Summary to this report and cross referenced to relevant sections in the EA.

2 The site and its context

2.1 Site particulars

The site that is the subject of this Modification Application is an approved advanced waste treatment facility known as the Spring Farm Advanced Resource Recovery Technology Facility (**ARRT Facility**). The Facility is located within a long established larger waste management facility known as the Spring Farm Resource Recovery Park (**SFRRP**). Following is a description of the greater SFRRP and then the ARRT Facility.

2.1.1 Spring Farm Resource Recovery Park

The SFRRP occurs on Lot 35 DP1098588, Lot 21 DP1125616, Lots 1 & 2 DP1076817 and Lot 33 DP1096463 at Richardson Road, Spring Farm (Figure 2-1). The site is located within the Camden Local Government Area (**LGA**) and is close to the boundary of the Campbelltown LGA. It occupies a total area of approximately 35 hectares.

The facility was established in 1970's as a putrescible landfill. During the 1990's the landfill was progressively downsized and more advanced resource recovery infrastructure was established on the site. At the time of preparation of this EA, the SFRRP comprises the following resource management infrastructure:

- A materials recycling facility (MRF);
- A landfill gas to energy generation plant (operated by EDL Operations Pty Ltd),
- A small vehicle drop off facility, remediated land (former landfill),
- An operating non-putrescible landfill; and
- The ARRT Facility.

The MRF, energy generation plant and small vehicle facility are clustered along the north western edge of the site. The operating landfill is located in the south western corner and the ARRT Facility is situated on the southern boundary. Approximately 2/3 of the site area is occupied by former landfill space which has been capped and is undergoing rehabilitation. The remaining operating landfill is scheduled to cease receiving waste in 2016 and from that point on it will also be capped and rehabilitated.

The SFRRP is currently accessed via a private access road extending east from Richardson Road through land proposed for subdivision as part of the Spring Farm residential release. This access will become unavailable as development of the release area progresses. NSW UrbanGrowth (formerly Landcom) is required under a Deed with SITA to ensure access to the site during and consequent to development. Details of the Deed and the status of the works are discussed in Chapter 2 of this EA.

A single access point and weighbridge is located on the south western corner of the site. This will remain as the point of access to the site consequent to development of the Spring Farm release area. A series of haul roads provide internal connections from the weighbridge to the operating infrastructure within the site.

2.1.2 The Advanced Resource Recovery Technology Facility

The ARRT Facility began operations in June 2008 as an Alternative Waste Treatment Facility, operated by WSN Environmental Solutions Pty Ltd. It was approved under the existing Part 3A planning approval. The Facility used the ArrowBio EcoLibrium water based separation technology and anaerobic digestion in the tank farm to process MSW and produce biogas. This was in turn used to generate electricity via on site gas to energy engines, with residue material being sent to landfill. The process was subject to considerable operational difficulties since commissioning resulting in:

- Lower than expected biogas yields and diversion rates from landfill as well as difficulties in operations of the tank farm as a result of build-up of solid deposits from the incoming MSW ; and
- A substantial contribution to local odour impacts. (Discussed in detail in Chapter 8)

In February 2011, SITA acquired the interests of WSN, including the Spring Farm ARRT Facility. To address the inefficiencies and local environmental impacts, SITA immediately carried out a number of modifications.

Notably, the ARRT Facility wet separation infrastructure and tank farm were decommissioned, the ARRT Facility was re-instated as a small scale mechanical separation plant and the tanks were cleaned of more than 1,000 tonnes of solid deposits.

At the time of preparation of this EA, the Garden Organics Plant (GOP) and the mechanical separation plant are in operation (the latter at levels below its approved capacity), along with a bio-filter facility connected to the GOP. The tank farm is currently operating at a minimal level to support Garden Organics Plant operations through the treatment of leachate.

The ARRT Facility is the **subject site** for the purposes of this Modification Application, occurs on Lot 35 in DP1098588, an allotment located in the south western corner of the greater SFRRP site that was created for the purposes of supporting this treatment facility (see Figure 2-1). The ARRT Facility comprises:

- A mixed waste processing complex housed in a fully enclosed purpose built structure;
- A garden organics plant comprising a covered receiving bay, a series of enclosed composting tunnels and an external Biofilter;
- The bio-treatment tank farm comprising a number of storage and treatment tanks and a gas storage bubble; and
- Two gas to energy engines on a platform adjacent to the mixed waste processing complex.

The total area occupied by the ARRT Facility is 3.7 hectares. Figure 2-2 provides details of the existing infrastructure within the ARRT Facility.

Access to the ARRT Facility is currently via an internal access road that extends from the weighbridge along the eastern edge of the existing landfill.



Figure 2-1 The Spring Farm Resource Recovery Park – site particulars



Figure 2-2 Existing infrastructure of the ARRT Facility

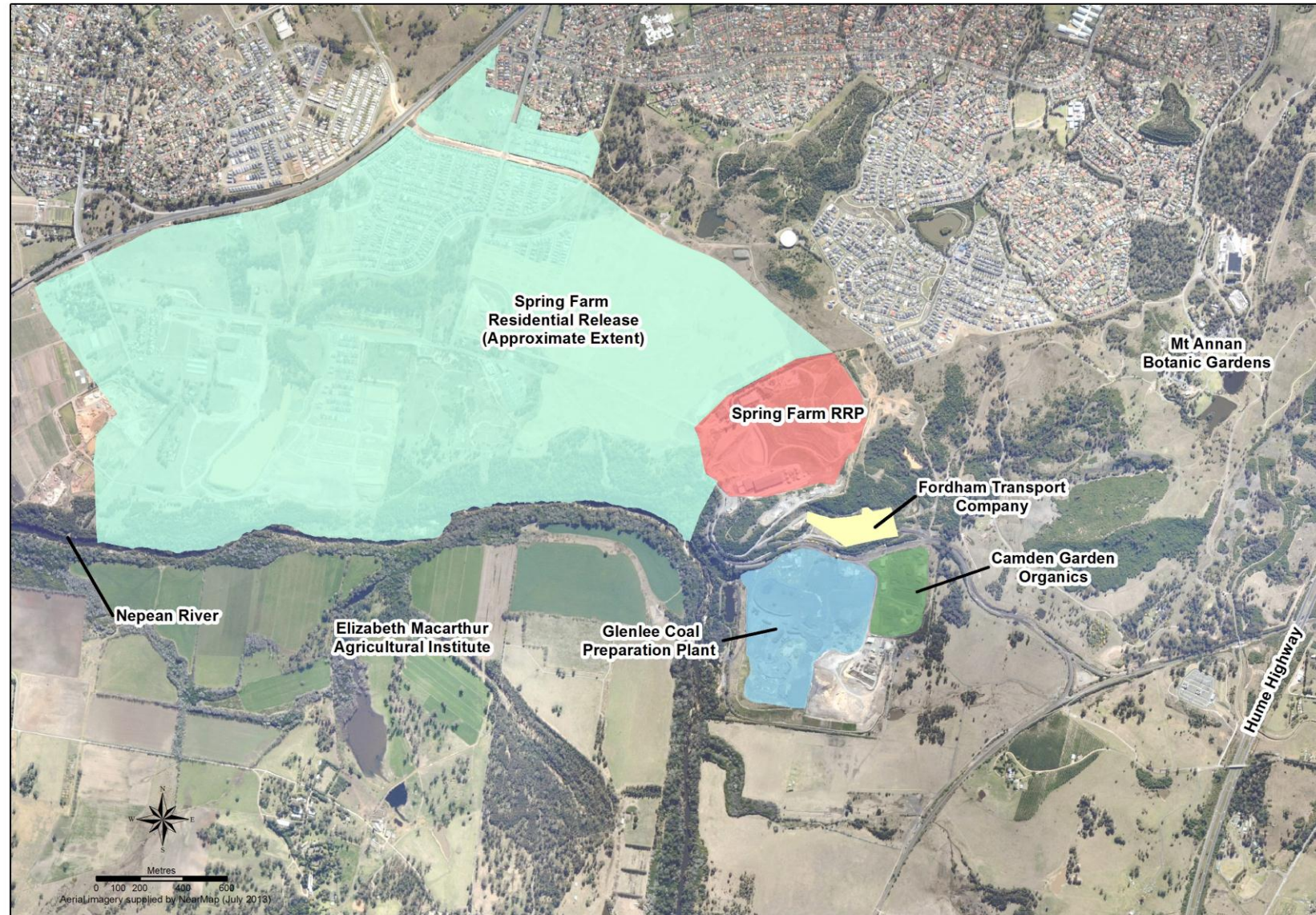


Figure 2-3 The Spring Farm Resource Recovery Park site – local context

2.2 Context and surrounding land use

The ARRT Facility & SFRRP are illustrated in their local context in Figure 3-3. Broadly speaking, the SFRRP occurs in the context of existing and developing residential lands to its north, public open space to its east, industrial development to its south and institutional activities to its west.

Critical to the ongoing operations and further development of the SFRRP (including the ARRT Facility) is its developing residential context. The Spring Farm residential release area is located adjacent to the north west boundary of the SFRRP. Other local residential development in the vicinity includes the suburbs of Mount Annan and Narellan Vale, to the north and north east. The Camden town centre is located approximately 5 kms north west of the SFRRP.

When development of the Spring Farm release area is complete, it will extend to a dedicated 70 metre wide landscape buffer that will separate residential development from the SFRRP site. The buffer will extend for the full length of the common boundary.

Mount Annan Botanic Gardens adjoins the rehabilitated landfill on the eastern boundary of the greater SFRRP site. The edge of the Gardens is approximately 220 metres from the eastern extremity of the ARRT Facility.

Industrial activity south of the ARRT Facility includes:

- A warehouse and truck parking yard (The T & J Fordham Transport Company site);
- The Glenlee Coal Preparation Plant, an open site of approximately 3 hectares where coal is processed and stored; and
- The SITA owned and operated Camden Organics Plant, an open windrow garden organics treatment facility producing garden soils and composts on a site of approximately 2.5 hectares.

All of these operations are accessed via a single access road which extends east from Springs Road. A branch line from the Southern Rail Line also provides freight rail access to the group of operations.

The Nepean River occurs approximately 270 metres south west of the site.

2.2.1 Spring Farm Residential Release Area

The Spring Farm Urban Residential Release Area, adjacent to the north western boundary of the Spring Farm RRP site, is proposed to provide housing for 9700 new residents in approximately 3,500 dwellings when complete. The proximity of the release area to the waste management facility has been a source of contention through the planning and implementation of the Release Area. Ongoing negotiations between Landcom (now NSW UrbanGrowth) and WSN (now acquired by SITA) have sought to provide solutions to allow both developments to proceed in an orderly manner.

2.2.1.1 *Jacks Gully Odour Reduction Agreement, 2003*

In March 2003, NSW UrbanGrowth (then Landcom) entered into an agreement with the Waste Recycling and Processing Corporation (trading as WSN, the then owner and operator of the Spring Farm Resource Recovery Park) to manage the impacts of odour generated by waste processing on the developing Spring Farm Residential Release Area. The agreement required that:

- The owner / operator of the facility would:
 - Cease accepting putrescible waste for disposal in landfill on the site by a mutually agreed date and carry out acceptable rehabilitation works on the previously landfilled portions of its landholding (receipt of putrescible waste for landfilling ceased in June 2008 and rehabilitation is progressing in accordance with this clause);
 - Otherwise implement the requirements of an agreed Odour Reduction Plan (a Plan has been agreed and implemented); and
 - Enter into a land exchange transaction with Landcom in order to provide a 70 metre wide vegetation buffer between the boundary of the waste management facility and the Residential Release Area (the buffer area has been agreed and established).

- Landcom would:
 - Ensure continuous road access to the waste management facility during the development of the Spring Farm Residential Release Area; and
 - At an appropriate time in the development process, construct a new access road extending to the site from the nearest arterial road in order to provide adequate access to the waste management facility and minimise disturbance to the future residents of the new release area. The access road will be jointly funded by NSW UrbanGrowth and SITA.

2.2.1.2 Spring Farm Residential Release Area – development status

NSW UrbanGrowth is progressively developing the Spring Farm Residential Release Area to an ultimate development pattern consistent with the final stage masterplan at Figure 2-5. SITA has recently consulted with NSW UrbanGrowth to ascertain the current program for execution of the masterplan and construction of the new access road. The likely staging of delivery of the Release Area based on these discussions is indicated in Figure 3-5. According to the information provided, completion of the Release Area, including all access roads and other infrastructure, is likely to be by July 2015.

Of relevance to the operations of the ARRT and consistent with NSW UrbanGrowth and SITA's joint obligations under the Odour Reduction Agreement, the masterplan includes the 70 metre buffer zone and access road on the northern boundary of the ARRT site.

Figure 3-6 illustrates UrbanGrowth's proposed infrastructure staging for the Release Area. Advice from UrbanGrowth is that construction of the haul road will commence when required, in order to coordinate with closure of the existing access road. UrbanGrowth recently lodged a development application for construction of the new access road with Camden Council and they have advised that the access road construction could begin from January 2014. Information on likely completion of the haul road is not available but, based on NSW UrbanGrowth's obligation to retain access to the SFRRP, it can be assumed that access via the existing Richardson Road access road will be maintained until the haul road is operational.

The ultimate outcome of the execution of the Residential Release Area masterplan will be new residential development occupying currently vacant land to the north west of the ARRT site. Access to the site will be via a dedicated haul road adjacent to the north western site boundary, connecting to a new arterial road to the north of the site which will in turn connect to Richardson Road.





Figure 2-5 Spring Farm Residential Release Area –likely subdivision staging (NSW UrbanGrowth masterplan marked up by Cardno)

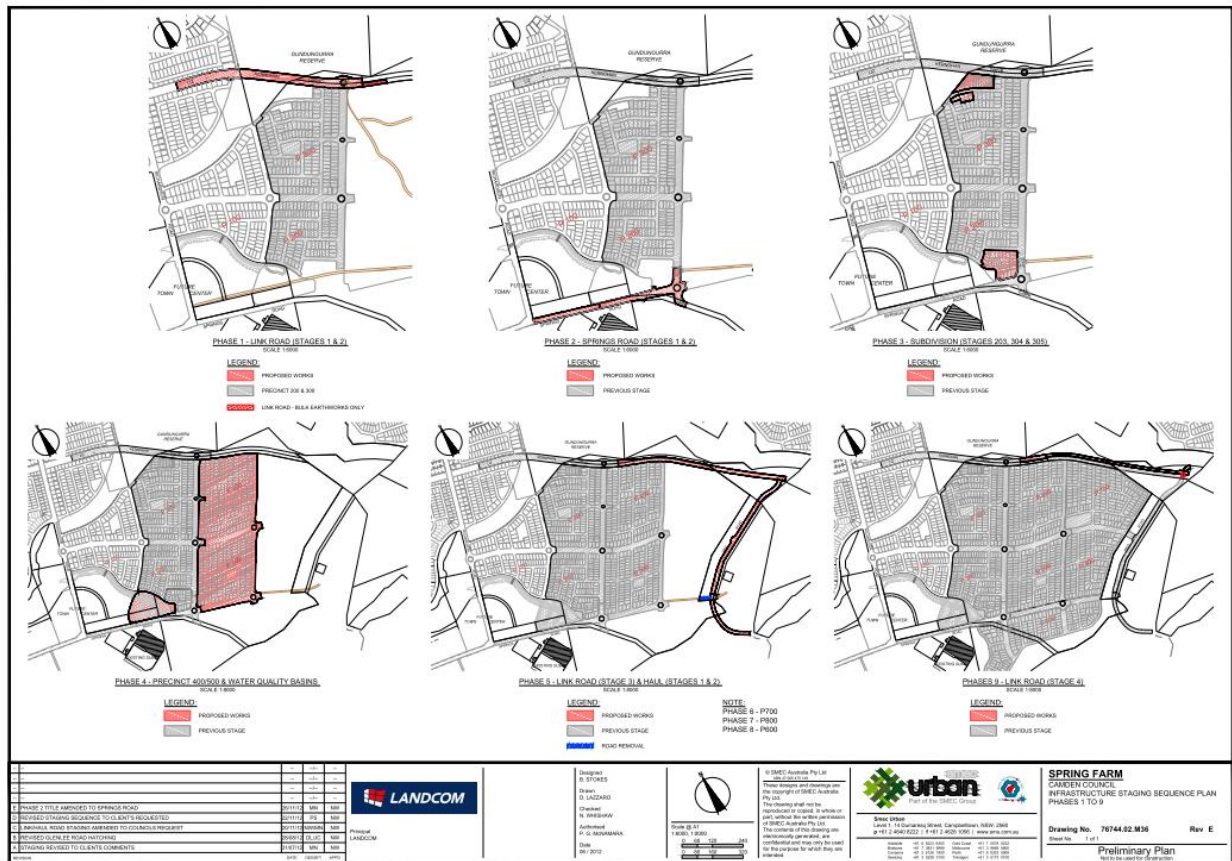


Figure 2-6 Spring Farm Release Area – likely infrastructure staging (NSW UrbanGrowth).

3 The project

The Project is described with regard to requested amendments to the existing consent and technical details.

3.1 Statutory proposal

Under its current Major Project Approval (as Modified) the ARRT Facility is permitted to:

3. Receive:
 - 130,000tpa of mixed municipal waste classified as inert or solid waste under Schedule 1 of the *Protection of the Environment Operations Act, 1997*
 - 25,000tpa of garden waste; and
 - An additional 5,000tpa of garden waste or biosolids; and
4. Process:
 - 90,000tpa of mixed municipal waste classified as inert or solid waste under Schedule 1 of the *Protection of the Environment Operations Act, 1997*;
 - 25,000tpa of garden waste; and
 - An additional 5,000tpa of garden waste or biosolids.

The current consent provides that 40,000tpa of mixed municipal waste can be received at the ARRT Facility but not processed on site. This allowance has been made in order to provide for the operation of the receival hall as a transfer station, allowing delivery to and storage of local waste material on the site prior to transfer to other waste management facilities within the metropolitan area.

SITA now intends to lodge an application to the Minister for Planning in accordance with Part 2A of *State Environmental Planning Policy (Major Development), 2005* (**SEPP – Major Development**), to modify the Transitional Part 3A Approval in order to permit, in addition to the currently approved waste quantities:

3. Receiving and processing of 520m³ per day of liquid waste (comprising organic liquid waste, leachate and industrial liquid waste) at the existing facility utilising existing on site infrastructure, for disposal to sewer; and
4. Processing of 130,000 tonnes per annum (tpa) of mixed solid waste (**MSW**) classified as inert or solid waste under Schedule 1 of the *Protection of the Environment Operations Act, 1997* again using existing infrastructure.

3.2 Technical detail

The proposed additional quantities and forms of waste are to be received and treated with no material alterations to the existing infrastructure on the site, as currently approved under the modified Major Project Approval. Details of the relevant on-site infrastructure, including minor changes proposed, are illustrated in Figures 3-4 & 3-5.

Technical details of the proposal are included in a 'Fit for Purpose' report prepared by Suez Environnement / Cirsee (Sept, 2013). The full report is included at Appendix A. Essentially, the proposal involves minor alterations to the Tank Farm infrastructure in order to process two parallel waste streams:

- anaerobic treatment of high organic liquid trade waste to produce a maximum amount of biogas and subsequent electricity generation; and
- aerobic treatment of leachate from SITA operated facilities such as landfills or other leachate-generating activities.

The modified biotreatment facility will be designed to ensure the treated effluent meets the acceptance standards for sewerage connection to inland sewage treatment plants, as defined by Sydney Water. In this regard, liquid waste to be discharged to sewer will be required to comply with the specifications of SITA's

current Trade Waste Agreement with Sydney Water (Consent to Discharge Industrial Trade Waste, July 2011). A discharge permit of 520 m³ per day is currently under discussion with effluent concentration limits of < 600 mg/L BOD and < 100 mg/L ammonia as regards the future sewage connection. The project design will ensure achievement of this performance standard from facility start-up when treated effluent will be removed from site by backloading of tankers for delivery to a trade waste system for disposal. The modified design will allow sufficient flexibility such that either waste stream can be handled up to a maximum capacity of 520 m³ per day, as a function of waste availability.

The process is illustrated in Figures 3-4 & 3-5 and summarised below.

3.2.1 **High Organic Liquid Trade Waste Treatment (320 m³/day design capacity)**

One of the existing UASB reactors (3000 m³) will be used to treat liquid trade waste having a high level of dissolved organic carbon, such as effluents from the agri-food industry, breweries, sugar mills, dairies, distilleries and starch transformation plants. Typically, such trade wastes will have a low level of suspended solids while varying in COD concentration between 20 and 60 g/L. For the purposes of the project design calculations a value of 40 g/L COD was used.

The high organic liquid trade waste will be transported to the site via tanker truck and piped into the tank system. One existing anaerobic tank will be altered to a storage / buffer tank in order to provide a constant feed to the anaerobic reactor.

The high organic wastewater undergoes anaerobic biological treatment via naturally occurring microorganisms (granulated methanogenic sludge) which transform simpler organic acid and fatty acids into biogas (methane, carbon dioxide and water).

A three-phase separator at the top of the units allows for collection of biogas from the treated effluent and sludge. The collected biogas will be combusted in the existing on-site gas engines to produce electric power.

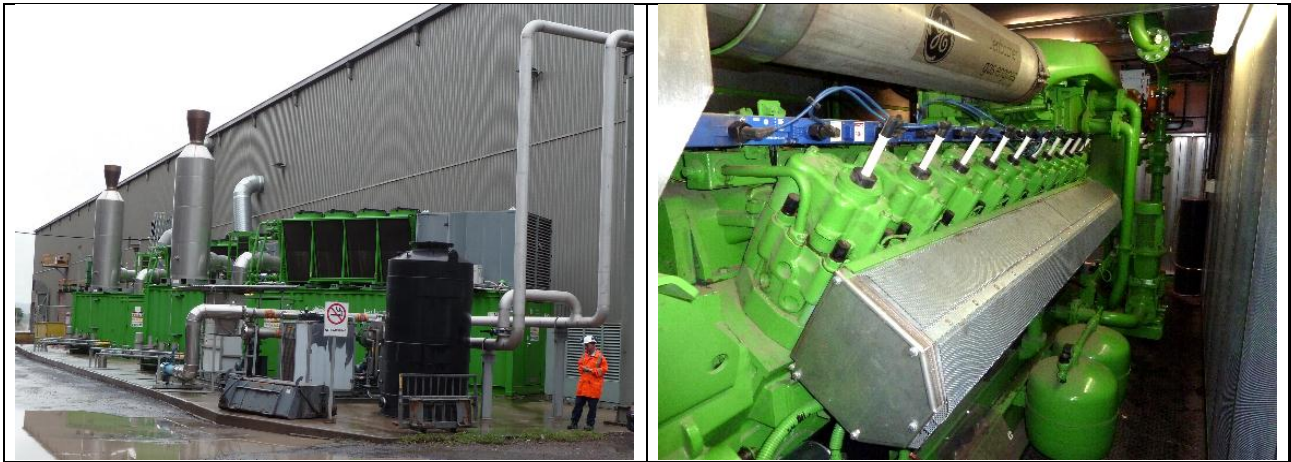


Figure 3-1 Existing on-site gas to energy engines (Double Jenbacher 1400 kW CHP)

Excess biogas will be flared using the existing on site flare.

The liquor from the UASB will contain residual carbonaceous pollution that will be transferred to the existing SBR units, SBR1 (300 m³) and SBR2 (400 m³), for aerobic biological treatment. SBRs operate in batch mode with aeration and sludge settling occurring within the same vessel.



Figure 3-2 SBR 1 (300 m³)

SBR 2 (400 m³)

The process will require replacement of one 300m³ tanks with a 400m³ tank in order to provide sufficient liquid waste treatment capacity.

3.2.2 Leachate treatment (200 m3/d design capacity)

One existing anaerobic tank will be transformed into an additional SBR reactor (SBR3) dedicated for the aerobic treatment of leachate generated at various SITA operated facilities.

Another existing anaerobic tank will be used as a buffer tank to store leachate prior to aerobic treatment in SBR3.

A further existing anaerobic tank will be converted to a treated wastewater storage tank. The treated leachate will be transferred to the treated wastewater storage tank prior to discharge from site via tanker for off-site disposal to sewer.

3.2.3 Residual solids treatment

Excess sludge from the UASB reactor and SBR systems will be sent to the existing balance tank prior to dewatering. The existing Siemens Belt filter press within the ARRT processing hall will be used to dewater residual solids as originally planned.

The dewatered cake may be used as a quality soil conditioner or as an additive for the Garden Organics Facility on-site. The current planning consent permits treatment of up to 5000 tonnes per year of biosolids (digestate) within the Garden Organics Plant at the ARRT.

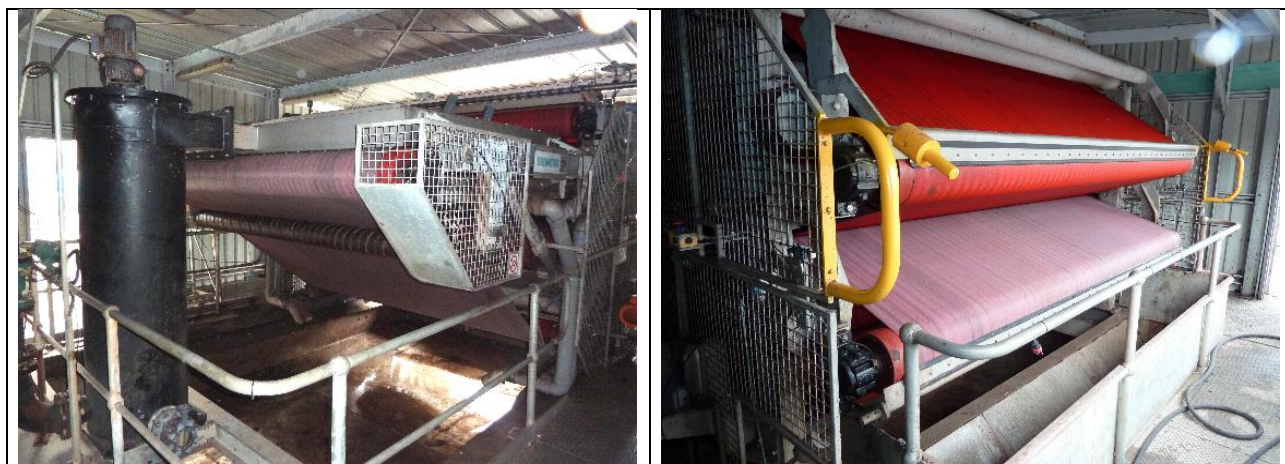


Figure 3-3 Existing belt filter press (Siemens) within the ARRT processing hall.

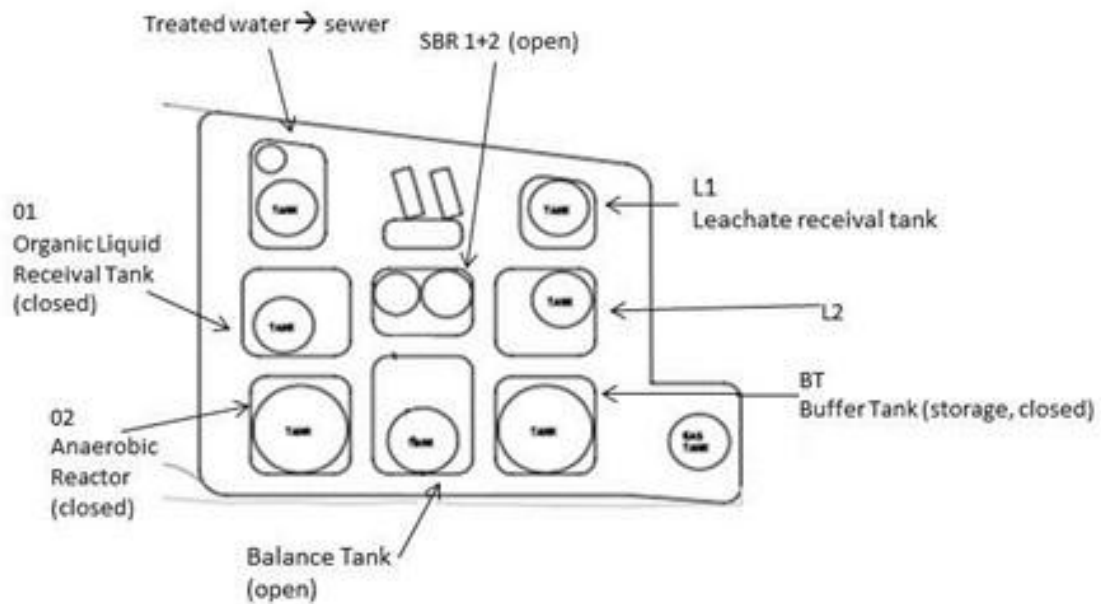


Figure 3-4 Proposed tank farm operations (diagrammatic representation)

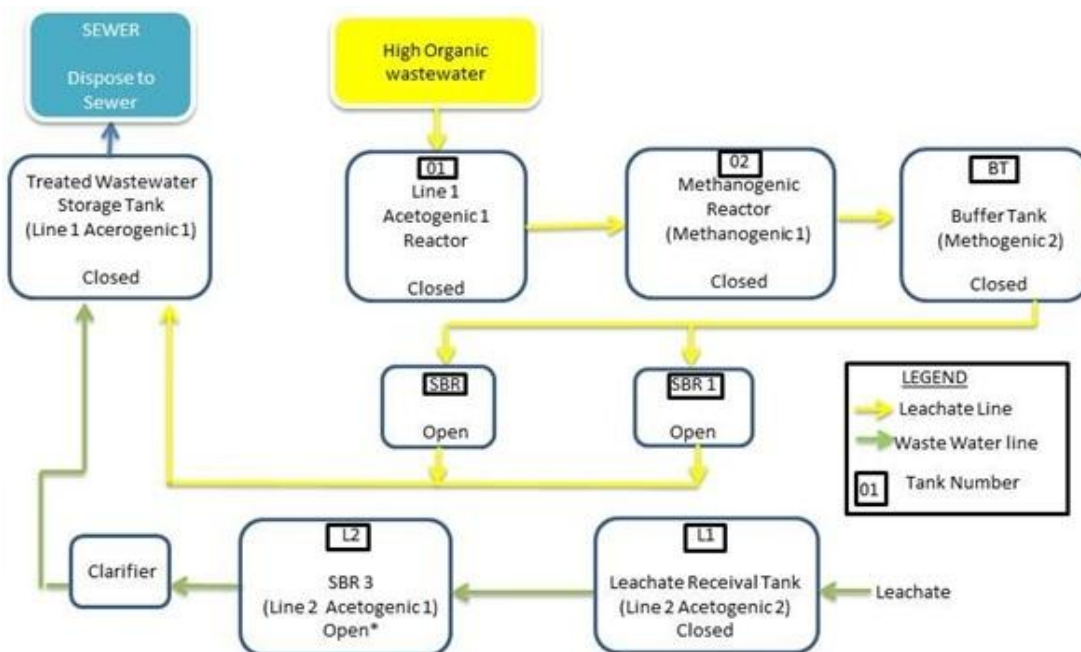


Figure 3-5 Proposed leachate / waste water process diagram

4 Need and justification

This chapter provides a discussion on the need for and justification of the treatment of liquid waste and additional solid waste at the ARRT Facility. The strategic planning context of the Project is considered along with a discussion of the consistency of the Project with planning strategies and local, State and Federal waste management legislation, strategies and policies.

4.1 Overview

The Environmental Assessment that accompanied the Application for the original Jacks Gully AWT (now known as the Spring Farm ARRT) listed a series of benefits that would result from its operation for the local and greater community and the environment. Inter alia, these included:

- Reduction in greenhouse emissions via capture of biogas and avoiding emissions from otherwise landfilled material;
- Generation of renewable energy;
- Provision of sustainable waste management services to the local and broader community; and
- Reduction in disposal of renewable resources to landfill.

Since the downgrading of operations at the Spring Farm ARRT the facility has been operating below its design capacity with the result that these environmental and social benefits have been below original expectations.

SITA's current proposal is aimed at re-instating the waste management capacity of the ARRT in order to maximise its capability as a sustainable waste management facility and its level of service to the local community. Specifically, the objectives for the modifications proposed are:

- To allow the flexibility to process all MSW that enters the facility. (The current approval permits receipt of 130,000tpa of MSW but processing of only 90,000tpa. This restriction on processing was based on the processing capacity of the former ArrowBio AWT. The simplified processing plant now operating at the site has the capacity to process the full 130,000tpa of waste without the need to transfer surplus material to other facilities. Additionally, the Environmental Assessment has illustrated that there would be no material impacts on the local environment).
- To fully utilise the Facility's tank farm infrastructure and maximise production of sustainable energy;
- To increase SITA's capacity to sustainably process liquid waste and produce electric power using existing infrastructure;
- To provide an alternative treatment / disposal option for leachate generated from the Spring Farm site and other sites within the SITA network; and
- To enable greater on site processing capacity for MSW. Being able to process all tonnes received would enable greater resource recovery rates and avoid the need to transfer significant volumes from the site.

All of these objectives are completely consistent with current government policy and legislation pertaining to the management of waste.

The strategic justification for the proposed Modification is at three levels:

- Suitability of the existing infrastructure on the site for the proposed activity ("Fit for Purpose");
- Need with respect to the regional waste framework and customer demand; and
- Environmental benefits that would result from the Modification.

Following is a discussion of the proposal against these criteria.

4.2 “Fit for Purpose”

SITA has prepared a report to ascertain the technical quality of the existing waste management infrastructure at the ARRT Facility with respect to its suitability for treatment of liquid waste streams (see Appendix A).

The report provides:

- Background information regarding the waste management process used in the Jacks Gully AWT and functional issues that led to its de-commissioning; and
- A description of the development of the proposed process for liquid waste management that is the subject of this Modification Application;

When SITA acquired the Jacks Gully Mixed Solid Waste Treatment and Recycling Facility, it immediately conducted functional audit of the then operating treatment process. The audit found that the technology applied in the Tank Farm was unsuitable for the forms of waste being processed. Essentially, the concentrated pulp material being generated by the EcoLibrium MSW processing stream and fed through the tank farm was found to have a concentration of suspended solids higher than the design capacity of the Tank Farm. This had led to inefficiencies in operations and a significant build-up of solid materials as residue in the tanks which has, in turn, contributed to production of nuisance odours from the Facility.

In response, SITA decommissioned the EcoLibrium process and Tank Farm and elected to adapt the Tank Farm Facility for anaerobic treatment of high organic liquid trade waste and leachate. This process is the basis of this Modification Application. Essential characteristics of the proposed treatment process are:

- Treated effluents will meet standards for sewerage line transporting to inland sewage treatment plants as set by Sydney Water;
- Internal technical modifications to the tank farm will allow treatment of either waste stream up to a maximum capacity of 520m³ per day;
- The process is closed with a dedicated system for biogas collection and relatively little production of fermentable organics. The high organic liquid wastes proposed to be treated will contain low concentrations of sulphate with the end result that the process will be a low generator of odour.

The overall conclusion of the SITA report is that with minor technical alterations in place, the existing infrastructure at the Tank Farm is fit for the intended purpose of sustainable processing of liquid wastes and leachate.

4.3 State planning strategies

4.3.1 The NSW State Plan (New South Wales 2021)

The Plan sets directions and identifies long term initiatives as well as more immediate actions to be carried out by the public sector in order to properly manage State affairs over a 10 year timeframe. Amongst goals set by the Plan are: “*Strengthen Our Local Environment and Communities*” and “*Renovate Infrastructure*”. Reducing waste, conserving resources and recycling, all outcomes of the proposal that is the subject of this EA, contribute to the following sub-goals within these greater goals:

- “*Build liveable centres;*
- *Secure potable water supplies;*
- *Protect our natural environment; and*
- *Increase opportunities for people to look after their own neighbourhoods and environments.”*

4.3.2 The draft Metropolitan Strategy for Sydney – South West Regional Strategy

The South West Regional Strategy, prepared to support the draft Metropolitan Strategy for Sydney (DPI, 2011) applies to the Local Government Areas of Bankstown, Camden, Campbelltown, Fairfield, Liverpool and Wollondilly. The strategy is subordinate to the draft Metropolitan Strategy and was developed to ensure that adequate land is available and appropriately located to sustainably accommodate the projected housing and employment needs of the Region’s population for the period 2011 to 2031.

The key priorities of the strategy of relevance to this Modification Application are:

- To support long term growth and development to transform the structure and economy of the sub-region through greenfield housing growth and new local employment growth in the South West Growth Centre;
- To support urban renewal at key sites
- To recognise and intensify the sub-region's role in certain industries in various centres and the Western Sydney Employment Area
- To enhance the roles of Liverpool as a Regional City and Bankstown as a Major Centre.

The proposed modification of the subject planning consent in order to fully utilise existing advanced waste treatment infrastructure and provide for sustainable resource recovery would support the objectives of the South West Regional Strategy by providing current best practice waste treatment and producing sustainable energy. Both these outcomes will allow for the continued sustainable growth of the region.

4.4 Federal waste management objectives

Federal objectives with regard to the management of waste are articulated in the *National Waste Policy: Less waste, more resources* (Department of the Environment, Water, Heritage and the Arts, 2009).

4.4.1 The National Waste Policy: Less waste, more resources

The National Waste Policy sets Australia's waste management and resource recovery direction to 2020. The aims of the Policy are to:

- “avoid the generation of waste, reduce the amount of waste (including hazardous waste) for disposal
- manage waste as a resource
- ensure that waste treatment, disposal, recovery and re-use is undertaken in a safe, scientific and environmentally sound manner, and
- contribute to the reduction in greenhouse gas emissions, energy conservation and production, water efficiency and the productivity of the land.” (www.environment.gov.au/wastepolicy)

The policy is principally concerned with identifying areas in waste resource management that would benefit from a national or coordinated approach and developing strategies to address these.

4.5 State waste management objectives

The *Waste Avoidance and Resource Recovery Act, 2001* and the *Waste Avoidance and Resource Recovery Strategy, 2007* provide the State level legislative and strategic framework for waste management in NSW.

4.5.1 Waste Avoidance and Resource Recovery Act, 2001 (the WARR Act)

The *Waste Avoidance and Resource Recovery Act, 2001* constitutes the overarching legislation for waste management and resource recovery in NSW. Essentially, the objectives of this Act are to achieve a continual reduction in waste generation through:

- Avoidance of unnecessary resource consumption, including encouragement of actions to reduce the amount of waste generated by households, industry and government;
- Recovery of resources through reuse, reprocessing, recycling and energy recovery; and
- Management of disposal options in an environmentally responsible manner.

4.5.2 Waste Avoidance and Resource Recovery Strategy, 2007

The Strategy provides a framework to achieve the objectives of the WARR Act by providing waste avoidance and resource recovery goals and targets in four key result areas:

1. “Preventing and avoiding waste

2. *Increasing recovery and use of secondary materials*
3. *Reducing toxicity in products and materials and*
4. *Reducing litter and illegal dumping.*” (NSW Dept of Environment and Climate Change, 2007).

Specifically, the following targets are identified:

“an increase in recycling of municipal waste from baseline 26% to 66% in 2014; increased recycling of commercial and industrial waste from baseline 28% to 63% in 2014 and increasing recycling of construction and demolition waste from baseline 65% to 76% in 2014.” (op. cit. NSW Dept of Environment and Climate Change, 2007).

4.6 SITA’s role in achieving Federal and State waste management objectives and targets

SITA is committed to the principles of waste avoidance and resource recovery articulated in the current Federal and State Government legislation, policies and strategies. Section 1.3 of this EA indicates that the organisation owns and operates a significant number of advanced waste treatment and resource recovery facilities across the country. The proposal to maximise the resource recovery capabilities of the existing infrastructure at the ARRT Facility is positively consistent with the State targets for diversion of municipal waste from landfill and increased recycling of commercial and industrial waste.

4.7 Regional waste framework and demand

Recent State government commissioned studies have identified a substantial shortfall in waste management infrastructure in NSW along with increasing waste generation consistent with a growing population. The *Public Review - Landfill Capacity and Demand* (Wright Corporate Strategy Pty Ltd, 2009) (the 2009 Wright Review), commissioned by the former Minister for Planning, identified a serious shortfall between the annual amount of putrescible waste requiring disposal and the annual waste input limit placed on remaining landfills. A series of recommendations made by the report included increased AWT processing, increased recovery of recyclable materials and increased garden waste recovery as measures to reduce the amount of putrescible waste disposed at landfill.

Moreover, Australian and State Government policy for waste management is increasingly aimed at encouragement of sustainable waste processing technology and management. The *NSW Waste Avoidance and Resource Recovery Strategy 2003* requires increasing levels of material to be diverted away from landfill (66% for the municipal sector) in order to achieve policy outcomes for sustainable environmental management, as well as to ease pressure on ageing landfill infrastructure. The ultimate outcome of these policies is a growing need for Advanced Waste Treatment technology.

Maximisation of the use of existing waste management capacity at the Spring Farm ARRT, as proposed by this Modification, is entirely consistent with this policy direction.

Specifically, the proposal is positively consistent with the following Commonwealth and State policies and legislation:

- National Waste Policy: Less waste, more resources (Department of the Environment, Water, Heritage and the Arts, 2009);
- The *NSW Waste Avoidance and Resource Recovery Act, 2001* (WARR Act);
- The *NSW EPA Waste Less, Recycle More: Waste and Resource Recovery Initiative*; and
- *NSW 2021: A plan to make NSW number one* (Department of Premier and Cabinet, 2011) (the **State Plan**).

All of this policy / legislation shares a common aim to avoid waste to landfill and maximise resource recovery from waste. SITA’s proposal is, again, entirely consistent with this aim.

4.7.1 **Environmental benefits**

The proposed Modification would have significant environmental benefits at both local and regional levels. These will result from:

- Maximising the use of existing, currently under-utilised advanced waste management infrastructure;
- Sustainable treatment of leachate and general liquid waste within a fully enclosed treatment system;
- Diversion of MSW from landfill to a sustainable advanced waste treatment process;
- Generation of sustainable low cost electric power that will be available to local residents.

The Development is consistent with the key direction of pursuing sustainable waste management by reducing the amount of waste sent to landfill (and the associated Green House Gas emissions from landfill gas), and providing a product that can be beneficially used (sustainable electric power).

4.8 **Need for the proposed new waste stream and additional capacity**

Under existing arrangements, SITA receives organic liquid wastes at its Camellia Product Destruction Facility. Typical sources of such wastes include Coca Cola, Lion Nathan (Tooheys), Dairy Farmers, Diageo (Alcoholic beverages) and other food production companies. Liquids are decanted at the facility and the packaging materials (glass, plastics, paper and steel) are recycled. The liquids are then sent to other sources and disposed of via soil injection. The soil injection process is considered to be inferior to the anaerobic process proposed at the ARRT Facility in that it:

- Soil injection includes a risk of soil contamination by small particles of glass, plastic or other packaging products; and
- The proposed anerobic digestion processing of the available liquid wastes will produce methane and subsequently produce sustainable energy.

With respect to the proposal to treat additional quantities of MSW at the ARRT Facility, SITA currently receives and processes approximately 60,000 tpa and up to 90,000 tpa of MSW in the ARRT Facility under a 15 year contract with the Macarthur Regional Organisation of Councils (**MACROC**). The proposed Modification will assist SITA's capacity to honour its obligations to the MACROC Councils under the contract.

SITA's assessment of the market indicates that the proposal for treatment of liquid waste and increased quantities of MSW will sustainably address a demonstrated need for service.

4.9 **Benefits and impacts of the Proposal**

Following is a brief assessment of the benefits and impacts of the proposal against the three principles of Ecologically Sustainable development.

4.9.1 **Biophysical considerations**

The existing Environmental Protection Licence and Environmental Management Plan will ensure that the proposal will have no impacts on the local biophysical environment. The waste management infrastructure proposed to be utilised to treat the additional waste materials operates within an enclosed system that ensures no pollutants escape the site. Management measures protect soil, waterways, flora and fauna. The Soil and Water Assessment completed to accompany this Modification Application supports this statement. Environmental benefits will arise from the sustainable treatment of waste products, diversion from landfill, avoidance of generation of greenhouse gases and generation of sustainable electricity.

4.9.2 **Economic considerations**

The maximisation of use of existing and currently under-utilised high quality advanced waste treatment technology in order to address an identified demand for waste management is consistent with the principles of economic sustainability. The proposal will provide returns to the proponent that will contribute to the ongoing viable operation of the ARRT Facility, the greater SFRRP and, more broadly to SITA (Australia) Pty Ltd. There would be no negative impacts of the proposal with respect to economic considerations.

4.9.3 **Social considerations**

It is acknowledged that there is a potential for negative social impacts associated with the proposal to treat liquid waste and additional solid waste at the ARRT Facility. This is a result of the proximity of the ARRT site and the greater SFRRP to an emerging residential community and specifically the potential for amenity impacts with respect to odour, noise and traffic. Notwithstanding some history of impacts on the neighbourhood in the past, particularly due to odour escape, it has been demonstrated via independent assessments of odour, traffic and noise that with recommended management measures in place this proposal will create minimal additional impacts on the amenity of the new community.

Positive social impacts of the proposal will evolve from increased services for waste management, the diversion of waste materials to a sustainable waste management process and the production of cheap, sustainable electricity.

4.10 Justification for proposed new waste stream and additional capacity

The proposal to introduce liquid waste as a new waste stream and to increase the quantities of MSW to be treated at the ARRT Facility is considered to be justified in that it employs existing sustainable waste management infrastructure that would otherwise be under-utilised, in order to address a demonstrated need for sustainable waste treatment and resource recovery. The proposal is consistent with relevant Federal and State policies and would represent an environmentally sustainable response to waste and resource management.

The project would achieve the following benefits:

- Reductions in greenhouse gas emissions through the capture of biogas via advanced waste treatment technology and avoidance of emissions from otherwise landfilled material;
- Diversion of liquid waste from soil injection and sustainable treatment of the resource to produce green electricity; and
- Reduction in disposal to landfill of potential resources.

By virtue of the containment of the waste treatment infrastructure within almost completely enclosed structures, these benefits would accrue with minimal impacts on the local residential community with respect to odour emissions, noise and dust. Traffic impacts of the proposal have also been demonstrated to be negligible.

As a sustainable use of existing under-utilised waste management infrastructure to address an identified demand, the proposal is considered justifiable.

4.11 The “do-nothing” option

If the proposal to receive and process liquid waste and to process all received MSW at the ARRT Facility did not proceed, the following outcomes would result:

- Advanced resource recovery technology in the existing tank farm and the processing hall would remain under-utilised;
- All liquid waste received by SITA would be collected at its Camellia Facility and disposed of via soil injection, a process which fails to exploit the capacity of the resource for sustainable power production and includes potential risks of soil contamination;
- Leachate generated at the SFRRP and other waste treatment facilities in the metropolitan area would be sent to sewer without recovery of biogases. This would represent a significant lost opportunity for resource recovery;
- Sustainable power generation for use by the local community would not occur;
- Diversion of solid MSW from landfill and recovery of resources would not be maximised at the ARRT Facility; and
- Economic returns to the Proponent that would be expected from investment in the infrastructure would fail to accrue with corresponding impacts on the Proponent’s viability and growth.

On this basis, it is considered that the option to 'do nothing' is not appropriate in this circumstance and the most beneficial action would be for the proposal to proceed.

5 Current consents, licensing and management plans

This chapter provides an overview of the planning consents, Environmental Protection Licences and Environmental Management Plans that apply to the Spring Farm Resource Recovery Park and a detailed description of the specific consents, licencing and management plans that apply to the Spring Farm Advanced Resource Recovery Technology Facility.

5.1 SFRRP planning consents, licencing and management plans

5.1.1 Planning Approvals

Various planning consents apply to the operations across the SFRRP. In summary:

- The landfill operates under an historic agreement between Camden Council and the then NSW Metropolitan Waste Management Authority by virtue of the fact that at the time of its establishment, development approval was not required for landfill operations.
- The MRF, Small Vehicle Drop-off facility and Landfill Gas Power Generation Plant all operate under separate development approvals granted under Part 4 of the *Environmental Planning and Assessment Act, 1979* (**the EPA Act**).

The ARRT Facility operates under Minister's consent no. 05/0098 (7 September, 2006) granted for the then Jacks Gully Alternative Waste Treatment facility. The consent was granted under the now abandoned Part 3A of the EPA Act. It has been modified on a number of occasions since the original consent. EPL 12588 applies to all operations within the ARRT Facility. The Jacks Gully Alternative Waste Technology Facility (now the Spring Farm ARRT Facility) was approved as a Major Project by the Minister for Planning under Part 3A of the *Environmental Planning and Assessment Act, 1979* (**the Act**) on 7 September 2006. The approval applies specifically to land within a purpose formed allotment – Lot 35 in DP1098588 (see Figure 2-1).

Since the initial approval, three subsequent modifications have been approved under Section 75W of the Act. These have permitted:

- Boundary adjustments in order to better define the land that supports the ARRT Facility within the greater SFRRP (MOD 1);
- Increased material inputs to the greenwaste processing facility and construction of a pipeline to deliver landfill gas to the AWT gas processing plant (MOD 3); and
- A further increased in garden waste inputs to the greenwaste processing facility (MOD 4).

A Modification Application to modify air filtration technology within the AWT (MOD 2) had Director Generals Requirements issued in February 2009, but no further action has occurred at the time of this advice.

Relative to this proposal, the Approval as currently modified:

- Restricts **waste received** to the following:
 - a. 130,000 tonnes per year of mixed municipal waste classified as inert or solid waste under Schedule 1 of the *Protection of the Environment Operations Act, 1997*;
 - b. 25,000 tonnes per year of garden waste; and
 - c. An additional 5,000 tonnes per year of garden waste or biosolids.
- Restricts **wastes processed** at the site to:
 - d. 90,000 tonnes per year of mixed municipal waste classified as inert or solid waste under Schedule 1 of the *Protection of the Environment Operations Act, 1997*;
 - e. 25,000 tonnes per year of garden waste at the Garden Organics Plant; and

- f. An additional 5,000 tonnes per year of garden waste or biosolids at the Garden Organics Plant.
- Requires that heavy vehicles do not enter or exit the site between 10pm and 7am.
- Requires that all waste to be processed at the site is received between the following hours:
 - g. 7:00am to 5:00pm Mondays to Fridays inclusive;
 - h. 8:00am to 4:00pm Saturdays and Sundays; and
 - i. 7:00am to 2:00pm on public holidays.
- Requires SITA to inform vehicles carrying waste from MACROC Councils to use specific routes to travel to / from the facility, in order to minimise impacts on the amenity of local residential neighbourhoods, including the Spring Farm residential release area.
- Sets noise emission limits and requires control of odour and dust emissions.

5.1.2 **Environmental Protection Licences**

The following Environmental Protection Licences granted under the *Protection of the Environment (Operations) Act, 1997* apply to the greater SFRRP:

- EPL 5105 – Spring Farm Landfill (varied on 28 May 2008 to permit continuation of landfilling of putrescible materials until 6 July 2008);
- EPL 20021 - Materials Recycling Facility
- EPL 12588 – Ecolibrium Mixed Waste and Organic Facility,

6 Planning and Legislative Framework

This chapter reviews the proposal against all relevant State and local planning controls and policies.

6.1 Mechanism for approval of this Modification Application.

SEPP (Major Development), 2005 supersedes SEPP (Major Projects), the Policy that included provisions for approval of Major Projects under Part 3A of the EPA Act.

Part 2A of the SEPP refers to 'Transitional Part 3A Projects' as set out in Schedule 6A to the EPA Act. Clause 2(1) of the Schedule defines a transitional Part 3A project as:

“(a) an approved project (whether approved before or after the repeal of Part 3A),”

Pursuant to this clause, the former Jacks Gully AWT approval (which now applies to the Spring Farm ARRT) falls within the definition of a 'transitional Part 3A project'.

Under clause 12 of Schedule 6A to the EPA Act, Section 75W of Part 3A continues to apply to modifications to development consents for transitional Part 3A projects.

There is no specific test in the legislation to verify whether a proposal to modify a 'transitional Part 3A Project' can be determined as a modification under Section 75W. However, the generally accepted test under Case Law is whether or not the proposal would constitute a 'radical transformation' of the development as consented (Barrick Australia Ltd v Williams [2009] NSW CA 275). The proposed modification, involving treatment of additional MSW and treatment of organic liquid waste, all using the existing on-site plant infrastructure, is considered to fall well short of a 'radical transformation' of the existing approved development and is suitable to be determined under Section 75W. Accordingly, the Minister has indicated an opinion that the proposal can be assessed as a 75W Amendment under this planning mechanism and Director General's Requirements have been issued.

6.2 State Environmental Planning Policies (SEPP's)

The following SEPP's may potentially be relevant to this proposal.

- State Environmental Planning Policy (Major Development), 2005
- State Environmental Planning Policy No.33 – Hazardous and Offensive Development
- State Environmental Planning Policy No.55 – Remediation of Land
- State Environmental Planning Policy (Infrastructure), 2007

Provisions of SEPP (Major Development) are discussed in Section 6.1. Provisions of the remaining SEPP's with respect to the proposed Modification are discussed below.

6.2.1 State Environmental Planning Policy No.33 – Hazardous and Offensive Development

SEPP 33 aims to minimise the impacts of development that are deemed to be either 'hazardous' or 'offensive'. The SEPP also outlines matters to be considered by a Consent Authority when assessing hazardous or offensive development proposals and requires that applications be advertised in the same manner as is required of 'designated' development.

Of relevance to the proposed Modification, the following definitions are provided by the SEPP:

*“**hazardous industry** means a development for the purposes of an industry which, when the development is in operation and when all measures proposed to reduce or minimise its impact on the locality have been employed (including, for example, measures to isolate the development from existing or likely future development on other land in the locality), would pose a significant risk in relation to the locality:*

(a) to human health, life or property, or

(b) to the biophysical environment.

hazardous storage establishment means any establishment where goods, materials or products are stored which, when in operation and when all measures proposed to reduce or minimise its impact on the locality have been employed (including, for example, measures to isolate the establishment from existing or likely future development on the other land in the locality), would pose a significant risk in relation to the locality:

(a) to human health, life or property, or

(b) to the biophysical environment.

offensive industry means a development for the purposes of an industry which, when the development is in operation and when all measures proposed to reduce or minimise its impact on the locality have been employed (including, for example, measures to isolate the development from existing or likely future development on other land in the locality), would emit a polluting discharge (including, for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land in the locality.

offensive storage establishment means any establishment where goods, materials or products are stored which, when in operation and when all measures proposed to reduce or minimise its impact on the locality have been employed (including, for example, measures to isolate the establishment from existing or likely future development on other land in the locality), would emit a polluting discharge (including, for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land in the locality.”

With respect to the hazardous industry or storage facility requirements of the SEPP, Cardno has carried out a Preliminary Hazard Analysis (PHA) of the proposal (see Chapter 6 of this EA). In summary, the PHA concludes that with standard risk management measures in place, the proposal will not result in an unacceptable level of risk to people, property or the environment. On that basis, the proposal is consistent with the relevant requirements of the SEPP.

6.2.2 State Environmental Planning Policy No.55 – Remediation of Land

SEPP 55 aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.

Under clause 7(1) of the SEPP,

“A consent authority must not consent to the carrying out of any development on land unless:

- (a) it has considered whether the land is contaminated, and
- (b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and
- (c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.”

The proposed modification to the existing development will involve only minor alterations to the existing tank farm in order to allow for processing of liquid waste. Essentially, this work involves alterations to the internal componentry (pipes) of the tanks. No work is proposed beyond the existing hard stand platform that currently supports the ARRT building, the Garden Organics Plant and the Tank Farm. No disturbance of land is proposed. On this basis, it is considered that the proposed modification would have a nil impact with regard to potential disturbance of contaminated land and is thus consistent with the requirements of SEPP 55.

6.2.3 **State Environmental Planning Policy (Infrastructure), 2007**

SEPP (Infrastructure) was set up to facilitate the orderly provision of essential infrastructure across the State by:

- “(a) improving regulatory certainty and efficiency through a consistent planning regime for infrastructure and the provision of services, and*
- (b) providing greater flexibility in the location of infrastructure and service facilities, and*
- (c) allowing for the efficient development, redevelopment or disposal of surplus government owned land, and*
- (d) identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development), and*
- (e) identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and*
- (f) providing for consultation with relevant public authorities about certain development during the assessment process or prior to development commencing.”*

Division 23 of the SEPP deals with Waste or Resource Management Facilities. Under this Division, the proposal falls under the definition of ‘Resource Recovery Facilities’. Clause 121 provides that Resource Recovery Facilities are permissible with consent within a series of listed zonings. With regard to this proposal, the clause has no relevance as the land is zoned under the relevant Local Environmental Plan to permit waste management facilities.

The proposal to maximise the waste recovery functions of the ARRT Facility by re-instating the operations of the Tank Farm and increasing the capacity of the putrescibles waste treatment facility is positively consistent with the objectives of clauses in the SEPP aimed at sustainable waste management practices and minimisation of landfill:

“123 Determination of development applications

- (1) In determining a development application for development for the purpose of the construction, operation or maintenance of a landfill for the disposal of waste, including putrescible waste, the consent authority must take the following matters into consideration:*
 - (a) whether there is a suitable level of recovery of waste, such as by using alternative waste treatment or the composting of food and garden waste, so that the amount of waste is minimised before it is placed in the landfill”*

No other provisions of the SEPP are directly relevant to Resource Recovery Facilities.

6.3 **Regional Environmental Plans**

6.3.1 **Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River**

Sydney Regional Environmental Plan No 20 (SREP 20) applies to the Camden LGA. The SREP integrates planning and catchment management issues in order to provide a regional approach to the protection of the Hawkesbury – Nepean River system. Matters for Consideration of relevance to this Modification Application are briefly discussed in the following table.

SREP 20 Specific Planning Issue - Policy	Comment
Total catchment management Total catchment management is to be integrated with environmental planning for the catchment.	Cardno has conducted a water balance study to assess impacts of the proposal on local water quality and quantity (summarised in Chapter 4 of this EA). The study has concluded that the proposal will have a nil impact on water quality. The ARRT has a comprehensive stormwater management system in place to ensure appropriate management of water quality and quantity. Stormwater is managed on site. Any water that leaves the site during extreme wet weather events is control released after testing to meet requirements of the site’s Environmental Protection Licences. Operations covered by the proposed modification will be appropriately managed to maintain compliance with the EPL. The proposal is thus consistent with total catchment management principles.

SREP 20 Specific Planning Issue - Policy	Comment
Water quality Development in the catchment must not prejudice water quality with respect to the use of the river for primary contact recreational activities and the quality of the aquatic ecosystem.	Commentary under Total Catchment Management applies.
Water quantity Development must not change the flow characteristics of surface and groundwater in the catchment.	Commentary under Total Catchment Management applies.
Recreation and tourism The value of the riverine corridor as a significant recreational and tourist asset must be protected.	The site of the subject development is separated from the Nepean River. The modification will not impact on the tourist values of the river.

Clause 11 of the SREP includes specific controls for a range of development forms. Under this clause, the ARRT falls within the definitions of ‘Composting facilities’ and ‘Waste management facilities or works’. Development consent is required for such works under the SREP and the Consent Authority is required to consult with the Hawkesbury-Nepean Catchment Management Trust prior to making a determination. Additional matters for consideration with respect to these development forms are listed under the Clause. Those of direct relevance to this proposal are discussed below.

SREP 20 Specific Planning Issue - Policy	Comment
Potential for groundwater contamination	The Water Balance study detailed in Chapter 4 indicates that the proposed modification would have no impact with regard to groundwater contamination.
Adequacy of the proposed leachate management system and surface water controls.	An approved leachate management system is currently in place and operational.
Adequacy of the site management plan	An approved site management plan is currently in place and operational.

6.4 Other relevant State legislation

Other legislation of relevance to this proposal includes:

6.4.1 Protection of the Environment Operations Act, 1997

Inter alia, the Act requires that waste management and resource recovery facilities must operate under an Environmental Protection Licence (EPL) issued by the Environmental Protection Authority. The ARRT at the Spring Farm RRP operates under EPL12588. The current EPL restricts electrical power generation to a maximum of 250Gwh. Amendments to the EPL may be required to allow for generation of power above this limit and for receipt and processing of liquid waste. Such an amendment could be required as a Condition of Consent of an Approval of the Modification Application. Notwithstanding this requirement it is noted that the power generated by the Facility is unlikely to exceed the 250Gwh limitation.

6.4.2 Waste Avoidance and Resource Recovery Act, 2001

In concert with the POEO Act, the *Waste Avoidance and Recovery Act, 2001* (WARR Act) was implemented to achieve environmentally sustainable management of waste, waste avoidance and resource recovery in NSW. The Objects of the Act are:

- “(a) to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development,*
- (b) to ensure that resource management options are considered against a hierarchy of the following order:*
 - (i) avoidance of unnecessary resource consumption,*
 - (ii) resource recovery (including reuse, reprocessing, recycling and energy recovery),*

- (iii) disposal,
- (c) to provide for the continual reduction in waste generation,
- (d) to minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste,
- (e) to ensure that industry shares with the community the responsibility for reducing and dealing with waste,
- (f) to ensure the efficient funding of waste and resource management planning, programs and service delivery,
- (g) to achieve integrated waste and resource management planning, programs and service delivery on a State-wide basis,
- (h) to assist in the achievement of the objectives of the Protection of the Environment Operations Act 1997.”

By diverting material from landfill and maximising the efficient use of existing contemporary resource recovery infrastructure at Spring Farm, the proposed modification is entirely consistent with these Objects.

6.5 Local Planning Controls

The subject site is located within the Camden Local Government Area. At the time of the Minister’s Consent (05/0098), a series of Local Environmental Plans applied to the land. These have since been repealed and superseded by *Camden Local Environmental Plan, 2010*, the Comprehensive LEP applying to Camden, gazetted on 3 September 2010.

6.5.1 Camden Local Environmental Plan, 2010

The subject site is zoned *SP2 (Special Activities) – Waste or Resource Management Facilities* under *Camden LEP 2010*. A copy of the relevant zoning map is included at Figure 6-1.

The objectives of the zone are:

- “To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.”

Development for the purposes of Resource Management Facilities is permissible under the zoning with consent and the proposal is consistent with the zone objectives.

The site is adjacent to the Spring Farm Urban Release Area, as mapped within the LEP (see Figure 4-2). Clause 6.5 of the LEP lists matters to be specifically considered for residential development at Spring Farm. These are not of direct relevance to the proposal as they only apply to land within the mapped Urban Release Area. However, Clause 6.5 (1)(b) is notable:

- “(1) Before granting consent for the subdivision of the urban release area shown as “Spring Farm” on the Urban Release Area Map, the consent authority must consider whether:
- (a), and
 - (b) adverse odour impacts from the Macarthur Resource Recovery Park will be mitigated, and
 - (c)”

By inference, this clause also points to a responsibility of the operator of the Resource Recovery Park to mitigate odour impacts of its operations on the Release Area. SITA has diligently addressed this responsibility throughout its period of ownership of the Spring Farm ARRT. With respect to this proposal, a comprehensive cumulative odour impact assessment has been prepared. The assessment covers potential odour impacts of the proposed modification along with all other resource and waste management facilities operated by SITA in the immediate locality. The results of this assessment are discussed in Chapter 4 of this EA.

There are no other provisions in the LEP that are of direct relevance to the proposal. On this basis, the proposal is considered to be entirely consistent with the provisions of Camden LEP, 2010.

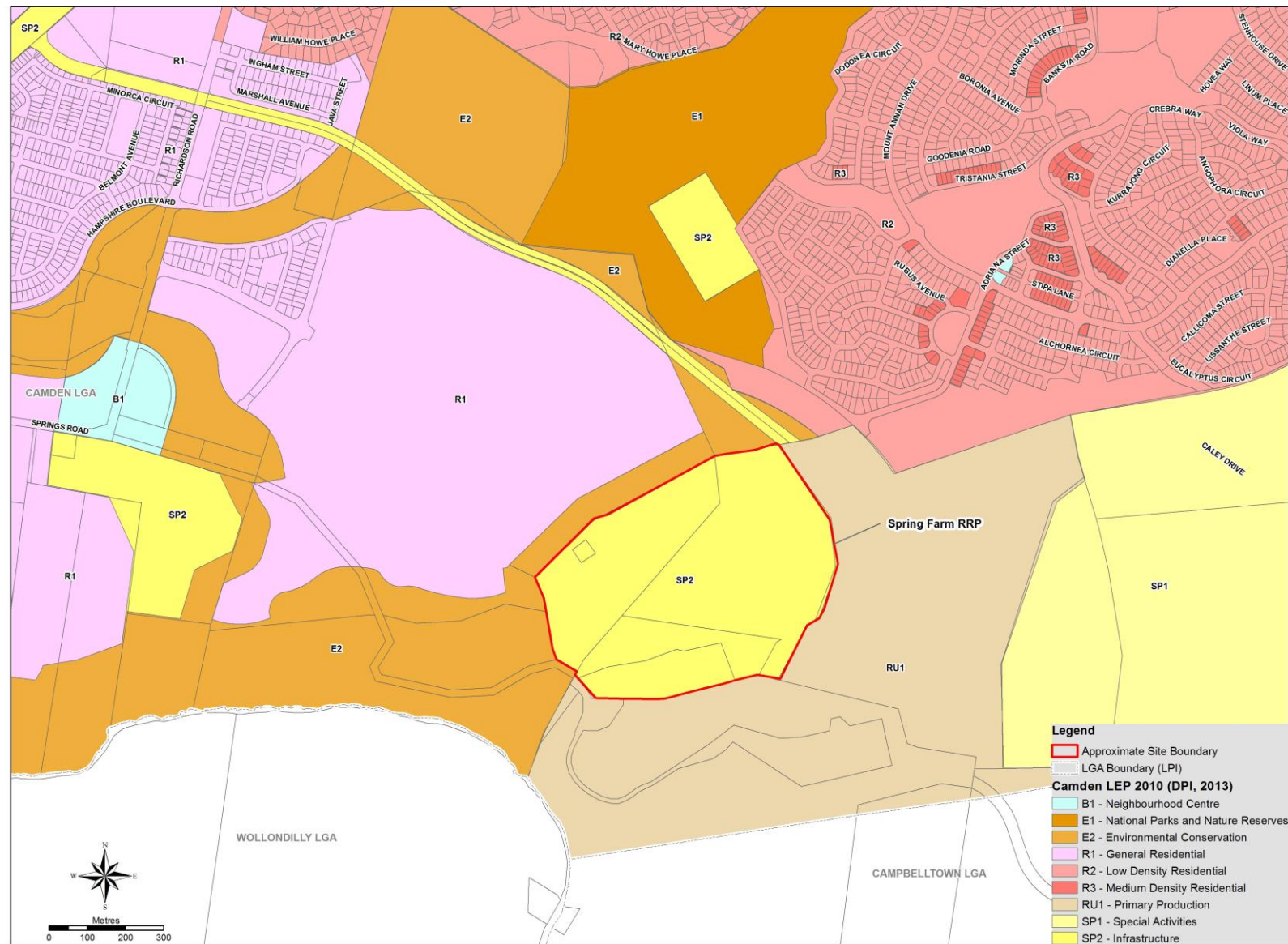


Figure 6-1 Land zoning (extract from Camden LEP, 2012)

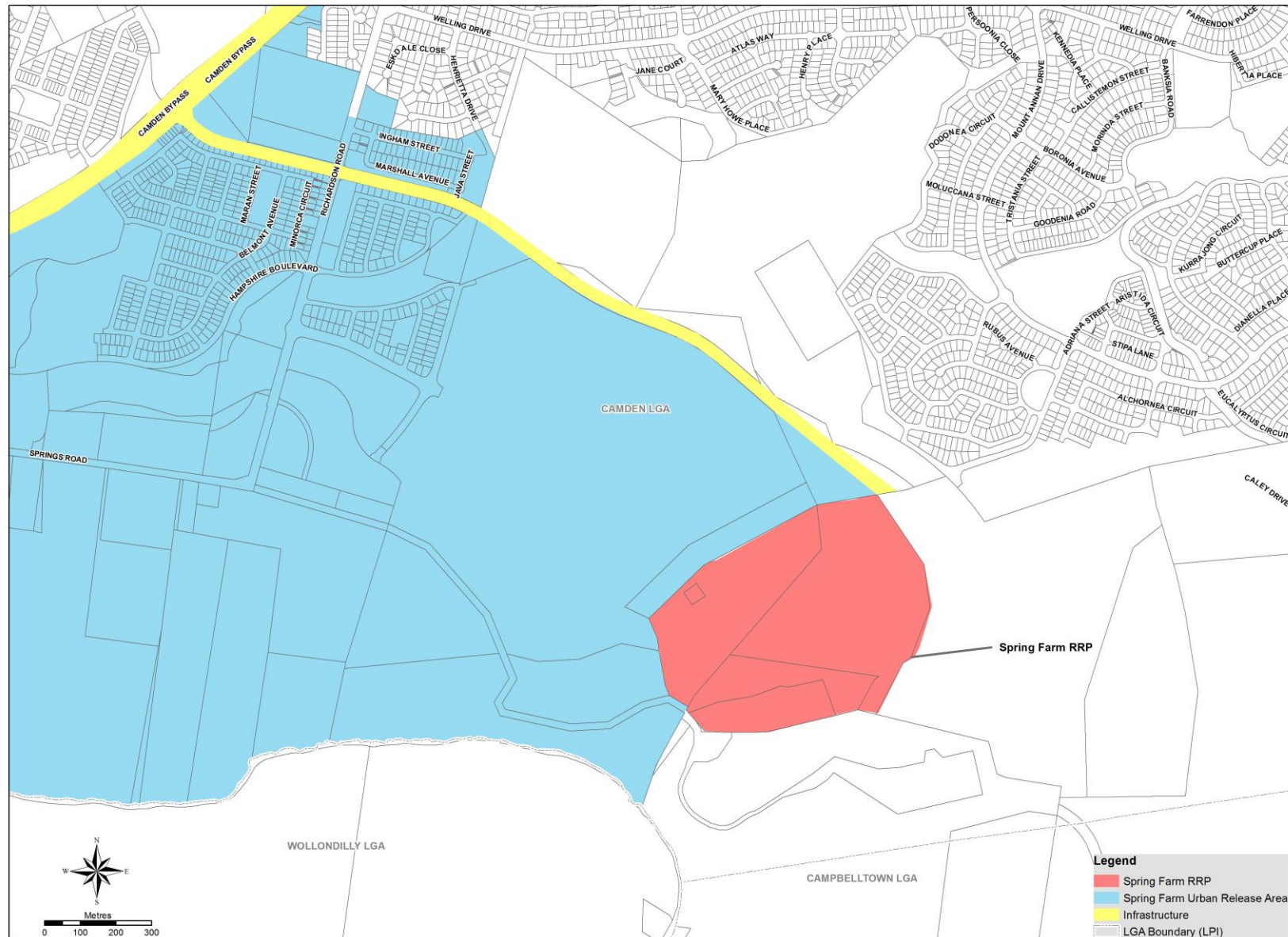


Figure 6-2 Spring Farm Urban Release Area – toned blue (extract from Camden LEP, 2012)

6.5.2 **Camden Development Control Plan, 2011**

Controls within the DCP of relevance to this proposal are included in Part B (General Land Use Controls). Specific relevant controls and the way in which the Modification proposal addresses these are discussed below.

B1.12 Contaminated and potentially contaminated land management

Controls for development on contaminated lands are not of direct relevance to this proposal. An assessment of hazards has been carried out for the proposal to ensure compliance with the requirements of SEPP55 – Remediation of Land. Given that no construction is proposed, the proposal is consistent with the requirements of the SEPP and this section of the DCP.

B1.16 Acoustic amenity

The objectives of this section of relevance to this proposal are:

- *Ensure that excessive noise impacts from Noise generating land uses which affect sensitive receivers are mitigated.*
- *Ensure the amenity of nearby residential land uses is not unreasonably decreased by noise pollution from commercial or industrial development*

This EA includes an assessment of acoustic impacts which concludes that the impacts of the proposal on relevant receivers would be acceptable (see Chapter 4).

B1.17 Air Quality

The control requires that development that is likely to result in the emission of atmospheric pollutants, including odours *Shall include operating practices and technology to ensure that such emissions are acceptable.*

The EA includes a comprehensive air quality and odour assessment (summarised in Chapter 4) that concludes that the proposal will have an acceptable impact on local receivers with respect to air quality and odour.

The proposed Modification is thus considered to be consistent with all relevant requirements of the Camden DCP, 2012.

6.5.3 **Camden Contributions Plan, 2011**

The Plan sets out contributions by developers under Section 94 of *the Environmental Planning and Assessment Act, 1979*, for the purposes of provision of infrastructure and community facilities.

Section 2.8 of the Plan nominates forms of development for which Section 94 Contributions are to be levied. Industrial development or development for the purposes of infrastructure are exempt from Contributions under this Section of the Plan. Consequently, this proposal would not attract a contribution fee under Section 94 of the Act.

7 Community and agency consultations

In accordance with the Director General's Requirements, a series of consultations with the local community and relevant government agencies has occurred. This chapter details the consultations process and provides a list of issues raised by respondents along with responses.

Consistent with the DGR's, Cardno has communicated with all government agencies with an interest in operations at the Spring Farm ARRT. The list of agencies contacted has been derived from the DGR's as well as those contacted during the environmental assessment process for the AWT Part 3A Major Project Application (where relevant to this proposal). Letters outlining the proposed modification and inviting responses with regard to their specific areas of responsibility were sent to the following agencies:

- Camden Council
- Campbelltown Council
- NSW Environmental Protection Authority
- NSW Roads and Maritime Services
- Sydney Water
- NSW UrbanGrowth
- GDF Suez Australian Energy

All agencies were given two weeks to provide written responses to Cardno's letter of notification. A number of agencies made requests for extensions of time to respond and these requests were accommodated.

In accordance with its standard consultation practices, SITA carried out the following consultations with the local community:

- Notifications of the proposal, along with invitations for written responses, were published in the Macarthur Chronicle and the Camden Advertiser on 21st, 22nd, 28th, 29th March, 2013;
- SITA maintains communications regarding its operations through Community Reference Groups set up for each of its facilities. The proposed modification was detailed and discussed at 3 meetings with the Spring Farm RRP Community Reference Group (22/11/2012, 19/02/2013 and 21/05/2013). Consultations regarding the proposal will continue with the Reference group as and when required.

It should be noted that these requests for initial comment on the proposal were made in the absence of a detailed Environmental Assessment. It was made clear to respondents that further opportunities for comment would be available at the time of public exhibition of the Modification Application and at this time an Environmental Assessment would be available.

One change was made to the proposal and one additional impact was assessed in the light of comments received to the initial consultation process. These changes are reflected in the Exhibition Environmental Assessment and include:

- Amendment to the original proposal to include receiving and processing of 130,000tpa of MSW, in lieu of the original proposal to receive 150,000tpa and process 130,000tpa of MSW; and
- Provision of additional information in the form of a noise impact assessment.

Outcomes of the consultations with the Agencies and the community, along with Cardno's comments in response are summarised below. Copies of consultation materials and responses received are included at Appendix A.

7.1 Camden Council

Camden Council submitted a letter of response (21/05/2013) requiring that the following additional matters be addressed in the Environmental Assessment prior to lodgement of the Modification Application:

- *“The assessment of odour (cumulative impact) given the proposed acceptance and processing of liquid waste and its potential odour impact on the sensitive receiving environment surrounding the facility;*
- *the assessment of noise from the increase in vehicles and the potential impact on the acoustic amenity of the surrounding area;*
- *that there is adequate assessment to ensure that safeguards are provided to eliminate the risk of potential pollution incidents occurring from the handling and storage of liquid waste. It is important that liquid waste does not reach creeks or overland flow paths that drain to the Nepean River;*
- *the traffic study must assess the impacts of the proposed additional activities and their associated vehicle movements on Liz Kernohan Drive and the haul road whilst being constructed and at the full development of Spring Farm;*
- *any impacts and mitigation of impacts upon Aboriginal and European heritage;*
- *any impacts and mitigation of impacts upon the cultural and visual landscapes identified in Camden Development Control Plan 2011 (Section B3.1.5, Table B5 and Figure B9); and*
- *an assessment of the proposed modification against the objectives, standards and controls of Camden Local Environmental Plan 2010 and Camden Development Control Plan 2011.”*

7.2 Campbelltown Council

No response was received.

7.3 NSW Roads and Maritime Services

No response was received.

7.4 Sydney Water

No response was received.

7.5 GDF Suez Australian Energy

GDF Suez Australian Energy submitted a response via email (2 June, 2013) outlining their support for the proposed modifications. As such they did not have any further comments to make on the proposal at the time, and no further correspondence has been received.

7.6 NSW UrbanGrowth

UrbanGrowth provided comments and requested additional information in a letter dated 30 May 2013 (included in Appendix A). The content of the letter is summarised in its conclusion, quoted below.

- *‘the proponent should clarify whether the proposed ‘mixed waste’ means the same as ‘mixed municipal waste under the current approval;*
- *the proposal should be amended to be a maximum Receiving of 130,000tpa to match the processing capacity;*
- *the proponent should clarify whether the receiving and processing of ‘organic liquid waste industrial waste and leachate ... for disposal to sewer’ is included within or additional to the tonnage limits specified;*
- *any increase in receiving capacity should not be permitted to commence until the new network or arterial roads are completed, in order to protect existing and future residents from any increase in traffic noise and related disturbance;*

- *there should be no relaxation of any existing conditions of approval relation to hours of operation and/or prohibitions on night time truck movements;*
- *the proponent should provide detailed information relating to the 'organic liquid waste, industrial liquid waste and leachate' and a full and proper hazard and risk analysis;*
- *the proposed connection of the site to sewer is not supported if it is to be achieved via a rising main through the Spring Farm residential area, as this will cause a number of conflicts and complications and alternate routes are likely to be available to the proponent;*
- *there should be no change to the existing odour situation – that is, the proposal should not result in the 2OU (99th Percentile) Contour extending beyond the SITA site boundary adjacent to the Spring Farm residential area.'*

Cardno issued a letter in response to NSW UrbanGrowth on 24 June 2013. A copy of this letter is included in Appendix B. It should be noted that this letter does not reflect the later decision made by SITA to amend the quantities of MSW to be received at the ARRT Facility.

7.7 Environmental Protection Authority

EPA responded in a letter on 7 May, 2013, acknowledging receipt of the Cardno letter and informing that a formal response would be provided if considered necessary. No further correspondence was received.

7.8 Spring Farm ARRT Community Reference Group and general community

A number of questions were raised regarding the Modification proposal at Reference Group Meetings and in response to SITA's notifications in the local press and via its website. These generally concerned issues such as the composition of proposed solid and liquid waste streams and progress on the Modification Application. Emailed responses also raised issues of noise / odour and whether the Facility is to close in the foreseeable future. All of these issues were addressed either at the Reference Group meetings or through emailed responses from SITA.

Table 7-1 provides a summary of the pertinent issues raised in consultations along with Cardno's response.

Table 7-1 Consultations - issues and response summary

Issue in Consultations	Response in Environmental Assessment
Cumulative impact of odour on sensitive receiving environment	NSW UrbanGrowth made a specific comment that the proposal should not result in cumulative odour generated as a result of implementation of the proposal that is over and above levels stipulated in the current approval. Camden Council's more general request was for a cumulative impact assessment of odour impacts on sensitive receivers. Several other submissions from the general community raised the issue of odour impacts. The Air Quality and Odour Assessment prepared by Pacific Environment Ltd (Appendix C to this EA) includes odour contour modelling indicating that the cumulative 2OU odour contour would not extend beyond the boundary with the SITA boundary with the Residential Release Area.
Acoustic impacts of increase in vehicle movements.	UrbanGrowth commented that any increase in truck movements prior to completion of the Liz Kernohan Drive / Haul Road will impact on the amenity of residents in Springs Road, with particular regard to acoustic impacts. Camden Council has made a request for assessment of noise impacts of the proposal on the surrounding residential environment. The proposal as amended will only generate additional truck movements from delivery and transfer of liquid waste. Cardno's assessment with regard to traffic impacts (Appendix D) has found that the amended proposal would generate 21 additional vehicle movements prior to closure of the landfill and 28 additional vehicle movements post closure of the landfill. The subsequent acoustic assessment (Appendix E) has found that using the temporary access road from Richardson Road (i.e. prior to the construction of the haul road) the proposal would result in an increase in road traffic noise levels on Richardson Road of +0.2 dB(A). With the haul road operational, road traffic noise levels on Link Road would increase by +0.8 dB(A). These are reported to be marginal increases that would not require additional mitigation measures under the requirements of the NSW Environmental Criteria for Road Traffic Noise. On that basis it is considered that the proposal can proceed prior to construction of the haul road without unacceptable acoustic impacts on the new Spring Farm residential community.
Pollution risk from handling and storage of liquid waste	Appendix F to the EA provides an assessment of hazards and risks associated with the proposal. The assessment included a Preliminary Hazard Analysis (PHA) consistent with the requirements of <i>State Environmental Planning Policy 33 – Hazardous and Offensive Development</i>. With respect to pollution risk from handling / storage of liquid waste, the PHA has found: • There would be a Low Risk for pollution arising from spillage or leakage of waste or interruptions to the operations treatment facility. • There would be a Moderate Risk of pollution through acceptance of un-licensed forms of liquid waste, accidental fuel spill. • No High Risks for pollution have been identified out of the PHA. The assessment concludes that with appropriate mitigation measures in place the identified risks of pollution would be sufficiently managed.
Traffic impacts on Liz Kernohan Rd and the haul road whilst being constructed and at the completion of the Spring Farm residential release.	The proposal will have no traffic impacts on Liz Kernohan Drive until the haul road is constructed and operational. Until that time, all traffic movements to and from the SRRP will be via the access road connecting to Richardson Road. With respect to movements post commissioning of the haul road, the traffic impact assessment that accompanies the EA (see Appendix D) has found: "The completion of the Spring Farm Eastern Village is expected to generate approximately 8595 vehicles daily on Richardson Road and 1146 vehicles per day on Liz Kernohan Drive. The addition of 28 HVs daily into the new road network will result in a 0.65% and 4.9% increase in traffic volumes on Richardson Road and Liz Kernohan Drive respectively. The marginal increase of heavy vehicle volumes of less than 5% is anticipated to have negligible impacts on the road network."
Impacts on European and Aboriginal heritage	The proposal is for a change in the type and quantities of waste materials to be treated within the existing waste management infrastructure at the ARRT

Issue in Consultations	Response in Environmental Assessment
	Facility within the Spring Farm RRP. No construction is proposed within the ARRT Facility and no changes are proposed to infrastructure within and outside the boundaries of the SFRRP. The proposal will thus have a nil impact on European and Aboriginal heritage.
Impacts on identified cultural and visual landscapes	Chapter 8 of this EA includes commentary on impacts of the proposal on cultural and visual landscapes. With respect to relevant sections of the Camden Development Control Plan, 2012 which provide controls for protection of Cultural and Visual Landscapes in the Local Government Area, the EA makes the following comments: Given that this proposed Modification involves no construction works and that all proposed activity, including storage and processing of materials will occur within existing built infrastructure, it is considered that the specific requirements of the DCP with regard to protection of Cultural and Visual Landscapes will not be relevant in the circumstances of this case.
Assessment against the Camden LEP and DCP.	Chapter 6 of this EA includes assessment of the proposal against the requirements of all relevant planning controls and legislation, including the Camden LEP and DCP. The proposal is permissible under the LEP zoning that applies to the subject site and is consistent with the zone objectives. The proposal has also been found to be consistent with all relevant controls in the DCP.
Query: Does 'Mixed Waste' equate to the approved 'Mixed Municipal Waste'?	The proposal is to receive Mixed Solid Waste (MSW) equivalent to General Solid Waste as defined by the Waste Classification Guidelines published by Department of Climate Change and Water (December 2009). In this regard, the waste material referred to as MSW in the proposal is not 'Special Waste', 'Liquid Waste', 'Hazardous Waste' or 'Restricted Solid Waste' as defined by the Guidelines. No change is proposed to the component of the existing Condition of Consent that refers to the waste as: <i>'waste classified as inert or solid waste under the Protection of the Environment Operations Act, 1997.'</i>
Request that proposal be amended to maintain maximum receiving level of 130,000tpa	SITA has reviewed its proposal in the light of these comments. The proposal as amended is to receive and process 130,000tpa of MSW and 520m ³ per day of Liquid Waste. The amended proposal now involves no change to the amount of MSW to be received at the ARRT Facility.
Provide details of quantum of liquid waste to be received / processed.	The proposal is to receive and process 520m ³ per day of liquid waste.
An approval for increase in waste received should not be permitted to commence until proposed new local roads are operational.	The traffic impact assessment at Appendix D and the acoustic impact assessment at Appendix E have found that the proposal would not result in adverse impacts on local acoustic amenity or the existing local road system and that all intersections would operate well within their capacity with the proposed Modification in place. It is thus considered that there is no necessity to delay the commencement of the operation until new roads are constructed.
There should be no change to currently approved hours of operation and / or prohibition on night time truck movements	The application includes no proposal to change hours of operation or other existing restrictions on vehicle movements.
Concern regarding transport of potentially hazardous liquid waste through residential streets.	The Preliminary Hazard Analysis completed consistent with the requirements SEPP 33 – Hazardous and Offensive Development (Appendix F) has found that with existing Environmental Management Plans and Safe Operating Practices in place, the proposal would represent a negligible risk with regard to transport to / from and processing of liquid waste at the ARRT Facility.
Concerns regarding SITA's proposal to construct a new rising sewer main across UrbanGrowth land.	This proposal is not part of this Modification application. SITA has engaged in discussions with UrbanGrowth regarding future plans to connect the SFRRP to sewer. SITA's eventual intention, which has been conveyed to UrbanGrowth, is to seek connection either to the existing rising main at Mount Annan or to the future rising main that will be installed by Urban Growth in Richardson Road. Timing or location of any new connection has not been finalised at the time of preparation of this EA. In the medium term, processed liquid wastes will be

Issue in Consultations	Response in Environmental Assessment
	trucked off site for disposal to sewer elsewhere. Records of discussion to date between SITA and UrbanGrowth regarding sewer connection are included in Appendix A.
Query: Are additional structures proposed on the ARRT site?	No additional structures are proposed as part of this Modification application. All additional quantities of waste materials will be stored and processed within the existing waste management infrastructure.

8 Environmental Assessment

An environmental assessment (EA) of the proposed modification has been carried out with particular regard to the matters listed in the Director General's Requirements. An analysis of environmental risks has been carried out as a basis for critical assessment of the potential impacts of the proposal on the local environment.

8.1 Environmental risk assessment

To inform the environmental assessment process, an analysis has been carried out of the potential risks of the proposed Modification with respect to the natural and human environments. The analysis is documented in Table 8-1. Where management measures to address the identified risks are in place, for instance through adopted Environmental Management Plans, these are summarised as risk mitigation measures.

Table 8-1 Environmental Risk Assessment Analysis

ISSUE	DESCRIPTION	RISK LEVEL	RELEVANT RISK MITIGATION MEASURES
ENVIRONMENTAL			
Waste management	Failure to implement the proposal could result in: - Insufficient capacity for sustainable treatment of waste generated by local and regional activities; and - Non-optimal use of existing sustainable advanced waste treatment infrastructure.	Moderate	
Water and soil quality	Risks with regard to water and soil quality may result from infiltration of waste liquids into the local drainage system and ultimately into the Nepean River via spillage: - during transport of liquid waste to and from the ARRT Facility; - during processing on site; and - during the disposal of treated wastes to sewer.	Moderate	The <i>Macarthur Resource Recovery Park – Ecolibrium Mixed Waste and Organics Facility Operational Environmental Management Plan</i> (the OEMP) (WSN, 2008) dictates management procedures with respect to operations of the ARRT Facility. The Plan includes specific management processes to contain operational risks of contamination and protect water and soil quality. The planning consent also includes conditions of consent to protect water and soil quality.

ISSUE	DESCRIPTION	RISK LEVEL	RELEVANT RISK MITIGATION MEASURES
Air quality	Treatment of additional solid and liquid waste and the process of power generation from combustion of waste generated gases may potentially result in the generation of additional air pollutants	Moderate	The OEMP also includes management processes to contain operational risks with respect to air pollution. Conditions of the planning consent also include limiting conditions on air quality impacts.
Flora / fauna impacts	The proposal involves no external works. The only potential risks to flora and fauna would be from side effects of contamination of soil and water by liquid wastes	Low	Soil and water management measures in the OEMP would also address any potential risks of this proposal with respect to flora and fauna.
HUMAN			
Odour	The SFRRP and other local waste management operations have a history of conflicts with residential landuses in the local area with regard to odour impacts. These have the potential to compound as residential development progresses closer to the SFRRP boundary. The proposed treatment of liquid waste and additional quantities of solid waste would be a potential source of additional odour that may compound odour impacts on the existing and developing residential environment.	High	Odour management measures are within the OEMP. Conditions of the planning consent also include limiting conditions on odour impacts.
Acoustics	Noise impacts of operations within the SFRRP on the existing residential development have not been a significant issue to date. The proposal would be unlikely to generate additional noise from on-site operations. The only potential for acoustic impacts would be from traffic movements to and from the site and through local streets.	Moderate	The OEMP includes management measures to address acoustic impacts. Conditions of the planning consent also include limiting conditions on acoustic impacts.
Traffic	Traffic generated by the proposal has the potential	Moderate	The OEMP includes management measures to

ISSUE	DESCRIPTION	RISK LEVEL	RELEVANT RISK MITIGATION MEASURES
	to impact on local roads. Specifically any additional truck movements through local streets generated by the proposal may potentially impact on the functioning of the local road system and on local amenity and safety. These impacts would be potentially compounded by growth of the adjacent residential precincts. The extent of potential impacts on local roads may be contingent on construction of roads proposed to accommodate SFRRP traffic.		address traffic impacts. Conditions of the planning consent also include limiting conditions on traffic movements and hours of operation of the ARRT Facility.
Visual quality	The proposal involves no new built development. All proposed operations will occur within the existing infrastructure. Changes in visual quality are therefore likely to be nil.	Low	

The outcomes of the EA are detailed below against this risk assessment. Specific Director General's Requirements are addressed as appropriate. Where stand-alone specialist reports have been prepared, these are included as appendices.

8.2 Waste Management

The Environmental Risk Analysis at Table 8-1 identifies moderate risks for local and regional waste management arising from the sub-optimal use of the existing advanced waste treatment infrastructure at the ARRT Facility that would be the outcome of a failure to implement this project. Corresponding risks of actioning the proposal (essentially the risk of impacts on the physical environment and the safety and amenity of the local residential population) are individually addressed in this chapter of the EA with an overall finding that each of these risks can be adequately addressed through proper environmental management practices. Essentially, the risks to sustainable waste management of not proceeding with the proposal are considered to substantially out-weigh the manageable environmental risks of proceeding.

8.2.1 Director Generals Requirements

DGRs falling under the heading of Waste Management are each addressed below.

DGR - Describe the strategic role of the project in the context of the broader waste management strategies

The proposal is discussed in the context of regional and State waste management strategies in Chapter 4 of this EA. This discussion verifies that the proposal to maximise the use of the existing advanced waste treatment infrastructure at Spring Farm is positively consistent with the National Waste Policy and the NSW Waste Avoidance and Resource Recovery Strategy. Via its contribution to the diversion of waste from landfill, the proposal also constitutes a positive action to address the diminishing supply of landfill space identified in the 2009 Public Review into landfill capacity in NSW. The proposal has thus been illustrated to make a positive contribution to the achievement of current waste management strategies in Western Sydney and New South Wales.

DGR – Provide details, project quantities and origin of incoming wastes to be treated

8.2.1.1 Quantities

Details of proposed forms of waste along with maximum quantities to be received in the ARRT are included in Section 2.1 of this EA. With the proposed modification in place, the complex would be approved to:

Receive and process:

- 130,000tpa of Mixed Solid Waste (**MSW**) classified as inert or solid waste under Schedule 1 of the *Protection of the Environment Operations Act, 1997*;
- 25,000tpa of garden waste;
- 5,000tpa of garden waste or biosolids; and
- 520m³ per day of liquid waste.

All of the proposed processing would occur at the existing facility utilising existing on site infrastructure.

8.2.1.2 Origin of incoming material

Waste materials would be generally received from the Sydney metropolitan area. Mixed Solid Waste and garden organics are currently received / processed at the ARRT Facility under a 15 year contract with the Macarthur Regional Organisation of Councils (MACROC), covering Camden, Campbelltown, Wollondilly and Wingecarribee Local Government Areas. The expiry date for the current contract is 31 May 2024.

Liquid waste would be sourced initially from SITA's Camellia Resource Recovery and Treatment Facility, which currently operates a product destruction and liquid waste treatment unit. It is proposed to transfer some of the volume of liquid treated at Camellia for treatment at the ARRT Facility. Ultimately, should sufficient markets be identified, SITA intends to receive and treat organic liquid waste from other commercial sources in the metropolitan area.

Leachate would be sourced from the existing Spring Farm landfill (operating and under rehabilitation) and from other facilities within the SITA Sydney metropolitan network. SITA has also identified opportunities to treat leachate sourced from other commercial customers.

DGR – Provide details of the waste output disposal and/or final use (i.e. sewer discharge, land application, resource recovery exemptions)
DGR – Provide details of the treatment process

8.2.1.3 Waste treatment process

A summary of the treatment process and end use for each proposed waste stream follows.

Mixed solid waste

The proposed additional quantities of MSW will be processed using the existing infrastructure in the ARRT Facility receipt hall. The MSW will be separated using non-water based mechanical material separation technologies to recover recyclable materials. Outputs of the process and their destinations will be:

- Undersized organic material (<120mm) will be transferred to SITA's organic treatment facility (the SAWT) at Kemps Creek and recycled as compost to meet the Mixed Waste General Exemption;
- Recovered steel and aluminium will be transferred to the SFRRP Material Recycling Facility for final processing and sale;
- Plastics and textiles that would have been landfilled are recovered as Processed Engineered Fuel (PEF) and used as a feed stock for national or international cement kilns. The PEF is baled before being transported off site. The materials recovered from the ARRT and used as PEF need to meet specific quality requirements in terms of calorific value and moisture content levels in order to be accepted as a fuel in defined markets; and
- The remaining non-putrescible residue will be landfilled at the Spring Farm site until its scheduled closure in 2016. At that point, residue will be transferred to other landfills in the SITA network.

Organic liquid waste and leachate material

As part of this proposal, SITA intends to carry out minor technical modifications to the existing Bio-treatment Tank Farm at the ARRT in order to:

- Process high organic waste water (soft drinks, alcohol, treated grease trap water, perfumes, etc); and
- Process leachate liquids.

SITA has prepared a summary of the proposed process for treatment of liquid wastes at the ARRT Facility (Appendix A).

Liquid wastes received at the facility will be stored and treated in the converted tank farm system. The outputs of the process will be residual liquids, treated to a level to permit safe discharge to sewer, and biogas. SITA estimates that discharges of treated liquids to the Sydney Water trade waste system will total 520m³ / day at peak performance of the tank farm. Biogas generated by the process will be stored on site in a gas balloon and used to power the existing on-site gas to energy engines so as to produce sustainable electricity. It is expected that production of biogas to a level sufficient to power the gas to energy engines will take around 6 months from the point of commission. Subject to the quality of wastewater received, SITA estimates that total power generated by the system will be up to 53 MWh / week.

At the time of lodgement of this Modification Application, the SFRRP is not connected to sewer and timing details for provision of a connection are unknown. In the interim period prior to connection to sewer, treated liquid waste will be trucked off the site and disposed to sewer elsewhere. Trucks will be back-loaded (i.e.

trucks will deliver liquid waste to the Facility for processing and be loaded with treated waste for off site disposal prior to exiting the site). This practice will minimise truck movements generated by the proposal.

8.2.2 **Environmental risks**

With regard to waste management, not proceeding with the proposal poses significant environmental risks associated with the failure to utilise sustainable waste management practices. Specifically, these include increased risks of generation of greenhouse gases from landfill and risks of soil pollution from soil injection of liquid waste. On this basis it is considered that the proposal should proceed in the interests of achieving best practices in sustainable waste management.

8.3 Soil and Water

Soils and water quality within the SFRRP are managed via a suite of Operational Environmental Management Plans (OEMP's) prepared in accordance with the various planning consents that apply to the site. Specific to this proposal, soil / water quality within the ARRT Facility is managed via the *Macarthur Resource Recovery Park – EcoLibrium Mixed Waste and Organics Facility Operational Environmental Management Plan* (WSN, 2008).

In order to address the identified environmental risks of this proposal with regard to soil and water quality and the relevant matters raised by the DGR's, Cardno Water & Environment has carried out a Soil and Water Assessment and prepared a report (see Appendix C). The report outlines the existing water quantity and quality and management systems, assesses the potential impacts of the proposed activities on the site surface water, soils and receiving waters and outlines mitigation measures for the identified impacts. The outcomes of this report have been used to inform the following assessment of the potential risks and environmental impacts of the proposal.

8.3.1 Director General's requirements

Assessment against the DGR's relevant to soil and water management follows.

DGR – provide a detailed water balance for the project.

Figure 8-1 is an extract from the Soil and Water Assessment. The diagram illustrates the daily Water Balance for Liquid Waste and Leachate that would result from implementation of the proposed modification, resulting in an output to sewer of 520m³ per day of treated liquid waste. Under this proposal, the outputs would be transferred off site by tanker and disposed to sewer at the SITA owned and operated Chullora Resource Recovery Park.

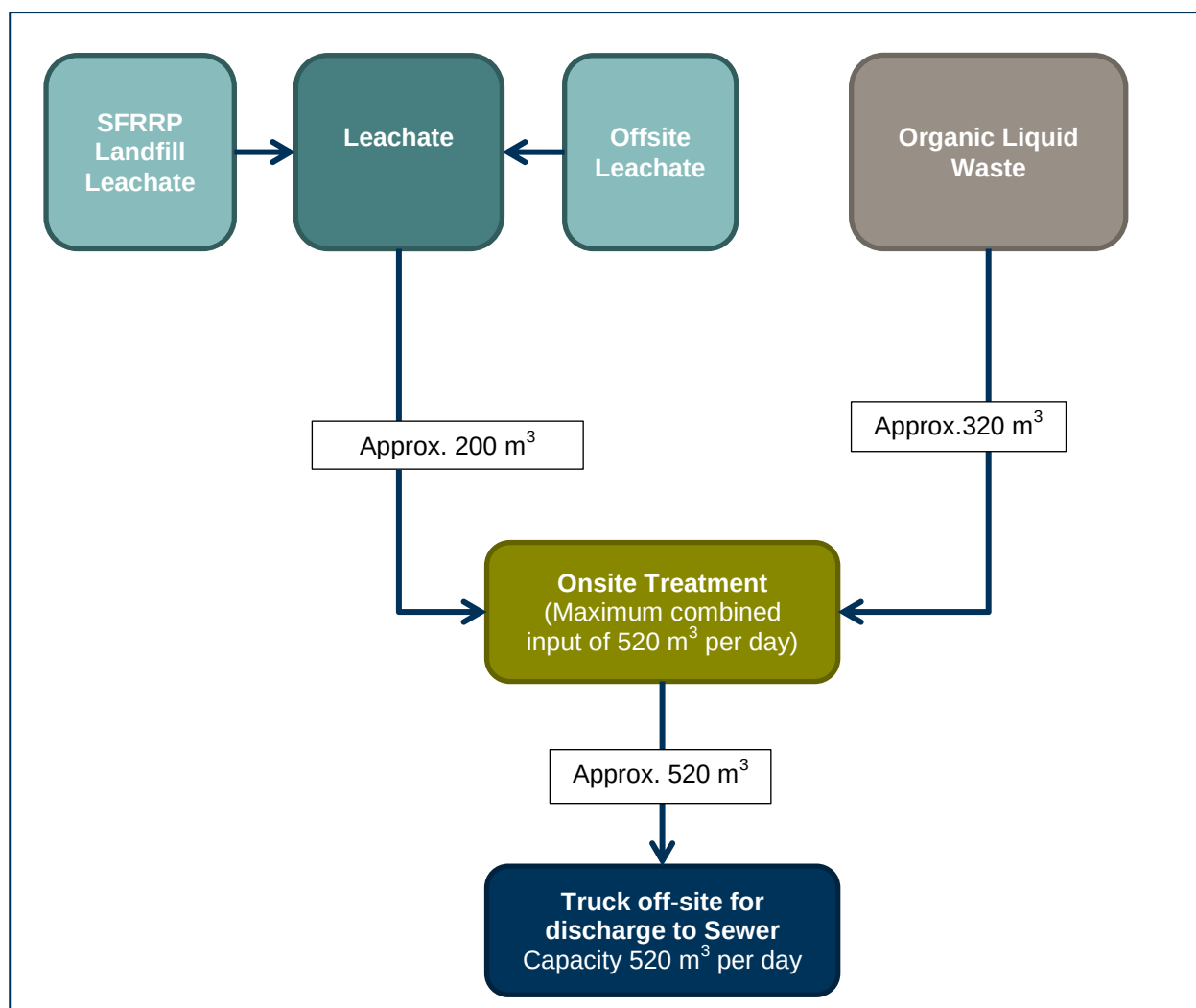


Figure 8-1 ARRT Facility – Daily Water Balance with proposed Modification in place

DGR – Provide wastewater predictions, and describe the measures that would be implemented to treat, reuse and/or dispose of this water, with regard to cross contamination of wastewater from the project's different components. Describe the proposed stormwater management system.

8.3.1.2 Existing soil and water management system

The ARRT Facility has in place a comprehensive management system aimed at maximizing on site re-use of wastewater.

All process water within the ARRT Facility is carefully managed to optimise reuse in the Garden Organics Plant (GOP). The ARRT Facility uses a dry separation process so no additional process water is required to process Mixed Solid Waste Streams through the Facility.

The Garden Organics Plant uses harvested rainwater and residual process water which is added to shredded garden organics within the Garden Organics Composting plant. Sprinkler systems installed in the roof of the enclosed tunnels apply this water to the material and slotted grates under the floor of the tunnels collect and recirculate any accumulated process water. This ensures that the optimal moisture content of the material is maintained.

The process water management system at the ARRT Facility site is described below and outlined in Figure 8-2.

- Harvesting of rainwater is maximised with 240m³ of rainwater storage capacity provided onsite;

- Any waste water collected within the receival and processing hall floor drains is re-introduced directly into the tank farm;
- All process water from the methanogenic and acetogenic reactors is treated on site within a sequential batch reactor treatment tank before being reintroduced into the process;
- Water collected from the sludge dewatering system is pumped back into the treatment tanks for treatment and subsequent reuse in the process;
- Treated water is used to maintain and clean belt filter presses as part of the sludge dewatering system;
- Rain water harvested on roof areas is used primarily for all wash down and cleaning purposes onsite and as process make-up water when required; and
- Any wastewater is transported offsite for treatment at a licensed liquid waste treatment plant. This applies to all water that is required to be periodically discharged from the biological reactors to prevent accumulation and elevated salt levels that can effect system performance.

Process water is managed in a manner that mitigates any potential for stormwater contamination and maximises onsite process reuse. Environmental objectives include:

- Maximise reuse of all process water;
- Limit the generation or need to transport wastewater offsite for disposal;
- Maximise the harvesting and storage of all rainwater for onsite use;
- Minimise the onsite use of potable water;
- Maintain quality of process water to avoid the accumulation of salts and other contaminants, which may affect system performance; and
- Effective isolation of processing water from all stormwater and surface water systems.

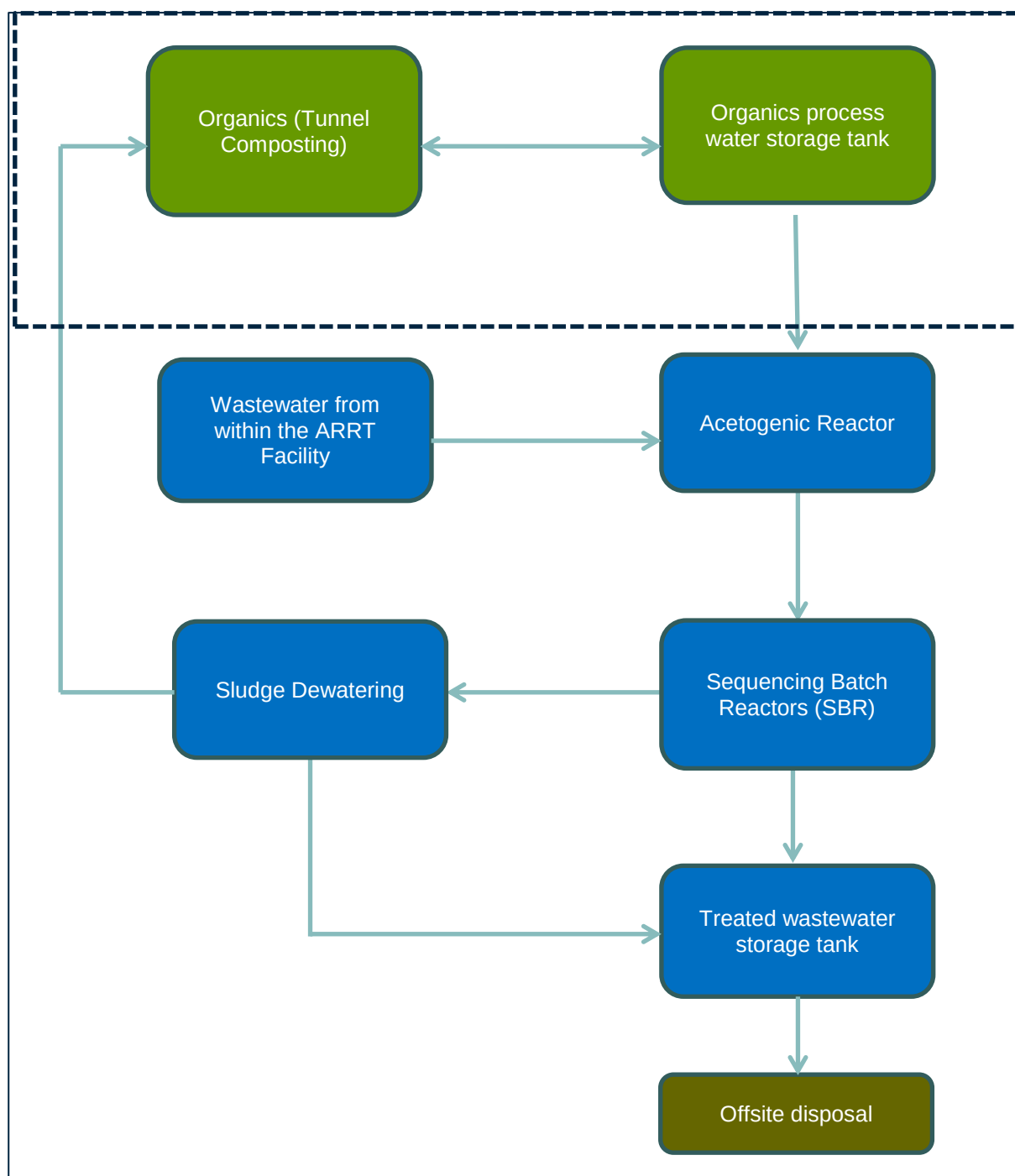


Figure 8-2 Existing ARRT Facility Process Water Management – Dry Separation

8.3.1.3 Proposed Changes to Soil and Water Management System

The existing soil and water management system results in the landfill leachate generated on site being tankered offsite for treatment before disposal to sewer. The proposed operations for the site would result in all leachate generated by the landfill being treated onsite at the ARRT Facility and tankered off site to be disposed to sewer at an approved off-site location. It is proposed that liquid waste (leachate and organic liquid waste) from offsite would also be accepted at the Spring Farm ARRT Facility for treatment and disposal, via tanker, to sewer at an approved off-site location.

The tank farm within the ARRT Facility currently has two processing lines and is designed for anaerobic digestion of specific liquids. SITA proposes to use one line to treat leachate, the other line for organic liquid waste from product destruction. This treatment has been successfully proven using waste water produced by

the organic tunnels on site and from several trials on other waste water flows conducted with EPA approval during the past heavy rainy summer.

The tank farm can efficiently treat most leachate produced from SITA's own facilities as well as waste water flows from other sources. To enhance the treatment capacity, one of the tanks would be transformed into a Sequencing Batch Reactor (aerobic process) to treat higher levels of ammonia.

In assessing the need for such treatment capacity, SITA has considered the following sources:

- Site generated leachate: Currently the site transfers 2-3 tanker loads per day from Spring Farm ARRT Facility to the Eastern Creek facility managed by Waste Assets Management Corporation and up to 4 tanker loads per day from Spring Farm ARRT Facility to its Chullora facility for discharge to Sydney Water. The proposal will allow for treatment on site of site generated leachate and recovery of currently un-recovered gases for purposes of sustainable electricity generation;
- Leachate generated from other SITA facilities: On occasions, such as during high rainfall events or emergency situations, the need arises to treat surplus leachate generated from one or more of SITA's operating sites. SITA could manage these unforeseen events by treating the surplus at the Spring Farm ARRT Facility;
- Leachate generated from other facilities, external to SITA: SITA also recognise that there is an opportunity to treat leachate produced by external parties and would be open to accept leachate from other producers to assist with the shortage of liquid waste treatment in the Sydney basin; and
- Organic Liquid Waste: it is proposed that organic liquid waste as a result of product destruction (food juice, soft drink, brewery and distillery) from SITA Camellia or Sydney Market would also be accepted at the site.

Due to the nature and location of the proposed works the existing soil and water management system would not change significantly as a result of the Modification. As the proposal involves no changes to built infrastructure within the ARRT Facility, there will be no changes to the amount of stormwater run-off generated from the site. Amendments to the existing soil and water management system are thus only required to manage leachate and organic liquid waste streams proposed to be treated at the Facility (incorporating management of process water and stormwater). The amended system is illustrated in Figure 9-3. With the proposed amendment in place, four types of water will be managed in the SFRRP:

- Uncontaminated stormwater;
- Wastewater (from onsite amenities);
- Leachate (from landfill or offsite); and
- Organic wastewater (from offsite).

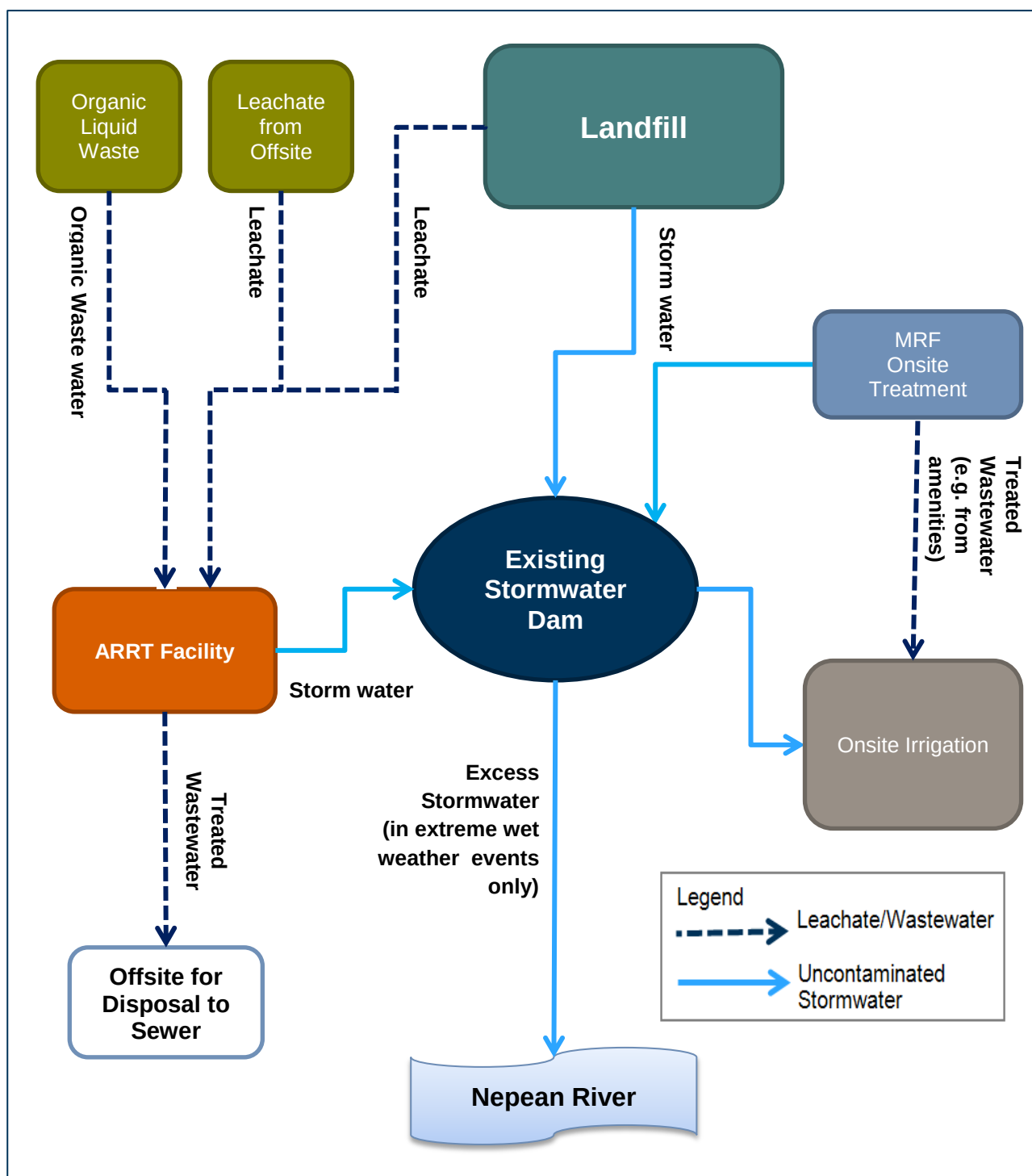


Figure 8-3 SFRRP Proposed Soil and Water Management System

8.3.2 Environmental risks

Potential environmental respects posed by this proposal with respect to soil and water quality are each discussed below.

Spillage / leakage risks during transport to / from the Facility

There is a risk to soil and water quality arising from the potential for spillage from tankers transporting liquid waste on public roads to or from the ARRT Facility. Such risks would be adequately managed via SITA's comprehensive set of Standard Operating Procedures (**SOP's**) which includes specific Spill Response SOP's to ensure safe management of accidental spill events. The SOP's include training and reporting requirements along with specific Key Actions to address spill events during transit. These include use of

purpose designed “spill kits” and notification processes, including notification of relevant authorities if spills occur in places not in SITA’s ownership. If this proposal were to proceed, it is considered that these Procedures would be adequate to manage the risk of contamination of soil or water during transit of liquid waste to or from the ARRT Facility.

Contamination during handling or processing on site

Risks to soil and water quality from on-site processing of liquid waste could arise from either spillage of waste onto surrounding land or infiltration of soils and groundwater from within the Facility. With the proposed Soil and Water Management System in place along with the procedural management regime set by the OEMP and the Standard Operating Procedures relevant to the Facility, these risks would be minimized and acceptable.

The proposed processes (storage and treatment of liquid waste and Mixed Solid Waste) would all occur within the confines of the existing building, tanks and bunded areas of the ARRT Facility. Any spillage of waste material would be completely contained within this system so that the risk of escape to the exterior environment and consequent contamination of soil or natural drainage systems would be minimised.

The OEMP for the ARRT Facility (WSN, Amended by SITA, 2008) includes specific measures to manage against risks of contamination of soil or water arising from the storage or processing of materials at the Facility. The OEMP is integral to the identification, mitigation and remediation of potential hazards and risks at the existing site. It would be updated with additional mitigation measures required to manage the potential impacts of the proposed development and it is considered that this requirement could be covered as a Condition of Consent of the proposed Modification. Additionally, the SITA SOP’s also include spill response actions to address events on SITA sites. This management regime is considered adequate to protect against risks to soil and water quality from the on-site operations associated with this proposal.

8.3.3 Conclusions

The outcomes of the Soil and Water Assessment are:

- No construction impacts associated with the site works are likely given that the proposed activities would occur within existing buildings/areas. Should any earthworks be proposed as part of connecting the site to the Sydney Water trade waste system any associated impacts should be assessed and managed accordingly;
- The proposed activities would have no significant impact on site hydrology. There would be no increase in impervious surface and therefore no increase in surface runoff. No significant barriers to flow are proposed as part of the activities, allowing existing flowpaths on site to function effectively;
- Impacts to surface water quality during operation would be associated with accidental spills or breaches of containment units. These potential impacts can be effectively managed through the implementation of control measures listed in the site OEMP;
- Given that the existing facility is constructed on an impervious site, such that stormwater (and also process water within the facility) would not be able to infiltrate to groundwater, groundwater impacts are not considered likely; and
- There would be no discharge of leachate to the Nepean River during operation of the proposed activities. A total of 520 cubic meters per day would be discharged to the Sydney Water trade waste system in accordance with relevant guidelines.

Current mitigation measures would be required to continue to ensure ongoing surface water quality management with the proposed new operations in place.

The overall finding of the assessment is that with the proposed revision to the existing on-site soil and water management system in place along with amendments to the OEMP to address liquid waste and leachate treatment, all risks arising with regard to soil / water quality are manageable.

8.4 Air Quality and Odour

Odour impacts have been and will continue to be a significant issue with regard to operations of the SFRRP, principally due to the ongoing changes to landuse in the locality from agricultural to residential. Historically, the facility has been subject to some controversy due to ongoing odour complaints from nearby residents. In 2011, SITA decommissioned the EcoLibrium Facility, principally to address operational issues and also, at least partly, due to odour impacts. A synopsis of key events with regard to the facility and local odour impacts is included within this chapter.

The risk of this proposal to exacerbate odour impacts on the surrounding residential neighbourhood as it develops is critical to its success. To address potential odour impacts of the proposal and to satisfy the relevant DGR's, an Odour Impact Assessment (OIA) has been carried out by Pacific Environment Limited (Appendix D). The outcomes of this report have been used to inform the following assessment of the potential risks of the proposal with respect to air quality and odour.

8.4.1 Director General's Requirements

DGR - Quantitative assessment of the potential air quality and odour impacts of the project and the effectiveness of the proposed air quality/ odour control measures.

DGR - Odour modelling should consider cumulative impacts from the approved operations at the Spring Farm Advanced Resource Recovery Facility.

The Odour Impact Assessment (OIA) carried out by Pacific Environment Limited used current industry accepted dispersion modelling techniques to predict off-site odour concentrations due to the activities at both the ARRT individually and cumulatively, combined with the Spring Farm ARRP landfill and Camden Organics operations. The dispersion modelling took account of local meteorological conditions and terrain information and used on-site odour measurements to determine odour emission rates to predict potential odour impacts at the nearest residences.

The predicted ground level concentrations at the nearest representative receptors are summarised in Table 8-1. These results are for the ARRTF/MRF operations individually and a cumulative scenario including the ARRTF/MRF, landfill and Camden Organics. Predicted ground level odour concentrations (99th percentile) are presented as contour plots in Figure 8-4 and Figure 8-5 across the modelling domain.

Table 8-2 Predicted 1-hour average (99th percentile) odour concentrations at individual residences

Residence ID	MGA coordinates (m)	ARRTF and MRF (OU)	ARRTF/MRF and Landfill with Camden Organics (OU)
R1	290872, 6227263	<1	<1
R2	291123, 6227343	<1	<1
R3	291454, 6227298	<1	1
R4	291639, 6227501	<1	1
R5	291806, 6227616	<1	1
R6	292009, 6227717	<1	1

Figure 8-4 shows the predicted 99th percentile odour levels for the proposed ARRT Facility operations only. It can be seen that the 2 OU contour does not extend to the residential areas and that levels are not predicted to exceed 1 OU (the level of detection) at any of the nearest residences. This is not to say that the odour will never be detected, but that it is not predicted to be detected more than 1% of the time.

The combined emissions from the landfill, ARRTF/MRF, and Camden Organics are predicted to result in the cumulative odour concentrations as shown in Figure 8-5. These do not exceed 2 OU (99th percentile) at residential receptors.

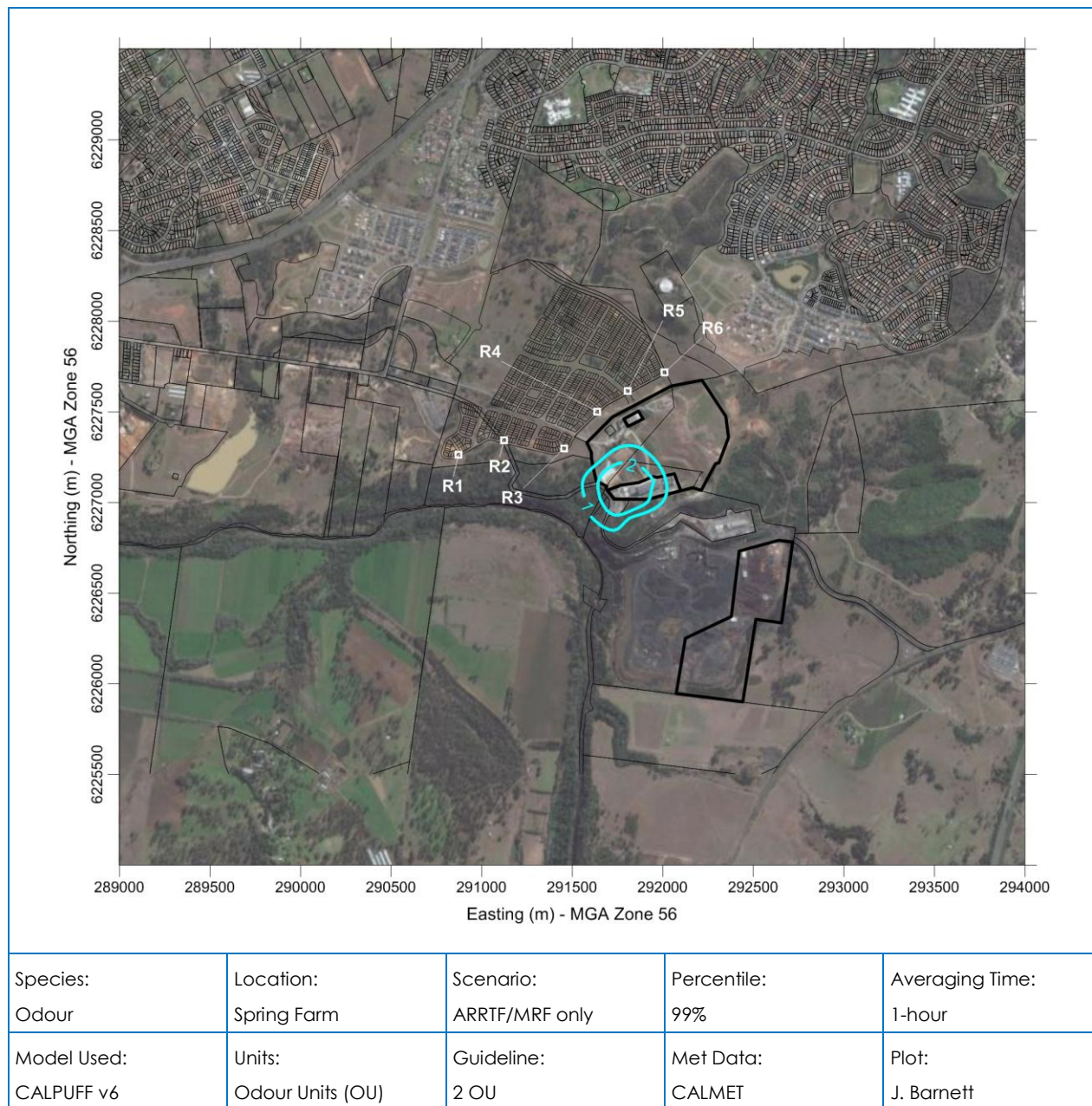


Figure 8-4 Predicted 99th percentile ground level odour concentration due to ARRT/MRF operations only

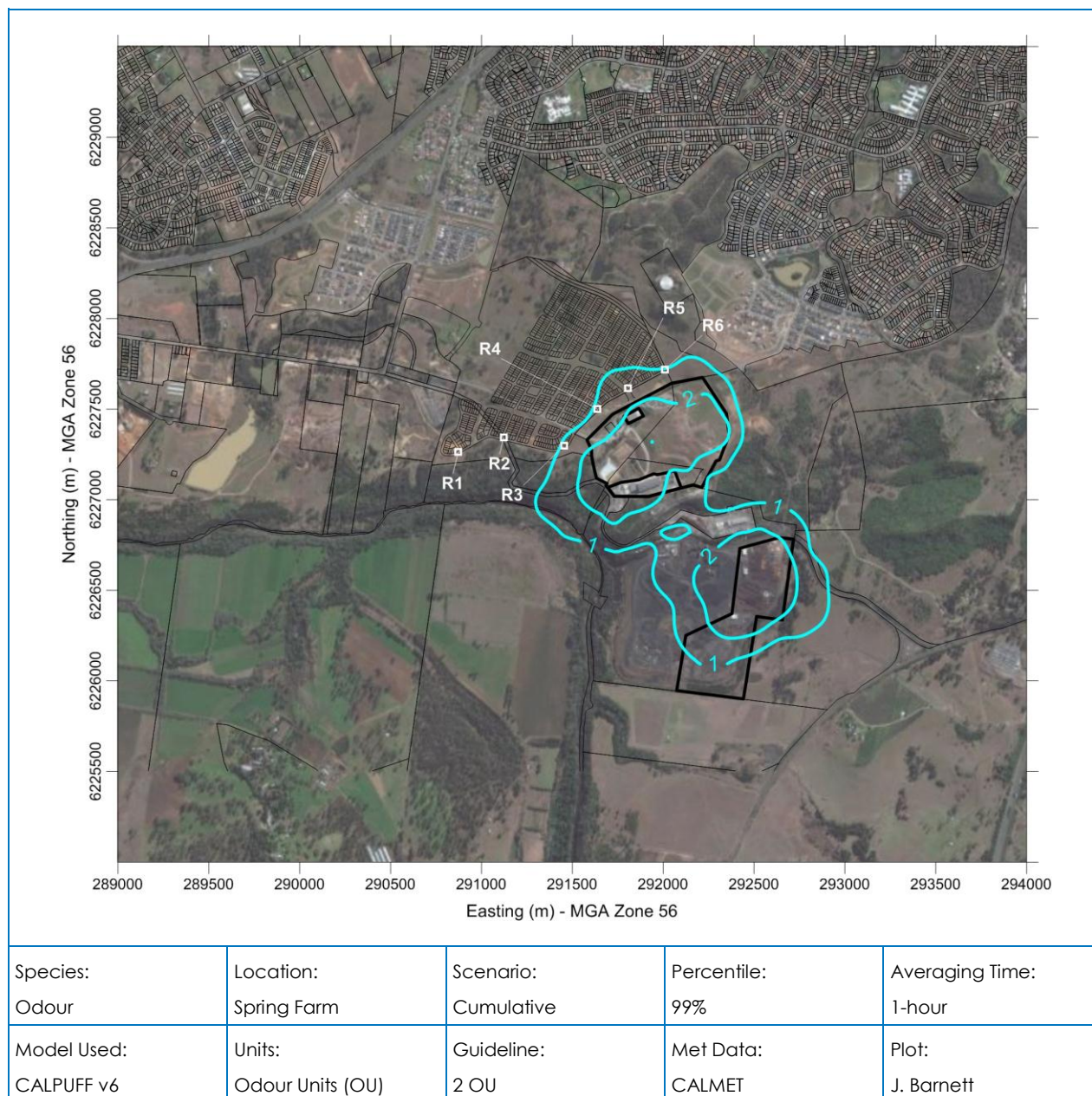


Figure 8-5 Predicted 99th percentile ground level odour concentration due to combined emissions from Spring Farm ARRTF/MRF and Landfill and Camden Organics

DGR - Details of management protocols and procedures for preventing and/or minimising emissions

Management protocols

Air quality and odour impacts associated with the ARRT Facility operations are managed by:

- Planning and Environmental Protection Controls; and
- Environmental Management Plans and relevant SITA Standard Operating Procedures.

Controls to protect air quality and limit odour emissions from operations at the ARRT Facility include:

- Conditions of consent of the AWT Project Approval which read:

Air Quality

- *The Proponent shall not cause or permit the emission of offensive odours from the site, as defined under Section 129 of the Protection of the Environment Operations Act, 1997.*
- *The Proponent shall design, construct, operate and maintain the project in a manner that prevents and / or minimises dust emissions from the site.*
- *The Proponent shall ensure that all vehicles entering or leaving the site with a load that may generate offensive odours or dust emissions are covered at all times.*

Odour Monitoring

- *Prior to the commencement of operations associated with the development, the Proponent shall prepare an ongoing odour monitoring program for the site. The Program is to be submitted for the approval of the Director General.*
- The Conditions also require establishment of a community complaints system with regard to the operations on the site.
- Environmental Protection Licence No.12588 – for the EcoLibrium Mixed waste and Organics Facility
The EPL places no specific limits on odour emissions. Consequent to commissioning of the EcoLibrium Facility, the EPL required preparation of an Odour Impact Assessment Study and submission of this to the Environmental Protection Authority. It is understood that this occurred. The EPL also limits hours of operation for the purpose of controlling potential odour emissions and requires the Licensee to identify all potential sources of odour emission and take steps to minimise odour emissions as and when required.

The Macarthur Resource Recovery Park – Ecolibrium Mixed Waste and Organics Facility Operational Environmental Management Plan (the **OEMP**) (WSN, Revised by SITA, 2008) includes specific protocols and procedures to manage odour emissions. Environmental objectives of the revised OEMP with respect to odour control include:

- *No noxious odour emissions offsite*
- *Effective maintenance and operation of all odour management systems*

The revised OEMP adopts the following management strategies to minimise and mitigate odours onsite:

- *“The Advanced Resource Recovery Treatment Plant employs a water based process and enclosed waste receival building as its primary odour control;*
- *The Advanced Resource Recovery Treatment Plant is located on an engineered platform that maximises the distance from the nearest residential area (Spring Farm) to the north.*
- *An active air extraction system is installed within the municipal solid waste receival hall and main processing hall;*
- *Two air extraction systems are employed for the Advanced Resource Recovery Treatment Plant, one for extracting air within the main waste receival area and one for extraction of air from the process hall. Air is passed through three separate ozone injection systems prior to discharge outside of the building envelope;*
- *Advanced Resource Recovery Treatment Plant receival areas are fitted with high speed roller shutters which are only opened during waste receival to prevent the emission of odours;*
- *Composting is undertaken within 10 fully sealed and enclosed tunnels each with a dedicated top hinged rubber sealed door system. Each tunnel has air extraction ducting, which relays odorous air through a 440m² biofiltration system prior to release.*
- *All odour complaints are recorded though Pivotal SITA complaint Register and investigated within 24 hours Monday to Friday and Saturday and Sunday within 48hours of the reported incident.;*

- *Processing of all odorous wastes is undertaken as soon as possible after delivery;*
- *Process water is managed to maintain aerobic conditions in collection areas to prevent odour;*
- *All biogas is captured for electricity generation or flaring when required.*
- *All loads of waste entering the facility (ie – garbage trucks) will be within closed containers, trucks involved in waste transfer and transportation of composted material will be covered.*
- *Wastes is not to be left unprocessed / exposed for significant periods of time;*
- *Floors in the Receival Halls and Processing building are cleaned daily including the regular clean-up of litter and scum from conveyors and plant;*
- *Regular removal of all residual wastes for offsite disposal and management;*
- *Unloading of composting tunnels directly into vehicles for offsite storage;*
- *Weekly odour monitoring will be undertaken in the suburbs surrounding the ARRT & GO and at various site boundary locations. Should an odour be detected off-site or at the boundary of the facility then odour monitoring will be conducted at the locations within the facility detailed in Appendix 11.*
- *The presence of odours will be assessed continuously during site operations to assess the effectiveness of the odour control measures being implemented.*
- *When complaints are received, they will be logged on the complaints register “Pivotal, and investigated, and corrective / preventive actions will be initiated.”*

Current active management practices to control odour emissions at the ARRT Facility include:

- traffic management procedures to co-ordinate the delivery schedule and avoid a queue of the incoming or outgoing trucks for extended periods of time,
- spill management procedures to include immediate cleanup of any spill/leakage from incoming and outgoing trucks,
- maintaining an odour complaint logbook and in the event of a complaint immediately investigate any unusual odour sources (including spill or leakage in the traffic areas) within the site boundary and take appropriate action to eliminate these, and
- restricting the area of the active tipping face as much as practicable and ensure these areas are covered each day.

Mitigation measures

A number of actions that have occurred since the 2008 revision of the OEMP have had mitigating effects on the potential for odour generation at the ARRT Facility. These include:

- The wet separation process area has been dismantled in favour of non-water based separation techniques, minimising the need for the use of process water which is a source of odour emissions; and
- The treatment tanks have been cleaned, removing more than 2,000 tonnes of deposited grit and sludge.

The Pacific Environment report has concluded that the management protocols and mitigation measures currently in place at the ARRT Facility are sufficient to address potential odour emissions that may result from the proposal to treat liquid waste and additional quantities of MSW.

DGR - Details of how potential odour from any runoff (leachate & stormwater) will be managed and mitigated

Details of the proposed management system for stormwater and liquid waste are included in Section 8-3 of this EA. The system includes separation of stormwater from liquid waste or process water so that the risk of contamination and potential odour generation from the stored stormwater or irrigation water is minimized.

Leachate delivery, treatment and disposal occur within an enclosed system. It is tankered to and from the ARRT and piped from tankers to and from the tank farm. The ARRT Facility is an enclosed and banded system that minimizes the risk of migration of spill materials and SITA's Standard Operating Procedures (**SOP's**) include specific Spill Response SOP's to ensure effective management of accidental spill events.

The proposed water management system in concert with SITA's odour management procedures and spill response SOP's are considered adequate to manage potential odour from leachate or stormwater run-off.

8.4.2 **Environmental risks**

The SFRRP and other local waste management operations have a history of conflicts with local residential landuses with regard to odour impacts. These have the potential to compound as residential development progresses closer to the SFRRP boundary. The proposed treatment of liquid waste and additional quantities of solid waste would be a potential source of additional odour that may compound odour impacts on the existing and developing residential environment. SITA has a responsibility to effectively manage the risk of odour escape from the overall SFRRP. With respect to this Modification Application, SITA must ensure that the proposed treatment of liquid waste and additional quantities of solid waste at the ARRT Facility does not increase the risk of odour impacts on the growing local residential population.

This risk has been assessed via a review of events, actions and outcomes regarding odour issues at the SFRRP in the medium term followed by a response with regard to the likelihood of this proposal to contribute to ongoing impacts. Following is an approximate timeline of the critical history of the site with regard to odour impacts.

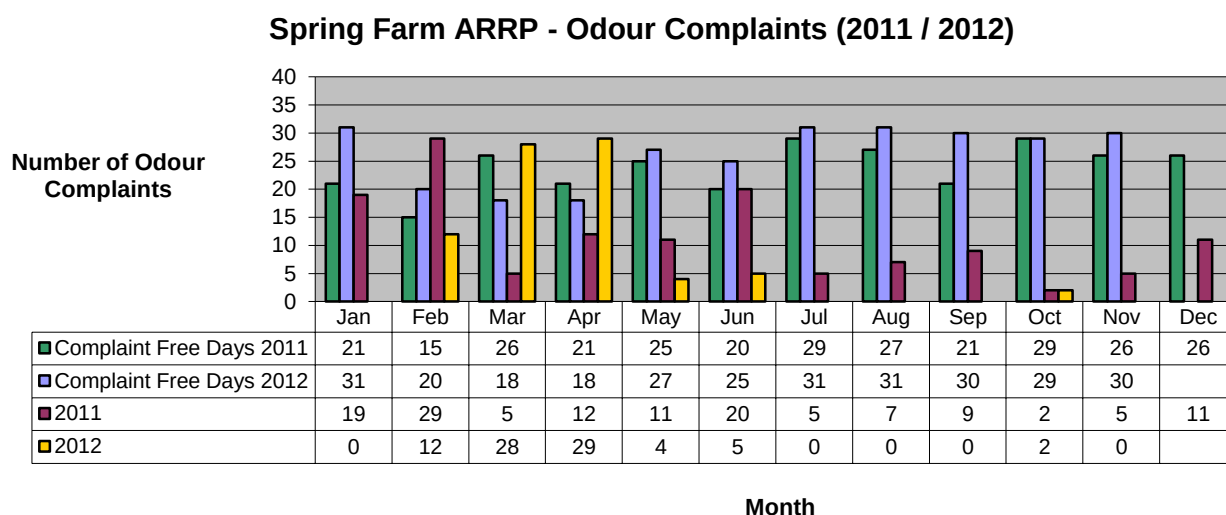
2006:	Development approval granted for Jacks Gully Alternative Waste Treatment Facility with Conditions to control odour emissions and requiring establishment of an Odour Monitoring Program and Community Complaints System.
2008:	AWT commissioned
2008 – 2010:	Odour complaints from surrounding neighbours fluctuated from moderate to significant numbers.
2010:	Odour Mitigation Study prepared for the then MRRP (now SFRRP) and Camden Soil Mix (now Camden Garden Organics) on behalf of WSN (Peter W Stephenson & Assoc P/L). the report made recommendations for a series of additional odour mitigation measures including essentially: • Improved fugitive emissions capture within the AWT building • Improved maintenance of the building under a slight negative pressure • Installation of 'odour fencing' • Preparation of SOP's to reduce odour emissions from greenwaste processing practices.
2010-2011:	WSN implemented a series of measures to address odour impacts from the AWT. The number of odour complaints decreased accordingly but continued intermittently.
Early 2011:	SITA acquired the interests of WSN Environmental Solutions, including the Jacks Gully complex.
Mid 2011:	SITA decommissioned the AWT EcoLibrium process including operations at the Tank Farm and re-instated the solid waste stream process line using a dry process in lieu of the EcoLibrium wet process.
2011:	Dept of Environment, Climate Change and Water commissioned the Odour Unit Pty Ltd to carry out an Odour Impact Assessment of the SITA/WSN Waste Facility and Camden Soil Mix. The study firstly reviewed odour impacts on the Mount Annan area with regard, inter alia, to the operations of the EcoLibrium waste management facility at Spring Farm. The assessment was then reviewed in light of the fact that SITA

decommissioned the EcoLibrium process in mid 2011. In general, the outcomes of the assessment were:

- Odour was detected within residential areas during the period when the EcoLibrium process was in operation and was at least partially attributed to MSW receivals and processing.
- Odour detection in residential areas significantly reduced after the decommissioning of the EcoLibrium facility at Spring Farm.
- The report provided some options to improve odour mitigation for MSW processing at the site. Amongst other measures, these included installation of odour scrubbing facilities, odour fencing and roof stacks. Most of these measures were implemented.

Odour complaints received by SITA from residents in the locality of the SFRRP reduced substantially from averages of 11.25 / month in 2011 to 6.6 / month in 2012

Table 8-3 SITA odour complaint numbers – comparison 2011 and 2012 (extract from SITA internal report)



Analysis of this history indicates that the incidences of odour complaints received by SITA from residents in the vicinity of the SFRRP have reduced since the decommissioning of the EcoLibrium process. Notably, the trend towards reduced complaints has continued with the re-commissioning of MSW processing at the ARRT Facility during 2012, using dry processing. With the various monitoring, managing and reporting practices to control odour in place and based on the findings of the Odour Impact Assessment of this proposal carried out by Pacific Environment, it can be concluded that the risk of the proposal contributing to additional odour impacts on the developing local residential neighbourhood would be acceptable.

8.4.1 **Conclusions**

The Air and Odour Impact Assessment of this proposal has concluded with respect to air quality:

“Results from the dispersion modelling indicate that the modified ARRT Facility would be likely to comply with the NSW EPA odour criteria at the nearest residential receptors. Predicted ground level odour concentrations are estimated to be below the criterion of 2 OU (99th percentile) for all of the nearest residential receptors.

Air quality issues relative to dust and oxides of nitrogen have also been discussed in this report. Due to the nature of the proposed upgrade, it was determined that emissions of this nature will be minor and do not warrant quantitative assessment.

Current mitigation measures are in place to keep emissions to a minimum. These will continue, along with others that have been undertaken.”

And with respect to odour:

“Results from the dispersion modelling indicate that the modified ARRT would be likely to comply with the EPA criteria at the nearest residential receptors. Predicted ground level odour concentrations are estimated to be below the criterion of 2 OU (99th percentile) for all of the nearest residential receptors. Mitigation measures have been suggested to keep emissions to a minimum.”

On the basis of these conclusions and the outcomes of the review of odour related environmental risks, it is considered that the proposal would have an acceptable impact with regard to odour.

8.5 Traffic and Transport

Traffic impacts of this proposal will be contingent on the numbers of vehicle movements generated specifically by the proposed activities and the cumulative effects of those movements on the local road system. Two scenarios require assessment:

- Current access routes to the SFRRP while the Spring Farm Release Area is in its development stage; and
- Future planned access routes after completion of the Release Area development.

Cardno has prepared a Traffic Impact Statement (TIS) to address these potential impacts against the relevant Director General's requirements (Appendix E).

8.5.1 Director General's Requirements

DGR - Accurate predictions of the traffic volumes likely to be generated during construction and operation

Additional traffic volumes generated by the proposal will result from the receiving of up to 520m³ / day of liquid waste and the subsequent truck transport of treated liquid waste from the site for disposal to sewer.

The TIS forecasts the amount of traffic to be generated by the proposal based on the following assumptions:

- Currently all liquid waste generated on the site is transferred offsite for treatment (short term scenario);
- From April 2014, all liquid waste will be treated on site;
- From mid-2016, the landfill operation will cease and all residual loads from the ARRT will be transferred off site; and
- The construction of Liz Kernohan Drive, the new haul road and Spring Farm Eastern Village will be completed by early 2015.

Based on the short term and long term assumptions for the site as described above, the additional vehicles entering the site is presented in **Table 8.3** and **Table 8.4**. The change in operations at the site is anticipated to result in an increase on average of 21 additional Heavy Vehicles (HVs) accessing the site / day between October 2013 and April 2014 and 28 additional HVs / day from mid-2016 onwards.

This represents an increase of 2 - 3 HVs / day in the AM and PM peak hour for both the short and long term proposed site operations. The modifications will also result in an additional 2 employees to the site but this is considered negligible with respect to traffic generation.

Table 8-4 Future Traffic Generation (Short Term)

Item	Quantity per day	Average Load per HV	Average HVs per day
Liquid waste receipt (additional) *trucks will be back loaded with treated liquid waste for off site transfer until sewer connection is established.	520 m ³	25 m ³	21
Total net increase in number of HVs in the short term period	-	-	21

Table 8-5 Future Traffic Generation (Long Term)

Item	Quantity per day	Average Load per HV	Average HVs per day
Landfill waste to be transferred offsite	180.79 tonnes (as per weighbridge data)	22 tonnes	8
VENM (Operation Cease)	0.34 tonnes (as per weighbridge data)	-	-1 (as per weighbridge data)
Liquid waste receival (additional) *trucks will be back loaded with treated liquid waste for off site transfer until sewer connection is established.	520 m ³	25 m ³	21
Total net increase in number of HVs in 2016 in the long term period	-	-	28

DGR – Detailed traffic impact study of the project

8.5.2 Short Term (between October 2013 – April 2014)

In the short term period, it is expected that heavy vehicles accessing the site will continue to use Richardson Road and Springs Road as per the current arrangement until the completion of the haul road, Liz Kernohan Drive and the Spring Farm Eastern Village development works.

The 2006 GHD report assessed the environmental capacity performance of the road network in the vicinity of the site, and the intersection operation of Glenlee Road/Springs Road/Richardson Road. It concluded that the current traffic demands on Richardson Road and Springs Road are within an acceptable range with regards to environmental capacity and the intersection will operate satisfactorily at a LoS A in the AM and PM peak. It should be noted that GHD has undertaken a conservative assessment in 2006 with a forecast of an additional 47 HVs as compared to existing weighbridge data.

The modification proposal will generate an additional 21 heavy vehicles daily or 4 trips (2 In / 2 Out) in the peak periods. This increase is considered to be marginal and is expected to have negligible impacts on the existing road network. As per **Table 8-5**, with the future increase, the post modification traffic demands on Richardson Road and Springs Road are still within acceptable range in regards to environmental capacity specified in the RMS Guide to Traffic Generating Developments Table 4.6.

Table 8-6 Environmental Capacity Performance Review

Road	Existing 2 way flows (based on 2006 GHD report)		Future 2 way flows		Environmental Capacity (2 way flows)
	AM Peak	PM Peak	AM Peak	PM Peak	
Richardson Road	297	320	297 + 4 = 301	320 + 4 = 324	500
Springs Road	267	315	267 + 4 = 271	315 + 4 = 319	500

8.5.3 Long Term (mid-2016 onwards)

For the assessment of the long term period, it is assumed that heavy vehicles will access the site via Liz Kernohan Drive and the new haul road located on the eastern boundary of Spring Farm Eastern Village.

The completion of the Spring Farm Eastern Village is expected to generate approximately 8595 vehicles daily on Richardson Road and 1146 vehicles per day on the Liz Kernohan Drive as shown in Error! eference source not found..

The addition of 28 HVs (28 In / 28 Out) daily into the new road network will result in a 0.65% and 4.9% increase in traffic volumes on Richardson Road and the Liz Kernohan Drive respectively. The marginal increase of heavy vehicle volumes of less than 5% is anticipated to have negligible impacts on the road network operation. Therefore the recommended intersection controls and associated analyses undertaken by MWT remain valid and satisfactory operation of the road network is expected in the long term scenario.

8.5.4 **Environmental risks**

Traffic generated by the proposal has the potential to impact on local roads. Specifically any additional truck movements through local streets generated by the proposal may potentially impact on the functioning of the local road system and on local amenity and safety. These impacts would be potentially compounded by growth of the adjacent residential precincts. The extent of potential impacts on local roads may be contingent on construction of roads proposed to accommodate SFRRP traffic.

In summary, the Cardno Traffic Impact Assessment makes the following conclusions:

- It is expected that in the short term period (between October 2013 – April 2014), heavy vehicles accessing the site will continue to use Richardson Road and Springs Road as per the current arrangement until the completion of new access roads as part of the Spring Farms Eastern Village development works. The modification proposals will generate an additional 21 heavy vehicles daily or 4 trips (2 In / 2 Out) in the peak periods. This increase is considered to be marginal and is expected to have negligible impacts on the existing road network with Richardson Road and Springs Road still within acceptable range in regards to the environmental capacity; and
- For the assessment of the long term period (mid-2016 onwards), it is assumed that heavy vehicles will access the site via Liz Kernohan Drive to the new haul road located on the eastern boundary of Spring Farm Eastern Village. The completion of the Spring Farm Eastern Village is expected to generate approximately 8595 vehicles daily on Richardson Road and 1146 vehicles per day on Liz Kernohan Drive. The addition of 28 HVs daily into the new road network will result in a 0.65% and 4.9% increase in traffic volumes on Richardson Road and Liz Kernohan Drive respectively. The marginal increase of heavy vehicle volumes of less than 5% is anticipated to have negligible impacts on the road network.

The TIA endorses the proposed DA modification as having no material negative impacts on Liz Kernohan Drive, Richardson Road and Springs Road. Given these conclusions, it is considered that the proposal is acceptable with respect to the identified environmental risks described above.

8.5.5 **Conclusions**

The overall findings of the Traffic Impact Assessment are that the proposed Modification would generate only minimal additional traffic movements and that these would result in numbers well within the capacity of local critical intersections both prior to and consequent to construction of the proposed haul road. On this basis, the proposal is considered acceptable with respect to risks of traffic impact.

8.6 Visual

This proposal will involve only alterations to the receiving and processing of waste streams within the existing waste management infrastructure at the ARRT Facility. No building works are proposed and there will consequently be no changes to the visual environment resulting from its implementation. The proposal will pose no environmental risks with regard to the visual quality.

8.6.1 Director General's Requirements

DGR - An assessment of the potential visual impacts of the project on the amenity of the surrounding area

DGR - A detailed description of the measures that would be implemented to minimise the visual impacts of the project

The Environmental Assessment that accompanied the former Jacks Gully Alternative Waste Treatment Facility (GHD, March 2006) included an assessment of the likely impacts of the proposal on local visual quality along with recommendations for measures to mitigate any identified impacts (Bryant Associates, 2005). The Bryant study concluded that the proposed AWT would have an insignificant impact on local visual quality. Sensitive local visual receivers were listed as:

- The William Howe Regional Park and agricultural area beside the Nepean River; and
- The developing Spring Farm residential release area.

It was noted that the development would be largely screened by the landform of the rehabilitated land to the north and by planting in a proposed 70 metre wide buffer zone on the boundary with the release area.

It is also significant that the Visual Impact Assessment pre-empted impacts on the Spring Farm Release Area and concluded that the buffer zone would be sufficient to adequately screen the development from views from future residences in the Release Area.

The Minister's determination of the application included one condition under the heading "Visual". The condition requires measures to control impacts of external lighting on surrounding properties and roadways. This condition has been met and SITA has received no complaints regarding visual impacts or light spill.

Section B3.1.5 of the Camden Development Control Plan, 2012 provides controls for protection of Cultural and Visual Landscapes in the Local Government Area. Given that this proposed Modification involves no construction works and that all proposed activity, including storage and processing of materials will occur within existing built infrastructure, it is considered that the specific requirements of the DCP with regard to protection of Cultural and Visual Landscapes will not be relevant in the circumstances of this case.

The proposal that is the subject of this Environmental Assessment involves no substantial building works and no changes to the external appearance of the approved Jacks Gully AWT development. On this basis, it is concluded that the proposal will have a zero impact on the visual quality of the locality. With the measures proposed in the original Environmental Assessment in place, the visual impact of the development as modified is acceptable and no further mitigating measures are necessary.

8.6.1 Environmental risks

The proposed modification will generate no risks with respect to impacts on visual quality.

8.6.2 Conclusions

The proposal is acceptable with respect to potential impacts on local visual quality.

8.7 Acoustic impacts

Acting on requests from Camden Council and Urban Growth NSW (in response to invitations from SITA to provide comment on the proposed Modification), an assessment was carried out of the potential acoustic impact of the proposal on adjoining residential development (See Appendix F). The assessment found that only minimal impacts from traffic noise would occur and no additional noise measures are required.

8.7.1 Director General's Requirements

No DGR's were issued with respect to acoustic impacts.

8.7.1 Environmental risks

Noise impacts of operations within the SFRRP on the existing residential development have not been a significant issue to date. The proposal would be unlikely to generate additional noise from on-site operations. The only potential for acoustic impacts would be from traffic movements to and from the site and through local streets.

To address potential risks associated with acoustic impacts of the proposal on the local residential neighbourhood, Cardno has carried out an assessment of the acoustic impacts of traffic movements through residential streets in the locality. Traffic numbers used in this assessment have been derived from data generated by the Cardno Traffic Impact Assessment. Base information with regard to existing noise levels in the locality was derived from an acoustic study of two proposed roads within the Spring Farm East Village residential development to the west of the ARRT site prepared by Renzo Tonin and Associates in 2012. The purpose of this assessment was to assess the potential road traffic noise impact within certain precincts in the Spring Farm release Area. Specifically, this study assessed impacts along two roads, i.e. Link Road, on the northern end of the SFRRP development and Springs Road, to the south of the SFRRP.

The Cardno acoustic assessment examined impacts generated by traffic noise levels on Richardson Road prior to commissioning of the new haul road and on Link Road after the haul road becomes operational.

Road traffic noise level on Richardson Road is predicted to increase by +0.2 dB(A) during temporary use for access purposes, prior to construction of the haul road.

With the haul road operational, road traffic noise levels on Link Road when compared to the Renzo Tonin assessment has been assessed as +0.8 dB(A) in the long term along Link Road.

Cardno has concluded that in both scenarios, these increases in traffic noise levels are marginal and they would not require additional noise mitigation measures, under the NSW Environmental Criteria for Road Traffic Noise (ECRTN).

8.7.2 Conclusions

The acoustic assessment of this proposal carried out by Cardno has concluded that acoustic impacts on the residential neighbourhood prior to and consequent to construction of the proposed haul road would be minimal and that no specific additional mitigation measures would be required as a result of its implementation.

8.8 Hazards and Risks

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) and Hazardous and Offensive Development Application Guidelines – Applying SEPP 33 (DOP, 2011a), are of relevance to the proposed Modification Application. To address the Director General's Requirements, assure consistency with relevant planning controls and ensure potential risks to people and the environment resulting from this proposal are adequately managed, Cardno has carried out a Preliminary Hazard Analysis (PHA) in accordance with SEPP 33 and the DOP Guidelines. The full assessment is included at Appendix G. Its outcomes are summarised below.

8.8.1 Director General's Requirements

DGR - An assessment of the potential hazards and risks associated with the project. A preliminary risk screening must be completed in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) and Applying SEPP 33 (DoP 2011), and where necessary, a Preliminary Hazard Analysis (PHA) undertaken.

The SEPP 33 Guidelines (DOP 2011) indicate that a qualitative (Level 1) PHA may be sufficient in the following circumstances:

- Where the materials are relatively non-hazardous (for example, corrosive substances and some classes of flammables);
- Where there are no major worst-case consequences;
- Where the technical and management safeguards are self-evident and readily implemented; and
- Where the surrounding land uses are relatively non-sensitive.

Based on the nature and scale of the development, Cardno has determined that a qualitative (Level 1) PHA assessment will adequately address the hazardous scenarios associated with the development. Accordingly, the Hazards and Risks Analysis at Appendix F is based on a Qualitative (Level 1) Preliminary Hazards Assessment.

A legacy OEMP for the ARRT Facility (WSN, 2008) is currently in place to identify, mitigate and remediate potential hazards and risks at the site associated with the existing landfill and waste management activities (SITA, 2012). An updated EMP for the ARRT Facility is currently in preparation (SITA, 2013). These Management Plans apply to all risks associated with currently approved and licensed operations at the ARRT Facility. This hazards and risks assessment is therefore concerned only with those hazards and risks potentially associated with the proposed liquid waste management activities at the site.

8.8.1.1 Preliminary Hazard Analysis Results

Adopting a qualitative (Level 1) PHA assessment methodology, the Hazards and Risk Analysis included identification of all hazardous scenarios associated with the receipt and treatment of liquid waste at the site and determination under relevant Australian Standards for Risk Management as to whether the scenarios pose risk levels of High, Moderate or Low.

Potentially hazardous scenarios associated with the receipt and treatment of liquid waste at the site were identified as:

- Transportation and depositing of liquid waste materials onto the site or other wastes not licensed to be accepted under the EPL;
- Spill/leakage of leachate and/or liquid waste;
- Accidental fuel spill (i.e. during refuelling) or chemical spills on site;

- Fire from improper storage of combustible wastes/biogas with ignition sources (cigarette butts, glass, cylinders).
- Incidents between people and vehicles or vehicular accidents on site;
- Vandalism of the ARRT Facility (e.g. vandalism of liquid waste storage areas, deliberate fires);
- Natural hazards such as flooding;
- Natural hazards such as bushfire;
- Fire within vehicles or buildings on site;
- Generation of dust, odour and noise from the site;
- Disruption to services if utilities are damaged;
- Injury to public/visitors (i.e. when accessing unauthorised areas);
- General work health and safety incidents at the site (i.e. slips/falls, snakebite, etc); and
- Increase to the traffic network.

Qualitative assessment of these risks identified the following key potentially hazardous scenarios associated with the receipt and treatment of liquid waste at the site:

- Accidental fuel spill (i.e. during refuelling) or chemical spills on site;
- Fire from combustible wastes/biogas;
- Incidents between people and vehicles or vehicular accidents on site;
- Fire within vehicles or buildings on site (risk to life and health of personnel in the vicinity of the site);
- Natural hazards such as bushfire; and
- Biological hazards spread on site.

However with appropriate mitigation measures in place, it is considered that the risks and potential impacts associated with such risks can be effectively managed. The PHA has not identified any residual risks to be 'Major'. This would suggest that there are no significant hazards when mitigation measures are applied. The PHA lists mitigation measures that can effectively manage the potential hazards associated with the proposed activities and inherent hazards on the site. The assessment concludes that with these measures in place, the proposed Modification would result in no significant threats to human health, life, property and assets or the biophysical environment.

8.8.1 **Conclusions**

The overall conclusion of the assessment of hazards and risks associated with the receiving, processing and transport of liquid waste at the ARRT Facility is that current Environmental Management Plans and Standard Operating Procedures that apply to the Facility are sufficient to manage all potential hazards and risks associated with the activities proposed in this Modification Application including:

- The treatment of additional quantities of MSW; and
- The treatment of Liquid wastes.

8.9 Cumulative Impacts

The Director General's Requirements include an assessment of the cumulative impacts of the proposed modification at the ARRT Facility and all other existing operations at the Spring Farm Resource Recovery Park. The assessment will make a summation of the environmental and amenity impacts of the subject proposal as an incremental component of the ongoing development of the SFRRP.

8.9.1 Director General's Requirements

DGR – Cumulative impacts associated with existing operations at the Spring Farm Advanced Resource Recovery Facility

The assessment considers impacts under each of the matters considered in the EA and then makes a summation of the likely combined impacts on the local environment of all impacting activities.

8.9.2 Waste management

The proposed modification will improve the waste management functions of the SFRRP, resulting in a positive cumulative impact with regard to the capability of the facility to sustainably manage waste. Specifically, the modification will:

- Improve the capacity of the SFRRP to treat MSW and allow for the sustainable treatment of liquid wastes;
- Divert liquid waste from soil injection and reduce the associated environmental hazards of this practice;
- Increase resource recovery levels and facilitate production of up to 53 megawatt hours per week of sustainable electric energy; and
- Provide for increased waste treatment services to the local community including, notably, the Macarthur Regional Organisation of Councils.

The Environmental Assessment has identified no cumulative negative impacts of the proposal with respect to waste management.

8.9.3 Soil and water quality

The soil and water quality assessment has found that the proposed Modification would have no significant impacts on local hydrology and existing flowpaths on the site would continue to function effectively. Similarly, groundwater impacts are considered unlikely, given the site is fully sealed and water is controlled and captured in a closed system. Risks from accidental spills or breaches of containment would be managed via the existing EMP that applies to the ARRT Facility operations. Leachate would also be managed in accordance with the EMP and there would be no discharge to the local catchment or, ultimately the Nepean River.

On the basis of the findings of the soil and water quality assessment that impacts on soil and water quality and quantity will be negligible, it can be concluded that there would be no cumulative impacts on soil and water arising from the proposal.

8.9.4 Air quality and odour

Potential odour generating activities within the Spring Farm RRP include:

- The ARRT facilities (tank farm / garden organics plant / MSW receival and treatment hall);
- The landfill (currently operating and land under rehabilitation); and
- The Materials Recycling Facility.

The Air Quality and Odour Impact Assessment included assessment of the cumulative impacts of the proposed modification along with all potential odour generators on the site and other potential odour generating activities in the immediate locality. Dispersion modelling of the cumulative odour impacts of the

existing operations at the RRP along with the additional waste management activities included in the proposed modification would be below recognised acceptable levels at the nearest residential receiver.

8.9.5 **Traffic and Transport**

The Traffic Impact Assessment has concluded that:

- The modification proposals will generate an additional 21 heavy vehicles daily or 4 trips (2 In / 2 Out) in the peak periods.
- In the short term, prior to completion of the new haul road to the SFRRP, impacts of the additional heavy vehicle movements on the local road network will be negligible and Richardson Road and Springs Road will still be within acceptable range with respect to environmental capacity; and
- In the long term (mid-2016 onwards), with the Spring Farm Eastern Village completed and the new haul road in operation, additional heavy vehicles travelling to and from the RRP will constitute 0.65% and 4.9% increases in traffic volumes on Richardson Road and the east-west haul road respectively. This marginal increase of heavy vehicle volumes is not anticipated to have a significant impact on the road network.

With respect to cumulative impacts, the impact of the additional traffic movements on the environment and local amenity is thus considered to be insignificant.

8.9.6 **Visual**

The Environmental Assessment has concluded that the proposed modification will have a nil impact on local visual quality as it involves minimal construction works and no addition to visible built form. The additive impacts of the proposal to cumulative impacts of the RRP on the local visual environment will thus be nil.

8.9.7 **Hazards and risk**

The Preliminary Hazards Assessment has concluded that with appropriate mitigation measures in place, the proposed Modification would result in no significant threats to human health, life, property and assets or the biophysical environment. These measures are detailed in the PHA and included as recommendations,

With the recommended mitigation measures in place, the proposal would have acceptable impacts with regard to hazard and risk and these matters would not contribute significantly to cumulative impacts.

8.9.8 **Cumulative impacts**

Based on the assessment of the impacts of the individual matters outlined above, it is Cardno's opinion that the overall cumulative impacts of this Modification proposal on the local environment would be well within acceptable levels.

9 Conclusion

This Environmental Assessment addresses the Director General's Requirements for assessment of SITA's proposal to modify the existing Major Project Approval for the Spring Farm Advanced Resource Recovery Technology Facility in order to permit processing of additional quantities of Mixed Solid Waste and Organic Liquid Waste.

9.1.1 Director General's Requirements

DGR – Conclusion justifying the project on economic, social and environmental grounds, taking into consideration whether the project is consistent with the objects of the *Environmental Planning and Assessment Act, 1979*.

Section 4.9 of the EA provides a justification of the proposal on economic, social and environmental grounds. The justification can be summarised as follows:

- Economics – the use of existing advanced resource recovery infrastructure for its design purpose and the production of sustainable power for domestic use is consistent with the principles of economic sustainability.
- Social matters – the EA has found that the proposed modification would have no negative social impacts with respect to nuisance odour, noise, capacity of local roads and visual quality and would create no hazards to local residents. Social benefits will arise from increased services for waste management, the diversion of waste materials to a sustainable waste management process and the production of cheap, sustainable electricity.
- Environmental considerations – with existing environmental management controls in place, the proposal will have no impacts on the local biophysical environment. Environmental benefits will arise from the sustainable treatment of waste products, diversion from landfill, avoidance of generation of greenhouse gases and generation of sustainable electricity.

The objects of the Environmental Planning and Assessment Act, 1979 are:

“(a) to encourage:

- (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
- (ii) the promotion and co-ordination of the orderly and economic use and development of land,*
- (iii) the protection, provision and co-ordination of communication and utility services,*
- (iv) the provision of land for public purposes,*
- (v) the provision and co-ordination of community services and facilities, and*
- (vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
- (vii) ecologically sustainable development, and*
- (viii) the provision and maintenance of affordable housing, and*

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.”

The proposal has been found through this EA to be not inconsistent with any of the objects of the Act and positively consistent with Objects (a)(i), (ii), (v) & (vii), in that the proposal represents ecologically sustainable development that contributes to:

- the proper management of resources; and
- the orderly and economic use of land for a purpose that will benefit the community and the environment.

The proposal has been assessed against and found to be consistent with all relevant Federal, State and Local legislation, Planning Instruments and Controls. A thorough assessment of all potential environmental and amenity impacts has also been completed. Specific impacts have been assessed with regard to:

- Soil and water;
- Air quality and odour ;
- Traffic;
- Noise; and
- Visual quality.

A cumulative impact assessment has also been conducted along with a Preliminary Hazard Analysis consistent with the requirements of *SEPP 33 – Hazardous and Offensive Development*. The outcome of this assessment process is that the proposal is well within acceptable bounds with regard to all assessed environmental impacts and risk.

A needs and justification analysis of the proposal has concluded that it is entirely consistent with current Federal and State government policy for waste management. It will return local and regional benefits with regard to diversion of waste from landfill, reductions in greenhouse gas emissions, resource recovery, sustainable power generation and reduction in landfill gas odour emissions.

The proposal also represents a measure towards efficient usage of existing advanced waste treatment technology which is operating below optimal utilisation levels under the current planning consent. The proposed Modification, if approved will free the facility up to sustainably process waste streams that are well suited to the technology available at the ARRT Facility. The Modification would also permit processing of quantities of waste closer to the capacity of the existing facility than is the case under the current consent conditions. Without the Modification in place, the facility will remain under-utilised and the social and environmental benefits outlined in this EA will not be fully realised.

On this basis, it is Cardno's opinion that the proposed Modification to the existing consent for the Spring Farm ARRT Facility will have substantial net benefits to the environment and the community. It is thus considered to be in the public interest and worthy of approval.

References

- Camden Council (2006) *Camden Flood Study: Tile 17*, Camden Council
- Camden Council and NSW Fire Rural Services (2009) *Camden Council Bushfire Prone Land*, Camden Council
- Cardno (2013) *Environmental Assessment – Modification of Existing Planning Approval at the Spring Farm Advanced Resource Recovery Treatment Centre*, Prepared for SITA Australia.
- Consulting Earth Scientists Pty Ltd (CES) (2013) *Quarterly Water Monitoring Report For Jacks Gully Waste And Recycling Centre*. Prepared For SITA Australia, Report ID: CES020705-WS-54-F. February 2013
- DOP (2011a) *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33*. NSW Department of Planning, Sydney. January 2011.
- DOP (2011b) *Hazardous Industry Planning Advisory Paper No 6 – Hazard Analysis*. NSW Department of Planning, Sydney. January 2011.
- EPA (2005) *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*. August, 2005
- EPA (2011) *Odour Impact Assessment: SITA/WSN Waste Facility and Camden Soil Mix, Mount Annan, NSW*, prepared by The Odour Unit, August 2011.
- GHD (2006) *Environmental Assessment: Proposed Alternative Waste Technology and Garden Organics Processing Facilities at the Jacks Gully Waste and Recycling Centre*, prepared by GHD, March 2006.
- GHD (2006a) *Proposed Alternative Waste Technology Facility at Jacks Gully WMRC Environmental Assessment*, Prepared for WSN Environmental Solutions.
- GHD (2006b) *Jacks Gully WRC Evaluation of Leachate Collection System*. Sydney
- HAS (2006) *Air Quality Modelling Report: Jacks Gully Alternative Waste Technology Facility*, prepared by Holmes Air Sciences, March 2006
- Hurley, P. (2008) *The Air Pollution Model (TAPM) Version 4. Part 1, Technical Description*, CSIRO Atmospheric Research Technical Paper No. 25, CSIRO Division of Atmospheric Research, Melbourne.
- Hurley, P., Physick, W.L., Luhar, A.K. & Edwards M. (2008) *The Air Pollution Model (TAPM) Version 4. Part 2: Summary of Some Verification Studies*, CSIRO Atmospheric Research Technical Paper No. 26, CSIRO Division of Atmospheric Research, Melbourne.
- Integra (2008) *Material Safety Data Sheet. Clearlfox 526*. Issued by Integra Water Treatment Solutions, Reference Number: Version 20.10.2008, dated 20 Oct 2008.
- Integra (2009) *Material Safety Data Sheet. Polyflox 135D*. Issued by Integra Water Treatment Solutions, Reference Number: Version 02.06.2009, dated 2 June 2009.
- Katestone Scientific (1998) *Report from Katestone Scientific to Environment Protection Authority of NSW, Peak to Mean Ratios for Odour Assessments*.
- Katestone Scientific Pty Ltd (1995) *The evaluation of peak-to-mean ratios for odour assessments Volume 1 - Main Report*, May 1995
- NOHSC (1995) *Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment*. 3rd Edition (Updated for Amendments)
- NTC (2011) *Australian Code for the Transport of Dangerous Goods by Road and Rail. Australian National Transport Commission*. Seventh edition, originally published in 2007, republished electronically in 2011 incorporating Corrigendum 1.
- Renzo Tonin & Associates (2012) *Spring Farm Precincts 400 and 500 Report (TB705-43F02) (Rev 2) Traffic Noise Assessment*. October 2012

SITA (2012) *Landfill Environmental Management Plan - Spring Farm Advanced Resource Recovery Park*, April 2012.

SITA (2013) *Spring Farm Advance Resource Recovery Park – Advance Resource Recovery Treatment and Garden Organics Facility Environmental Management Plan* (being prepared). June 2008.

SITA (2013) *Spring Farm Advance Resource Recovery Park – Advance Resource Recovery Treatment and Garden Organics Facility Environmental Management Plan* (in draft form). June 2008.

Stephenson (2010) *Odour Mitigation Study: Macarthur Resource Recovery Park and Camden Soil Mix*. Prepared by Stephenson and Associates for WSN Environmental Services, November 2010.

TRC (2010) *Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion into the Approved Methods for Modelling and Assessment of Air Pollutants in NSW, Australia*, prepared for NSW DECCW, Sydney Australia.

Wright Corporate Strategy (2009) *The Public Review - Landfill Capacity and Demand*

WSN (2008) *Macarthur Resource Recovery Park – Ecolibrium Mixed Waste and Organics Facility Operational Environmental Management Plan*, WSN Environmental Solutions. June 2008.

About Cardno

Cardno is a professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

Contact

Cardno NSW/ACT Pty Ltd

Level 9

The Forum

203 Pacific Hwy

St Leonards NSW 1590

Phone 61 2 9496 7700

Fax 61 2 9439 5170

cardno@cardno.com
www.cardno.com

