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New M5

Environmental Impact Statement

Alexandria Landfill closure management plan

Appendix F

November 2015

WestConnex

WestConnex New M5

Alexandria Landfill Closure Management Plan

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WestConnex New M5

Client: Roads and Maritime Services

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1.0 Introduction

AECOM Australia Pty Ltd (AECOM) has been engaged by the Roads and Maritime Services (Roads and Maritime) to prepare a Landfill Closure Management Plan (LCMP) for Alexandria Landfill, St Peters in New South Wales (the site). The site comprises Lot 2 in Deposited Plan (DP) 1168612, 10-16 Albert Street, St Peters, NSW; refer **Figure 1** (Site location) and **Figure 2** (Site layout) in **Appendix A**. Thus LCMP forms part of the environmental impact statement (EIS) for the project.

The site was acquired by the NSW Government in December 2014 to facilitate the development of the St Peters interchange and the operations of the previous landowner ceased at that time. Activities consistent with the existing planning approvals are continuing on site however, the site no longer operates commercially as a landfill.

This LCMP provides a landfill closure and environmental management and monitoring framework to be implemented both during and post landfill closure. For the purpose of this document, the term closure refers to the cessation of waste disposal and material recycling activities within the existing landfill and associated waste recycling and transfer facility. This LCMP documents the proposed final landform, capping detail, leachate, gas management and monitoring protocols proposed to be adopted as part of the landfill closure process.

This LCMP does not document construction and/or environmental management protocols associated with the future construction and development of the St Peters interchange. It is anticipated that these protocols would be produced under separate cover by the landfill/remediation contractor engaged by Roads and Maritime to undertake these works and would include but not be limited to:

- Material tracking;
- Occupation health and safety requirements (OH&S);
- Environmental and community engagement;
- Odour and dust;
- Asbestos;
- Leachate and gas;
- Stormwater; and
- Outstanding clean-up notices.

1.1 Background

The site was historically owned by The Austral Brick Company Proprietary Limited (Austral) and operated as a quarry and brickworks between 1908 and 1988. Following the closure of the brickworks and quarry, part of the site was converted into a landfill, which was operated by the City of Sydney Council until it was acquired by Dial-A-Dump Industries Pty Ltd (DADI) in 2002. The site is currently licensed by the NSW Environment Protection Authority (EPA) as a solid waste landfill and waste storage and recycling facility.

Roads and Maritime is proposing the construction and operation of the New M5 (the project), which would comprise a new, tolled multi-lane road link between the M5 East Motorway east of King Georges Road and St Peters. The project would also include an interchange at St Peters and connection to the existing road network. Chapter 5 and Chapter 6 of the EIS for a full description of the project.

The area encompassed by the Alexandria Landfill is planned to form part a major component of the St Peters interchange. The design for the St Peters interchange includes roads, tunnel portals, overpasses and associated infrastructure. The remainder of the site is planned to be redeveloped as public open space comprising a mixture of parkland and pathways. Surplus land surrounding the St Peters interchange may also be redeveloped for commercial/light industrial land use.

The redevelopment also means that the site would need to be closed and managed in accordance with the *Protection of the Environment Operations Act 1997* (POEO Act 1997). The closure process includes the preparation of this LCMP for the site.

Due to the nature of the former land uses within the site, AECOM completed a *Phase 1 Environmental Site Assessment, Alexandria Landfill Acquisition Area, St Peters, NSW* (Phase 1 ESA) (AECOM, 2014a) for the site and several of the surrounding properties. The Phase 1 ESA findings concluded that there was a high potential for contaminated soil, groundwater, landfill leachate and hazardous landfill gases to be present as a result of historical land uses. As such it was recommended that a Phase 2 ESA be undertaken to investigate soil, groundwater, leachate and ground gas conditions within the site and assess suitability of the site for the proposed SPI redevelopment.

The *Phase 2 Environmental Site Assessment Alexandria Landfill, 10-16 Albert Street, St Peters* (AECOM, 2015 draft) identified concentrations of contaminants of potential concern (CoPC) within the site variably exceeding the adopted human-health and ecological based assessment criteria for both the open space and commercial/industrial land use scenarios. The main contaminants of concern identified as an outcome of the assessment were lead, carcinogenic polycyclic aromatic hydrocarbons (CPAHs), total recoverable hydrocarbons (TRH) and asbestos. Contamination was mainly confined to the fill and appears randomly distributed both laterally and throughout the full depth of the landfill. Contamination exceeding the adopted human health and ecological assessment criteria was not identified in underlying natural soils. Natural soils were however assessed as likely to contain potential acid sulfate soils (PASS). Landfill gas and leachate were also identified as management issues at the site.

1.2 Objective

The overarching objective of this LCMP is to set out a program for reducing environmental harm after closure. The specific objective of the LCMP is to outline the overarching framework of key closure requirements. These requirements would be implemented to mitigate environmental harm during the closure and post closure phase of operations in accordance with the requirements outlined in the NSW EPA (2015) *Draft Environmental Guidelines Solid Waste Landfills*.

1.3 Purpose and scope

This LCMP has been developed to provide a guidance document to inform landfill closure activities at the site that form part of the project. The purpose of the document is to ensure that adequate landfill closure and rehabilitation measures are implemented and monitoring procedures continue as necessary following the closure of the site. This LCMP incorporates the key requirements referenced in NSW EPA (2015) *Draft Environmental Guidelines: Solid Waste Landfills,* which are summarised in **Table 1**.

Table 1 Application of NSW EPA (2015) Draft Environmental Guidelines: Solid Waste Landfills

Goal	Relevant section(s) of LCMP
Identification of proposed future use of the site	- Chapter 6.0
Closure and stabilisation of the landfill (including indicative time frames)	- Chapter 7.0 - Chapter 8.0
Development of a final capping designs (and landform) for implementation at the site	- Section 8.1
Specification of post-closure management and monitoring measures for leachate, stormwater, landfill gas, odour, dust, litter and final cap integrity	- Leachate: Section 8.3; Chapter 9.0; Appendix F; and Appendix G - Stormwater: Section 5.4 and Section 8.2.3 - Landfill gas: Section 8.2; Chapter 9.0 and Appendix H - Odour: Chapter 9.0 - Dust: Chapter 9.0 - Litter: Chapter 9.0 - Final cap integrity: Section 8.1 and Chapter 9.0
Consideration of and consistency with applicable conditions of the development consent or other planning approvals that apply to the premises	- Section 1.4, - Chapter 9.0, - Appendix B - Appendix C
Development of a contact register of persons in the event of site issues (for example, odour emissions)	- Section 11.1

This document is an organic structure document which is designed to be revised and updated as site conditions evolve and roles and responsibilities change during the landfill closure phase and future development of the site.

1.4 Relevant guidelines

This LCMP has been prepared with reference to the following guidance and legislation:

- NSW EPA 2015. *Draft Environmental Guidelines Solid Waste Landfills*. Second Edition, March 2015.
- POEO Act 1997. No 156, Section 76. *Post-closure requirements for waste facilities or other licensed premises.* January 2015.
- EPA Victoria *Closed Landfill Guidelines* Publication number 1490, December 2012.
- NSW Department of Planning and Environment (2015) Secretary's Environmental Assessment Requirements for the New M5, issued on 5 March 2015 and updated on 26 August 2015 – Section 115Y of the *Environmental Planning and Assessment Act 1979* (refer **Appendix B**).
- Existing Environment Protection Licences (EPLs) and Trade Waste Agreement (TWA) (refer **Appendix C**):
    - EPL 4627: WestConnex Delivery Authority, Alexandria Landfill Pty Ltd, 10 Albert Street, St Peters, dated 23 March 2015: Waste disposal by application to land. The licence allows for acceptance of: general solid waste (non-putrescible) (application to land); waste tyres (application to land); asbestos waste (application to land); and any waste below the licensing thresholds in Schedule 1 of the POEO Act 1997.
    - EPL 12594: WestConnex Delivery Authority, Alexandria Recycling Centre 10-16 Albert Street St Peters, dated 24 March 2015: Recovery of general waste and waste storage (other types of waste).
    - Sydney Water (TWA No. 29304) for the discharge of treated leachate to a sewer discharge point in Albert Street.

WestConnex Delivery Authority was dissolved on 1 October 2015. An application has been made to formally transfer existing EPLs (4627 and 12594) from WestConnex Delivery Authority to Roads and Maritime.

1.5 Consultation

During the preparation of the LCMP, the EPA was consulted on an earlier draft of the LCMP. The EPA advised that the direction proposed for the landfill closure is acceptable based on the following key elements identified in **Table 2**, subject to a more detailed review of the LCMP during the display of the EIS. **Table 2** details the relevant sections where the LCMP addresses the comments received by the EPA.

Table 2 Outcomes of consultation with the EPA

EPA comment	Section(s) where addressed in this LCMP
A capping system comprising a clay sealing layer or a composite clay/GCL sealing layer overlaid by a 500 millimetre thick revegetation layer	Section 8.1
A leachate collection and conveyance system beneath the proposed new containment cell generally in accordance with benchmark technique 2 of the Environment Guidelines: Solid Waste Landfills, 1996	Section 8.5.2
Develop and implement a Construction Quality Assurance Plan generally in accordance with the Draft Environmental Guidelines Solid Waste Landfills, 2nd edition 2015	Section 8.1

EPA comment	Section(s) where addressed in this LCMP
EPA has been advised that, regarding the existing basal leachate collection system, it was unpractical to undertake a pipe loading assessment, however should that system become unserviceable, contingency measures such as leachate bores and extraction could be implemented	The requirement for contingency measures is noted in Section 8.1
The LCMP adequately addresses slope stability, landfill gas and leachate disposal	- Slope stability: Section 6.1 - Landfill gas management: Section 8.2 - Leachate disposal: Section 8.4

2.0 Site description

The site description details are provided in **Table 3**.

Table 3 Site description – Alexandria Landfill

Item	Description
Site owner	Roads and Maritime Services
Site address	10-16 Albert Street, St Peters, NSW
Legal description	Lot 2 DP1168612
Local government authority	Marrickville Council and City of Sydney Council
Current zoning	IN1 General Industrial (City of Sydney Council and Marrickville Council) and SP2 Classified Road (City of Sydney Council)
Current land use	Landfill and waste recycling premises
Proposed land use	Motorway interchange and open space parkland
Site elevation	-12 to 12 metres AHD
Site area (Total)	15.71 hectares
Site layout plan	Figure 2 (**Appendix A**)

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3.0 Site history

The site history is detailed in the Phase 1 ESA (AECOM, 2014a). A summary of historical information is provided below in **Table 4**.

Table 4 Alexandria Landfill site history summary

Item	Description
Present land use	The site is a licensed non-putrescible landfill and waste recycling and storage facility that was operating as commercial landfill until December 2014. The site is presently occupied and maintained by Roads and Maritime. Current activities at the site are in accordance with the provisions of the EPLs and the applicable development consents.
Past land use	December 2014 to present: Non-operational landfill and waste recycling and storage facility occupied and managed by SMC 2002 to December 2014: Non-putrescible landfill and waste recycling and storage facility operated by DADI 1988 to 2002: Inert solid waste landfill operated by City of Sydney Council 1962 to 1988: Abandoned brick works quarry and potential small scale non-licensed landfilling activities 1908 to 1962: Brick works quarry operated by Austral Prior 1908: Unknown but likely agricultural land use
Historical use of adjacent land	The former historical land uses adjacent to the site are summarised below. North-east of the site: - A steel mesh fence surrounding the Roads and Maritime owned land incorporating a large, primarily sandstone stockpile identified as Bradshaw Mountain. - Brick works quarries, brick works operations later used as council landfills and then redeveloped into open space parkland (Sydney Park). - Various industrial properties including chemical manufacture, gasholders, metal works, small workshops, large manufacturing factories. - Market gardens. South-east of the site: - Manufacturing including a large factory previously occupied by Rheem Pty Ltd and a flexible plastic manufacturing company. - Logistics and storage/junk yards, including drum storage. - A former small timber mill and market gardens. - Various industrial properties between Alexandra Canal and Burrows Road. South-west of the site: - A former metal smelter and waste recyclers located between the site and Canal Road. - Former brick works manufacturing sites. - Rail siding and logistics terminal (Cooks River Rail Terminal). - A former petrol station located on the corner of Princes highway and Canal Road. - Various commercial/industrial properties. North-west of the site: - Commercial dry cleaners on the north-western boundary (Princes Highway). - Former brick works manufacturing. - Former workshops and general commercial/industrial land use between the site and the Princes Highway.

Item	Description
Wastes/fill	Wastes that have been historically accepted be applied as landfill to the site include: - Non-putrescible household waste. - Incinerator ash from the former Waverly Woollahra Process Plant. - Demolition and construction waste. - Solid industrial/commercial waste. - Incinerated and un-incinerated green waste. - Class 2 solid waste (non-putrescible) demolition and construction waste. - Shredded tyres. - Asbestos.
Current on-site contamination sources	- Landfill waste (consisting of controlled and uncontrolled waste). - Fuel storage, dispensing and use (diesel). - Potential use of pesticides and herbicides. - Recycling stockpiles.
Current off-site contamination sources	- Known heavy metals, PAH, TRH and PCB contamination in the former metal smelting and waste recyclers site located between Canal Road and the site (Lot A DP3917775, Lot B DP394647, Lot X in DP 421363 and Lot 14 DP606737). The subject lots are also subject to investigation by AECOM, but are being reported under separate cover. - Potential soil and groundwater contamination from the historical land uses listed above in '*Historical use of adjacent land*'.
Aboveground Storage Tanks (ASTs)/ Underground Storage Tanks (USTs)	- One 20,000 litre bunded diesel AST in the northern portion of the site. - No known USTs.
Chemical storage	An inventory of chemicals stored within the site and provided in the Alexandria Landfill (2014a) '*Alexandria Landfill. Pollution Incident Response Management Plan'* included: - 20,000 litres - diesel (stored in AST). - 900 litres – Top Dog Plus 10W/40 Product code 300138. - 800 litres - Gulf Harvester ISO68 Product Code 30072. - 20 x 450 gram tubes/2 x 25 litres - Gulf Western Super Blue Grease. - 600 litres - All fleet heavy duty diesel coolant 50 per cent premix. - 3,600 litres – diesel (stored in portable tank). - 217,000 litres – leachate (stored in tanks). No other information on the historical storage of chemicals on the site was available.
Trade waste agreements (TWA)	The site has a trade waste agreement (TWA) with Sydney Water (TWA No. 29304) for the discharge of treated leachate to a sewer discharge point in Albert Street.
Licences	The site presently has the two following EPLs: - EPL 4,627: WestConnex Delivery Authority, 10 Albert Street, St Peters, dated 23 March 2015: Waste disposal by application to land. The licence allows for acceptance of: general solid waste (non-putrescible) (application to land); waste tyres (application to land); asbestos waste (application to land); and any waste below the licensing thresholds in Schedule 1 of the POEO Act 1997. - EPL 12,594: WestConnex Delivery Authority, Alexandria Recycling Centre 10-16 Albert Street St Peters, dated 24 March 2015: Recovery of general waste and waste storage (other types of waste). An application to formally transfer the EPLs to Roads and Maritime was made on 12 October 2015.

Item	Description
Local groundwater use	- The site is within Zone 2 of the Botany Groundwater Management Zone. Residents within Zone 2 are advised that domestic groundwater use is banned. The ban includes use of the water for drinking, watering gardens, washing windows and cars, bathing, or to fill swimming pools. - Groundwater/leachate is pumped and treated within Sydney Park and discharged to sewer. Sydney Park is located around 50 metres north to north-east of the site. - No other groundwater uses are known but could be potentially used on surrounding industrial or commercial properties.

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4.0 Site conditions and surrounding environment

Site conditions and the surrounding environment are detailed in the Phase 1 ESA (AECOM, 2014a). A summary of key information is provided below in **Table 5**.

Site features are shown on **Figure 2** in **Appendix A**.

Table 5 Alexandria Landfill - site condition and surrounding environment summary

Item	Description
Topography	As a result of historical quarrying activities and landfilling, the site surface contains a depression at a maximum depth of around – 12 metres AHD in the south-west portion of the site. The eastern extent of the site, outside the depression, is generally relatively level as a result of historical filling. The north-west portion of the Alexandria Landfill pit consists of gentler grades, sloping towards the deepest part of the depression in the south-west portion of the site. The highest point of the site is the stockpile on Bradshaw Mountain, where the highest elevation is 22 metres AHD. The stockpile slopes steeply on all sides and is relatively flat across the top of the mound. Vertical to steep quarry walls are present along the north-western boundary of the site.
Site boundary	The site is bound be security fencing along all boundaries of the site except for the boundary between the Canal Road property and the site.
Signs of contamination	Observations of fragments of asbestos containing material (ACM) have been observed on the ground surface within the recycling premises and landfill premises.
Plant stress	Stressed vegetation was previously observed on the slope in the south-west of the Alexandria Landfill.
Odours	Leachate odours have been observed within the site, especially in close proximity to the leachate sump risers.
Buildings	The Alexandria Landfill presently contains the following buildings: - Weighbridge office. - Demountable office buildings on stilts along the Albert Street boundary. - The two storey site office located in the north-west corner of the site. The ground floor is constructed of brick and the first floor is a temporary/demountable structure. - A workshop is located in the north-west portion of the site adjacent to the leachate treatment plant. Bradshaw Mountain contains no buildings, although the remnants of the old brick works walls remain on the street boundaries of the site.
Roads	A haul road runs from the site entry to the base of the landfill. The portion of the haul road descending into the landfill premises is unsealed. With the exception of a temporary access track on the stockpile, no roads are present within the Bradshaw Mountain portion of the site.
Flood potential	The land is not affected by a policy adopted by the council that restricts the development of site because of flooding or tidal inundation, however due to the depression within the site, flooding within the site would likely occur if the current leachate system was not in operation or after periods of heavy rainfall.
Local receptors	Surrounding sensitive receptors include: - Workers and visitors within the site. - Workers and visitors in adjacent commercial and industrial properties on all sides of the site. - Residents in surrounding properties on the northeast and north western side of the site. The closest residential properties are 10 metres north of the site. - Workers accessing service pits and trenches in the surrounding area. - Alexandra Canal located 165 metres east of the site. - Sydney Park artificial wetlands located 135 metres northeast of the site.

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5.0 Existing site features, monitoring and management

Following acquisition by the NSW Government in December 2014, commercial landfilling and waste recycling activities have ceased. Roads and Maritime is currently operating the landfill in accordance with the provisions of the EPLs and the conditions of development consent previously provided for the premises by City of Sydney Council and by Marrickville Council.

A summary of the relevant existing site layout including leachate, surface water, stormwater, groundwater, landfill gas and air monitoring systems and infrastructure at the site is provided in the sections below. The existing site layout and infrastructure has been considered as part of the landfill closure planning for the site.

5.1 Landfill cap

As the site has been actively used for landfilling and waste recycling and transfer, no final landfill cap has been historically constructed. It is understood that interim day cover may have been used to cover landfilled waste as part of the historic landfill capping regime.

5.2 Leachate management system

5.2.1 Existing leachate management system

The main leachate management system (LMS) appears to comprise a subsurface herringbone drainage network which drains to the main leachate riser located at the south-western portion of the site. Drawing M5-AJV-SKT-700-320-DR-7801 in **Appendix A** shows the indicative location of the subsurface drainage system and the main leachate riser. Based on the design plans, the herringbone system incorporated a main leachate drain of 375 millimetre diameter reinforced concrete pipe (RCP) with feeder herringbone drains constructed of 150 millimetre diameter slotted polyvinyl chloride (PVC).

Leachate generated by the infiltration of groundwater and surface water into Alexandria Landfill is pumped out of the main leachate extraction riser. The extracted leachate is discharged to sewer under a trade waste agreement (TWA) with Sydney Water Corporation (Sydney Water). Waste Assets Management Corporation (WAMC) has provided an updated process flow diagram for the leachate collection system, refer **Appendix D**. To protect surrounding groundwater and nearby Alexandra Canal from leachate contamination, the LMS is required to operate continuously to maintain the leachate level within the shale pit.

The design plans show that the herringbone drainage system drains into the main leachate riser. The main leachate riser also receives leachate from the leachate sump (via a 63 millimetre HDPE line) and the intermediate leachate riser via a 90 millimetre HDPE line. Leachate from the main leachate riser is currently transferred to the existing leachate treatment plant via a 110 millimetre HDPE line around the perimeter of the site located in the north eastern portion of the site. Leachate from the treatment plant is then pumped to a sewer discharge point in Albert Street under a Sydney Water TWA.

Design plans prepared by Maunsell Pty Ltd in 1996 indicate the main leachate riser was planned to be constructed of 2.1 metres diameter concrete vertical pipes, with the base of the sump installed at an elevation of -39 metres AHD. The design detailed two submersible pumps with an agitator at the base.

An intermediate leachate riser is located within the licenced landfill premises area and a secondary intermediate leachate riser is located between the main leachate riser and the intermediate leachate riser. The intermediate and secondary leachate riser feed into the main leachate riser.

Further information on the existing leachate extraction system is provided in Appendix D in *Northern Ramps – Landfill Closure Alexandria Landfill Leachate Management System Technical Memo 1* (AECOM, 2015b).

5.2.2 Leachate characterisation

Leachate quality has been monitored quarterly and/or annually since at least 1996 until the latest sampling round in February 2015.

The concentrations of ammonia in leachate sampled from the leachate sump (LP1) were reported as 250 milligrams per litre in 1996. From 1996 to 2015 the ammonia concentrations at the leachate extraction sump have fluctuated and have been typically been reported as between 100 and 300 milligrams per litre.

As part of the Phase 2 ESA (AECOM, 2015) eight monitoring wells were installed in the landfill to monitor leachate (MW304, MW305, MW306, MW307, MW308, MW311, MW313 and MW314). A summary of the range of

concentrations of key are summarised in **Table 6** below. Further details on the leachate monitoring wells installed are provided in the Groundwater and Leachate Management Plan in **Appendix F**.

As expected, concentrations of ammonia were lowest near the edges of the landfill pit and highest in the central portion and closest to the leachate sump (LP1).

A thin layer (less than five millimetres) of low non aqueous phase liquid (LNAPL) consisting of a substance identified as potentially a mixture diesel and oil was detected in MW306 in the central portion if the landfill. Dissolved concentrations of TRH were lowest at the edges of the landfill and highest in the centre of the landfill.

Table 6 Summary of most recent leachate monitoring results (AECOM, 2015)

Parameter	Units	Leachate concentration ranges and averages		
		Minimum	Maximum	Average
Cations Total	meq/L	37	118	63
Anions Total	meq/L	35.2	112	67
Ionic Balance	%	0.72	10.2	4.6
Biological Oxygen Demand (BOD)	mg/L	5	41	20
Chemical Oxygen Demand (COD)	mg/L	192	610	360
Total Dissolved Solids (TDS)	mg/L	2030	6450	3958
Total Organic Carbon (TOC)	mg/L	45	144	96
Methane	mg/L	<0.01	11.1	6.5
Nitrate (as N)	mg/L	<0.01	11.9	2.9
Ferrous Iron	mg/L	<0.05	25	8.6
Sulphate as S	mg/L	<1	200	64
Dissolved oxygen	mg/L	0.15	1.91	1.02
Electrical conductivity (field)	µs/cm	4396	11076	7490
pH (field)	pH	5.63	7.15	6.65
Redox (field)	mV	-110.6	190.9	65.7
Temperature (field)	^{0}C	20.6	37.4	28.7
Ammonia	mg/L	55.9	404	187
Nitrate	mg/L	<0.01	11.9	2.9
Nitrite	mg/L	<0.01	0.15	0.031
Nitrogen (Total Oxidised)	mg/L	<0.01	11.9	2.9
Reactive Phosphorus (as P)	mg/L	<0.01	0.84	0.2
Arsenic	µg/L	2	30	9.9
Cadmium	µg/L	<0.1	<0.1	<0.1
Chromium	µg/L	3	10	7.8
Copper	µg/L	<1	12	3.8
Lead	µg/L	<1	3	1.1
Mercury	µg/L	<0.1	<0.1	<0.1
Nickel	µg/L	6	156	55
Zinc	mg/L	0.11	0.088	0.036

Parameter	Units	Leachate concentration ranges and averages		
		Minimum	Maximum	Average
TRH C6 to C10	mg/L	<0.02	0.12	0.042
TRH> C16 to C34	mg/L	<0.1	2.87	0.88
TRH> C34 to C40	mg/L	<0.1	13	3.4
TRH> C34 to C40	mg/L	<0.1	0.7	0.16
Benzene	µg/L	<1	8	1.5
Ethyl benzene	µg/L	<2	4	1.3
Naphthalene	µg/L	<2	6	1.3
3-&4-methylphenol	µg/L	<4	6	2.4
Phenol	µg/L	<2	5	1.4
Carbon disulfide	µg/L	<5	8	3
Chlorobenzene	µg/L	<2.5	16	3.1
Bis(2-ethylhexyl) phthalate	µg/L	<10	10	7.5

5.3 Leachate treatment plant

The existing leachate treatment plant comprises a sequential biological reactor (SBR) system. It is understood that the primary function of the treatment system is to remove ammonia from incoming leachate. WAMC has confirmed that the existing leachate treatment plant has not been adequately designed to treat incoming leachate from the site and does not fully comply with existing Sydney Water TWA requirements for the treatment of ammonia. The existing leachate treatment system is currently being upgraded in accordance with an effluent improvement program agreed with Sydney Water. The former Sydney Water TWA (No. 29304) listed that the treatment plant contained the following components:

- 1 x 80 kilolitres biological treatment plant (batch discharge).
- 1 x 100 kilolitres biological treatment plant (batch discharge).
- 1 x Rainfall Sentinel MEA 2211.
- 1 x ABB Magmaster electromagnetic flow meter.

5.4 Surface water and stormwater management system

A summary of the existing surface water and stormwater network is provided in **Table 7** .

Table 7 Surface Water / Stormwater Drainage System

Area	Surface water / stormwater drainage details
Area A: Recycling Premises: weighbridge, workshops, offices, parking	Runoff drains to stormwater drains which discharge to a main subsurface stormwater drain (a 675 millimetre subsurface pipe) that connects to the off-site drain in Canal Road. There is a discharge monitoring point (SW3) at the Canal Road pipe junction. It is understood the same subsurface stormwater line also drains stormwater from off-site lots (located between the site and Princes Highway).
Area B and C: Recycling Premises: stockpiling and processing area	Surface water in the recycling premises and stockpiling area discharge to stormwater after sediment control and treatment. Monitoring occurs at SW1 and SW2.
Area D: Recycling Premises: waste transfer areas	Treatment and discharge to trade waste system.

Area	Surface water / stormwater drainage details
Area E: Landfill premises	Treatment and discharge to trade waste system.
Area F: Lower Recycling Premises: Capped & contoured stockpile area	Collection by drain and sump with sediment control and pumped discharge to stormwater with treatment and monitoring (SW4). JPG inspected the area on 15 January 2015 and noted the following: - A small stormwater pit with no power and appeared the level probe had been recently removed. - A main stormwater sump consisting of a concrete block sump with junction boxes in the pit filled with epoxy.

The above features are shown on **Figure 2** in **Appendix A**.

5.5 Groundwater management

5.5.1 Groundwater management system and monitoring network

The existing understanding of the groundwater management system is summarised in **Table 8.**

Table 8 Groundwater Infrastructure Summary

Item	Description
Groundwater Extraction Bores	A Botany Sands groundwater extraction system (BS1) was installed around 20 metres from the southern Alexandria Landfill boundary and extends around 20 metres in a south-westerly direction, to a depth of -10 metres AHD and a width of two metres. The bottom of the trench was installed into low permeability clays present below the permeable Botany Sands stratum. A 300 millimetres inside diameter (ID) heavy duty PVC slotted pipe was placed in the base of the trench and wrapped in geotextile to minimise blockages. The trench was subsequently backfilled with coarse brick, sand and gravel. At the northern end of the trench a concrete sump was constructed using interlocking precast sections, founded on the clay stratum. The sump was perforated to allow ingress of water from the trench, and wrapped in geotextile fabric. The location of BS1 is shown on **Figure 2** in **Appendix A**. Extraction of groundwater from the Botany Sands aquifer to the east of the landfill pit began in approximately 2001/2002. Extracted groundwater is reportedly stored in 50,000 litre capacity tanks and has historically been used for dust suppression by water cart. Excess groundwater is understood to discharge to the stormwater drainage system on Canal Road. Significant inflows of groundwater from the Botany Sands Aquifer flow in to Alexandria Landfill. To limit the inflow of groundwater entering Alexandria Landfill from the Botany sands aquifers (over 45,000 litres per day), two interceptor sump systems (BS1 and BS2) have been installed between the landfill and Alexandria Canal to intercept and reduce the inflow of groundwater into the pit (refer to **Figure 2** in **Appendix A**). The extracted water from BS1 and BS2 has historically been used for dust suppression purposes. The second interception and extraction system (BS2) is understood to comprise a sump that pumps to one 45 kilolitres and two 27 kilolitres storage tanks with an overflow to the existing stormwater drain.
Groundwater Monitoring Wells	The following groundwater monitoring were monitored and sampled as part of the EPL compliance and existing ICCG (2012) SWLMP and were installed between 1997 and 2005: - MW1, MW2d, MW3 and MW4c which are screened in bedrock - One monitoring well MW2s screened in the botany sands - Botany sands extraction systems - BS1 and BS2 The additional four groundwater monitoring wells were installed as part of the Phase 2 ESA (AECOM, 2015): MW309/MW310, MW312 and MW315 screened in Botany Sands Further details on the above existing monitoring wells are provided in the Groundwater and Leachate Management Plan in **Appendix F**.

Item	Description
Management of the Botany Sand Beds aquifer	Groundwater flow into site from the Botany Sand Beds aquifer would be minimised by the construction of a cut-off wall around the southern perimeter of the landfill. The construction of the wall would minimise groundwater flow into the site, significantly reduce leachate generation within the site and maintain groundwater in the aquifer.

5.5.2 Groundwater quality

Based on available records, groundwater monitoring has been undertaken around the perimeter of the landfill since 1997.

The latest round of groundwater gauging and sampling was completed in February 2015 as part of the Phase 2 ESA (AECOM, 2015). A summary of the analytical data sampled and analysed from the botany sands and bedrock screened groundwater monitoring wells is provided in **Table 9** below.

Groundwater in the leachate, Botany Sands and up-gradient bedrock was found to be flowing on an inward gradient towards the main leachate sump in the southwest of the site. It is unclear if groundwater is flowing towards or away from the sump in the bedrock aquifer in the southeast of the site (at MW2D).

Concentrations of cobalt, copper, nickel and zinc exceeded ANZECC (2000) 95 per cent trigger values for marine ecosystems criteria in the bedrock aquifer and were at similar or higher concentrations as detected in the leachate.

Lead slightly exceeded the ANZECC (2000) 95 per cent trigger values for marine ecosystems in the Botany Sands in southern corner of the site.

Concentrations of ammonia slightly exceeded the ANZECC (2000) 95 per cent trigger values for marine ecosystems criteria in the wells screened in the Botany Sands and bedrock aquifers.

Concentrations of TRH, BTEX, volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were not detected in the Botany Sands or bedrock aquifer.

Table 9 Summary of most recent groundwater monitoring results (AECOM, 2015)

Parameter	Units	Groundwater concentration ranges and averages					
		Botany Sands			Bedrock		
		Minimum	Maximum	Average	Minimum	Maximum	Average
Cations Total	meq/L	11.6	55.1	*23*	43.8	179	*110.6*
Anions Total	meq/L	12	54.5	*24*	43	181	*115*
Ionic Balance	%	0.5	6.34	*2.6*	0.56	5.2	*2.23*
BOD	mg/L	<2	4	*1.8*	<2	<2	*<2*
COD	mg/L	31	272	*95*	<50	52	*33*
TDS	mg/L	722	3580	*1516*	3360	11200	*7300*
TOC	mg/L	4	29	*12*	6	24	*13.67*
Methane	mg/L	0.794	9.24	*3*	<0.01	<0.01	*<0.01*
Nitrate (as N)	mg/L	<0.01	0.09	*0.022*	0.15	0.23	*0.14*
Ferrous Iron	mg/L	0.46	7.96	*3.3*	<0.05	2.24	*1.79*
Sulphate as S	mg/L	66	250	*152*	498	836	*643*
Dissolved oxygen(field)	mg/L	0.03	1.65	*1.32*	0.42	0.96	*0.61*
Electrical conductivity	µs/cm	4	5392	*1888*	4845	15926	*10282*
pH (field)	pH	6.28	7.8	*6.92*	5.02	5.73	*5.31*
Redox (field)	mV	-121.4	145.2	*29.46*	226.7	494.6	*339*
Temperature (field)	^{0}C	20.2	21.6	*20.7*	20.8	22.8	*21.8*

Parameter	Units	Groundwater concentration ranges and averages					
		Botany Sands			Bedrock		
		Minimum	Maximum	Average	Minimum	Maximum	Average
Ammonia	mg/L	0.58	7.81	4.4	0.15	1.7	0.76
Nitrate	mg/L	<0.01	0.09	0.022	0.03	0.23	0.14
Nitrite	mg/L	<0.01	<0.01	0.005	<0.01	<0.01	0.005
Nitrogen (Total Oxidised)	mg/L	<0.01	0.09	0.022	0.03	0.23	0.14
Reactive Phosphorus (as P)	mg/L	<0.01	0.35	0.11	<0.01	<0.01	0.005
Arsenic	µg/L	<1	26	*7.7*	<1	<1	*<0.1*
Cadmium	µg/L	<0.1	<0.1	*<0.1*	<0.1	<0.1	*<0.1*
Chromium	µg/L	<1	2	*0.81*	<1	<1	*<1*
Copper	µg/L	<1	1	*0.63*	4	29	***14***
Lead	µg/L	<1	6	***1.9***	<1	<1	*<1*
Mercury	µg/L	<0.1	<0.1	*<0.1*	<0.1	<0.1	<0.1
Nickel	µg/L	<1	10	*2.3*	27	203	***91***
Zinc	mg/L	0.005	0.015	*0.009*	0.031	0.094	***0.062***
TRH C6 to C40	mg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
BTEX	mg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
VOCs and SVOCs	mg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR

5.6 Landfill gas and air monitoring

5.6.1 Landfill gas management system

Landfill gas issues have been previously identified on the site along the eastern boundary where gas emissions and odours have been recorded along the interface between refuse and natural weathered shale. In addition, the Department of Environment and Climate Change (DECC, now EPA) has previously raised concerns regarding emissions and odour reportedly emanating from the site (in the area historically identified as Sector B). In 2007, it was requested by DECC that the owners of the site provide landfill gas mitigation designs for the perimeter of the facility. Douglas Partners (2008) subsequently proposed two design systems as well as numerous landfill gas mitigation methods, a plan for construction as well as potential ongoing monitoring program. It is unknown whether this plan was implemented.

The Alexandria Landfill Site-Recycling and Landfill Premises Revised Surface Water and Leachate Management Plan (SWLMP) (ICCG, 2011), identifies a subsurface gas mitigation trench installed in the north-western area of the site, as shown in **Figure 1** below.

Figure 1 Reported location of existing gas mitigation system

No 'as built' records are available for the trench; however the Report on Landfill Gas Mitigation Measures Alexandria Landfill, St Peters (Douglas Partners, 2008) provided design plans. The description of the gas mitigation trench included:

- Excavation of a benched trench to four to eight metres depth;
- Infilling the trench with coarse (greater than 40 millimetres) aggregate placed in layers;
- Installation of slotted HDPE piping on two horizontal horizons coupled along the length of the trench and bought to two vertical coupled risers or similar structures and manifolded to land lines leading to a movable exhaust system located in the landfill; and
- Capping of the trench using clay or geotextile.

The existing air monitoring and landfill gas monitoring program is summarised in **Table 10** below.

Table 10 Air Monitoring and Landfill Gas Infrastructure Summary

Item	Description
Dust Monitoring	Dust monitoring is conducted under EPL 12,594 at four gauges: - DG1: adjacent to weighbridge. - DG2: south-east close to "sealed Air" boundary. - DG3: south-west close to Canal Road. - DG4: adjacent to leachate treatment plant/workshop.
Landfill Gas Monitoring Wells	Surface gas monitoring. Existing landfill gas infrastructure included: - Subsurface gas monitoring at MW4c. - Subsurface gas mitigation trench Additional landfill gas monitoring wells installed as part of the Phase 2 ESA (AECOM, 2015): - On-site monitoring wells LG301 to LG313 - Off-site monitoring well LG300

5.6.2 Landfill gas characterisation

5.6.2.1 Bulk gases

The latest round of subsurface landfill gas monitoring was completed as part of the Phase 2 ESA (AECOM, 2015) in February 2015. Thirteen landfill gas wells (LG300 to LG312) and two groundwater monitoring wells (MW311 and MW313) were monitored with a landfill gas analyser and sampled with Summa canisters for bulk and trace landfill gases.

Concentrations of subsurface methane were highest across the central portion of the landfill where the depth of filling was greatest and lower around the edges of the site, with the exception of the northeast boundary of the site where subsurface methane concentrations were analysed at 74.2 per cent at the boundary (LG308). A summary of the analytical results are provided in **Table 11** below.

Table 11 Summary of most recent landfill gas monitoring results (AECOM, 2015)

Gas	Unit	Minimum	Maximum	Average
Methane	Mol %	0.14	74.2	37
Oxygen	Mol %	3.53	20	10
Carbon Dioxide	Mol %	0.507	40.7	17
Carbon Monoxide	Mol %	<0.001	<0.001	<0.001
Inert Gases (N_2. Ar) by difference	Mol %	2.2	89	47
Ethane	Mol %	0	0	0
Propane	Mol %	0	0	0
Butane	Mol %	0	0	0
Hydrogen	Mol %	0.01	0.014	0.010
Helium	Mol %	0	0	0
Flow rate (field)	L/hr	0	7.2	2

The composition of bulk landfill gases analysed from each monitoring well is shown in **Figure 2** below.

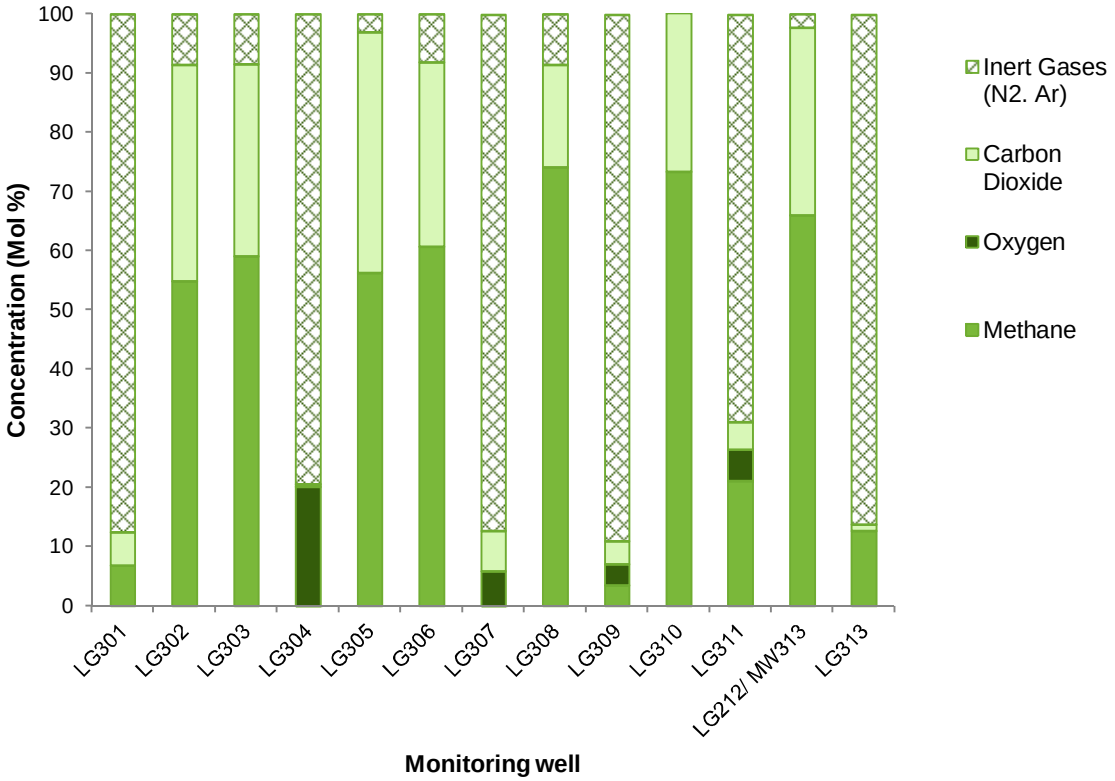

Figure 2 Composition of landfill gases (AECOM, 2015)

5.6.2.2 Trace gases

The range and averages of the concentrations of trace ground gases, hydrogen sulfide, TRH and VOCs detected in landfill gas from the round of landfill gas sampling completed as part of the Phase 2 ESA (AECOM, 2015) in February 2015, are listed in **Table 12** below.

Table 12 Trace gas detections - summary of most recent landfill gas monitoring results (AECOM, 2015)

Chemical	Units	Minimum concentration	Maximum concentration	Average concentration
TRH C10-C14	µg/m^3	<35000	517,000	133,294
TRH C6-C9	µg/m^3	<20000	433,000	91,675
TRH >C10-C16	µg/m³	<40000	208,000	85,125
TRH >C10-C16 less Naphthalene (F2)	µg/m³	<40000	208,000	85,113
TRH C6-C10	µg/m³	<20000	556,000	109,538
TRH C6-C10 less BTEX (F1)	µg/m³	<20000	522,000	105,075
Hydrogen sulphide (field)	ppm	0	1194 />1000	~116
Naphthalene	µg/m³	<100	387	105
tert-Butyl alcohol	mg/m^3	<0.15	1.5	0.37
Trichloroethene (TCE)	µg/m³	<5.4	108	18
cis-1,2-dichloroethene	µg/m³	<20	86.4	21
Vinyl chloride	µg/m³	<5.1	485	63
Total Xylene	µg/m³	<650	7860	1213
Benzene	µg/m³	<100	1470	478
Ethylbenzene	µg/m³	<220	22,000	2540
Toluene	µg/m³	<190	1870	469
Xylene (m & p)	µg/m³	<430	5640	826
Xylene (o)	µg/m³	<220	2220	407
Freon 113	µg/m³	<380	ND	190
Freon 114	µg/m³	<350	ND	175
2-Propanol	µg/m³	<120	1620	158
Isooctane	µg/m³	<230	2650	670
Propene	µg/m³	<90	10,800	988
Heptane	µg/m³	<200	10,600	1979
Hexane	µg/m³	<180	4400	1252
Tetrahydrofuran	µg/m³	<150	1200	190
Methyl Ethyl Ketone	µg/m³	<150	377	94
1,2,4-trimethylbenzene	µg/m³	<240	33,500	2636
1,3,5-trimethylbenzene	µg/m³	<240	13,600	1025
1-methyl-4 ethyl benzene	µg/m³	<240	9380	751
4-Methyl-2-pentanone	µg/m³	<200	528	127
Carbon disulfide	µg/m³	<160	178	86
Chlorobenzene	µg/m³	<230	1160	180

Chemical	Units	Minimum concentration	Maximum concentration	Average concentration
Cyclohexane	µg/m³	<170	7260	1988
Dichlorodifluoromethane	µg/m³	<250	20,400	1392
Ethanol	µg/m³	<90	162	58
Isopropylbenzene	µg/m³	<250	3710	720
n-butylbenzene	µg/m³	<270	922	193
n-propylbenzene	µg/m³	<250	10,400	1040
sec-butylbenzene	µg/m³	<270	872	256
Styrene	µg/m³	<210	231	113

5.6.2.3 Landfill gas generation estimate

A landfill gas generation estimate has been undertaken for the site (by Leighton Dragados Samsung), using a "first-order decay" model, to provide an order of magnitude estimate of landfill gas production. The model adopted was the National Greenhouse and Energy Reporting (NGER) solid waste emission calculator (Version 1.91).

The key assumptions made for the landfall gas generation estimate were:

- Waste filling commenced in 1988, with an allowance for some minor filling prior.
- Waste input tonnages were based on INFO DOC 715 (Woodward Clyde 1999) for years prior to 2002 and assumptions based on a view of surveys thereafter.
- Waste stream composition assumes commercial/industrial (C&I) and construction/demolition (C&D) waste as per Stage 2 ESA and the EPL. Default NGER decomposition parameters were used, assuming that food waste was removed from the C&I waste stream in accordance with the NGER guidelines.
- The estimate considers the area of the EPL 4627 and the EPL 12594, which are the areas where waste filling has occurred.

The outcomes of the modelling are order of magnitude only, given the uncertainty in the waste tonnages and waste type. Some additional uncertainties regarding the landfill gas generation estimate are the level of leachate in the landfill in the future and the age of the waste placed.

Based on the data provided, it is estimated that the landfill may currently generate between 100 and 300 cubic metres per hour of landfill gas, and that the generation potential is expected to slowly reduce over time.

The estimated gas collection rate is insufficient for the operation of a landfill gas engine, but may be sufficient for operation of a small landfill gas flare. A landfill gas flare can usually be operated if a gas collection rate of at least 100 cubic metres per hour is achieved.

Should landfill gas collection rate fall below 100 cubic metres per hour, then an alternative treatment to flaring would likely be required such as treatment in an activated carbon system to remove trace contaminants in the gas (and associated odours) as identified in the Phase 2 ESA, or a biofilter to oxidise methane.

5.7 Existing monitoring and management requirements

The existing monitoring and management requirements for the site are detailed in the following documents:

- EPL 4,627: WestConnex Delivery Authority, Alexandria Landfill, 10 Albert Street, St Peters, dated 23 March 2015: Waste disposal by application to land. The licence allows for acceptance of: general solid waste (non-putrescible) (application to land); waste tyres (application to land); asbestos waste (application to land); and any waste below the licensing thresholds in Schedule 1 of the POEO Act 1997.
- EPL 12,594: WestConnex Delivery Authority, Alexandria Recycling Centre, 10-16 Albert Street St Peters, dated 24 March 2015: Recovery of general waste and waste storage (other types of waste).
- Sydney Water (TWA No. 29304) for the discharge of treated leachate to a sewer discharge point in Albert Street.

The EPLs are in the process of being formally transferred to Roads and Maritime.

The monitoring and management requirements for the site detailed in the EPLs and TWA are summarised in **Section 9.1**.

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6.0 Proposed final landform and land use

6.1 Final landform

The proposed final landform has been designed to enable the future development of the site as a motorway interchange (St Peters interchange). Drawings and cross sections have been prepared which detail the final landform (refer **Appendix A**). The final landform and topography would make allowance for the construction of the St Peters interchange, including future roadway alignments, which would be constructed on piles extending through the landfill mass to prevent damage associated with differential settlement.

The design of the final landform has included provision for the incorporation of a new landfill cap across the site and the construction of a new landfill leachate treatment plant/collection system (in addition to the existing system) located in the south-western portion of the site. The existing leachate treatment system is currently being upgraded in accordance with an effluent improvement program agreed with Sydney Water. The upgraded system is expected to be fully operational and compliant by the end of 2015. The upgraded system would be retained to offer a level of redundancy until the new system is fully functional after which collected leachate would be diverted to the new leachate treatment plant and the current leachate treatment plant would be decommissioned.

The final landform would consist of the following features:

- A new landfill cap.
- A raised and vegetated containment mound in the south-western portion of the site with a maximum proposed elevation of RL 19 metres AHD and with the steepest batter slope of 2H:1V.
- Allowance for proposed roadway alignments, including embankments and tunnel entrances.
- A new landfill Leachate Treatment Plant / collection system (in addition to the existing system) located in the southern portion of the site. Site areas not used for motorway construction and associated infrastructure will be landscaped (refer to the Urban Design Report, Appendix F of the EIS).

Cut and fill plans reviewed by AECOM (refer Drawing M5-LDS-SKT-700-320-DR-7812 in **Appendix A**) indicate an estimated total of 620,000 cubic metres of material would be cut and an estimated total of 556,000 cubic metres would be filled across the site.

Design measures would be incorporated to address the effect of piles supporting St Peters interchange bridge and roadway structures on the functionality and performance of the capping system and landfill management system infrastructure. Specifically:

- Capping: The majority of areas where piles need to penetrate the capping system are associated with foundation support for road pavements and/or road embankments. In these areas, the pavement / embankment systems would cap the pile area and provide sufficient resistance to water ingress and landfill gas egress around the pile. In areas where piles are needed to support bridge piers, a sealing system using bentonite and geosynthetic materials would be constructed around the piles and/or pile caps.
- Leachate and gas collection system beneath cap: This system comprises a network of closely spaced gravel trenches with collection pipes. The trench spacing would be adjusted in the vicinity of pile installations to provide gaps for pile installation. In the event that existing trenches are penetrated during pile installation, adjacent trenches would collect any disrupted flow such that overall network performance is not compromised.
- Existing (deep) leachate collection system: Piles would be laid out to avoid the locations of the existing collection lines at the landfill base. However, due to location uncertainty, risk would remain that a pile(s) would penetrate a drainage collection line. In general, the likelihood of piling strikes significantly impacting the leachate collection system is considered low. This is because piling strikes would be highly localised, and although local pipe collapse could occur, there would be alternate local flow paths available to adjacent non-collapsed pipe downstream through the remnant collapsed pipe itself or through pipe bedding materials. Notwithstanding, leachate pipe flow rates are very low and alternate flow paths to bypass a localised pipe collapse could occur in the small pore spaces that would remain present.

6.2 Final land use

The final land use of the site would comprise a motorway interchange with associated ancillary facilities and open space (refer Drawing M5-AJV-SKT-700-320-DR-7801 in **Appendix A**). The St Peters interchange has been designed to connect the New M5 to Campbell Road and Euston Road, St Peters and through to Gardeners Road, Mascot, to enable traffic to travel to and from the inner western suburbs of Sydney, the airport precinct and Port Botany via the existing surface road network. The remaining ramps within the St Peters interchange would be opened to provide connectivity between western Sydney and the international gateways of Sydney Airport and Port Botany via the future M4-M5 Link and future Sydney Gateway.

The design for the St Peters interchange has been prepared to provide fully grade separated connectivity for the New M5 and future M4-M5 Link tunnels to / from:

- Euston Road / Campbell Road;
- Gardeners Road; and
- The future Sydney Gateway.

The St Peters interchange would be primarily located on the site, however may incorporate land surrounding the site. Closure of the landfill and remediation/land forming works are required for future beneficial use of the land as part of the project. The St Peters interchange has been designed to incorporate landfill closure considerations including capping, leachate and landfill gas management.

7.0 Landfill closure and rehabilitation

7.1 Closure and stabilisation of the landfill

Key landfill closure milestones and indicative timeframes which inform this LCMP are presented in **Table 13.**

Table 13 Landfill closure works and indicative timing

Landfill closure component	Timeframe[1]
Cessation of the commercial use of Alexandria Landfill for landfilling/recycling (following landfill acquisition by the NSW Government).	20 December 2014
Ongoing monitoring in accordance with the relevant requirements outlined in EPL 4,627, EPL 12,594, TWA 29304 requirements.	January 2015 onwards
Monitoring, maintenance and upgrade of existing site leachate management system.	April 2015 – April 2017*
Completion of Alexandria Landfill phase 2 intrusive site investigations (draft Phase 2 ESA).	May 2015
Preparation of a draft LCMP.	May 2015
Site activities in accordance with EPLs and development consents, including: - Processing/removal of various stockpiles of waste and materials stored for resource recovery - Evaluating opportunities to recycle and/or recover materials for re-use - Processing of materials scheduled for reuse - Removing and/or disposing of waste materials assessed to be unsuitable for recycling/reuse or to another suitably licenced landfill facility in accordance with EPA requirements - Stabilisation of a cliff face landslip.	January 2015 – March 2016
New M5 approval (State and Commonwealth).	April – June 2016
Commencement of bulk earthworks and land forming works including landfill capping and gas management system installation and construction works (incorporating leachate plant construction)[2].	June 2016 – April 2017
St Peters interchange construction and post closure monitoring.	2017 – December 2019
Indicative timeframe for post closure monitoring.	~30 years

1. Denotes indicative timeframe based on existing program of works
2. The landfill cap would be installed post bulk earthworks and formation of the final landform for the interchange. Management systems would occur before and after the installation of the landfill cap, depending on the requirements/function of the system.

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8.0 Site closure – Key components

In accordance with EPA (2015), the key components of the landfill closure works include the following:

- Waste cell preparation works with basal leachate collection system.
- Excavation and transfer of surplus material (based on final landform design).
- Placement of excavated surplus material (in layers).
- Final landfill cap design.
- Landfill gas management.
- Leachate management.

The above components are discussed further in the following sections.

8.1 Final landfill cap design

A final landfill cap design has been developed based on review and evaluation of existing guidance documents, site conditions, existing environment, the proposed future land use setting, and through consultation with the NSW EPA.

The agreed final capping layer comprises the following components:

- A nominal 500 millimetre thick top soil re-vegetation layer with localised thickening to accommodate taller vegetation (if required).
- A minimum 500 millimetre thick low permeability material layer with permeability of10^{-8} metres per second (minimum of 500 millimetres thickness and 10^{-8} metres per second as agreed with NSW EPA).
- A minimum 300 millimetres thick earth cover, comprising crushed sandstone or selected material.
- Gas collection system located within the waste material substrate.

Where the thickness of the landfill cap is required to be minimised a geo-composite layer (GCL) may be used. The GCL would allow for a reduction in the thickness of the low permeability layer from 500 millimetres to 300 millimetres and hence the thickness of the overall cap without compromising the seepage preventing capability of the layer.

It is noted that laying of the GCL on a 1V:2H or 1V:4H batter may present long term stability issues. As such, where capping on 1V:2H or 1V:4H batter is required, incorporation of a GCL layer is not recommended (subject to further input and advice from the GCL manufacturer).

Details of the proposed landfill cap design and layout are provided on the drawings provided in **Appendix A** (refer Drawings refer Drawings M5-LDS-SKT-700-320-DR-7804- M5-LDS-SKT-700-320-DR-7804 to M5-LDS-SKT-700-320-DR-7804- M5-LDS-SKT-700-320-DR-7806 in **Appendix A**). It is anticipated that rehabilitation/revegetation activities would be undertaken progressively as the final capping layer is completed across the site.

The final capping layer must be constructed in consideration of the cap design outlined in this LCMP. In accordance with NSW EPA (2015) and following construction of the final landfill cap, Roads and Maritime or its nominated representative must submit a Construction Quality Assurance Report (CQAR) to the EPA containing the as-constructed final landfill cap details and addressing the Construction Quality Assurance (CQA) requirements. It is noted that staged approval from NSW EPA is likely to be required throughout the landfill closure process.

The requirements of the CQAR specified in NSW EPA (2015) include the following:

- The proposed testing, inspection and verification procedures to demonstrate that materials and constructed features at the landfill comply with the approved designs and specifications.
- Approval must be obtained from EPA prior to placement of excavated waste within the proposed waste containment cell.
- Specification of sampling locations, frequency of testing, test methods, laboratories, accreditations, applicable specifications, quality standards, data evaluation, acceptance and rejection criteria and contingency measures in the event of failure.

- Description of roles, responsibilities and qualifications/experience of the parties involved in delivering construction quality assurance.
- Engagement of a suitably qualified CQA engineer to verify and report on all CQA matters.
- Appropriately qualified sub-contractors to install geosynthetic materials.
- Drilling sub-contractors installing sub-surface monitoring devices would hold appropriate licences to do this work.
- The Plan would specify the hold points and inspection points for the project.
- Upon reaching each hold point, the Construction Quality Assurance engineer would review all test results for the materials proposed to be used; proposed work methods and quality control procedures; proposed panel layouts for any geosynthetic elements; and each sub-contractor's credentials.
- When each stage has been completed, the engineer would review a work-as-executed survey of the completed work. At all of these points, work would stop and would not restart until the engineer has reviewed the documentation and given approval for the project to continue.
- The CQA engineer is required to undertake site inspections of the work at all of these points and should be present when all samples are taken for the testing of construction materials. At a minimum, hold and inspection points would be established at the start and finish of the following stages during construction of the leachate barriers and final capping: trial pad activities, sub-base, bearing layers, each lift of clay liner or sealing layer, the finished top surface of the clay liner or sealing layer, drainage layers, all geosynthetic layers, protection layers, pipework, landfill gas controls, penetrations of liners by leachate and gas collection infrastructure, and monitoring installations.
- Response actions are required if there are variations to the approved designs and specifications and the Construction Quality Assurance Plan. If a major variation arises, work would stop on the affected element and the licensee should notify the EPA in writing, seeking a licence variation. For minor variations, notification is not required; it is sufficient for the Construction Quality Assurance engineer to note the variation in the final Construction Quality Assurance Report and to confirm that the variation did not compromise achievement of the minimum standards in these guidelines.
- If staged construction is proposed, this would be noted in the Construction Quality Assurance Plan. The most common example of this is where the walls of a new cell will be constructed progressively as the waste height rises. The licensee would submit an addendum to the Construction Quality Assurance Report upon completion of each new portion of the cell wall.

8.1.1 Growing media establishment following installation of cap

Establishing an appropriate substrate growing medium capable of supporting vegetation is vital to the success of future landscaping and revegetation activities. In all areas where landscaping is required, a suitable revegetation layer will be applied prior to revegetation activities being undertaken. Revegetation layer requirements would be detailed in a vegetation management plan or similar prepared for the site as part of the overarching landscaping strategy for the site.

The final landscape plans, including selected species, would be confirmed during detailed design. However, the design of the cap, the thickness of the growing medium, species used and planting plans as presented in the landscape strategy have been determined to ensure that root systems do not penetrate through the base of the cap. During detailed design, soil mixes and subgrade treatments across the project would be developed (which would account for specific requirements across the project), and would be supported by soil management protocols and treatments to provide optimum growing environments for all new landscape works.

Landscape maintenance / monitoring post planting would be undertaken in accordance with the Roads and Maritime Specification R179 "Landscape Planting.

8.1.2 Revegetation

It is anticipated that revegetation would be undertaken using a variety of techniques including direct seeding, tubestock plantings and natural regeneration (from topsoil seedbank). Measures such as fencing and tree guards would be implemented to protect the revegetated areas from predation and browsing. All revegetation works would be undertaken in accordance with a site specific vegetation management plan developed for the site.

Vegetation would be selected based on consideration of the following attributes:

- Rapid and sustainable establishment.
- Ability to stabilise the ground surface and protect the cap from erosion.
- Sustain high evapotranspiration rates.
- Extend roots into all areas of the cap for moisture removal.
- Ensure growth and coverage through all seasons.
- Survive sub-optimal seasons (such as droughts), and be resilient (able to continue to meet the performance objectives despite extreme weather, fire, weeds, grazing and pests).

8.2 Landfill gas management

Based on the existing dataset and the landfill gas generation estimate, the landfill gas management system would comprise:

- A radial subsurface gas drainage system connecting to a main trunk system and gas collection system. The subsurface drains will be concentrated in areas of identified potential gas accumulation.
- Gas drains constructed from 100 millimetres outside diameter (OD) slotted PVC within an engineered fill substrate. The engineered substrate will be placed over the compacted landfill waste surface. Capping layers as described in the above sections will be placed over the gas drainage network.
- Vertical gas collection wells targeting areas where additional gas mitigation is required are proposed.
- A network of subsurface landfill gas wells to monitor the effectiveness of the mitigation systems and comply with EPL conditions.
- Subject to detected landfill gas concentrations, the gas extraction system may be an active (forced) or passive gas extraction system. Active extraction systems remove gas under vacuum, which is subsequently pumped to a central collection/emission point for energy recovery or flaring. Passive gas drainage systems transfer gas by atmospheric pressure differentials. Gas would subsequently be directed for treatment to a microbiological gas system (less than 100 cubic metres per hour) or to a passive flare (subject to gas flow greater than 100 cubic metres per hour).
- If gas flaring is undertaken the flare is proposed to be located in the south-west portion of the site as shown on Drawing M5-AJV-SKT-700-320-DR-7802 in **Appendix A**.

The details of the final gas management system would be refined following confirmation of gas concentrations across the site. Details of the proposed gas management system and layout are provided on the design drawings in **Appendix A**.

8.3 Landfill Fire Management

The risk and proposed management of surficial and deep-seated landfill fires are described below.

Surficial fires (occurring at or near the surface of the earth) are caused by the combustion of exposed solid waste materials and are generally triggered by an ignition source coming into contact with uncovered waste. Surficial fires can also be initiated by excavation and exposure to air of waste that has developed an elevated temperature due to internal decomposition. The risk of starting a surficial fire may be significant during waste excavation and capping works and would be mitigated by restricting potential ignition sources and by potholing of waste prior to excavation to identify landfill gas 'hotspots'. Surficial fires would be relatively easily identified and extinguished with common firefighting equipment that would be present at site during the closure works.

Deep-seated fires are caused by the combustion of below-ground solid waste materials. These fires are generally initiated by oxygen entering the waste mass and coming into contact with waste that has developed an elevated temperature due to internal decomposition. The risk of a deep-seated fire occurring is generally related to the ingress of atmospheric oxygen into the waste through surface pathways such as gaps/defects in the capping system and poorly sealed landfill gas extraction wells or other surface structures. The risk of oxygen ingress would be mitigated in design by developing appropriate design details for the capping system and landfill gas extraction wells. Long-term mitigation would be provided through inspection and maintenance of the capping system and landfill gas extraction wells and appropriate operation procedures for landfill gas extraction. In

particular, balancing landfill gas extraction rates with gas generation rates would reduce potential to draw air into the waste mass.

The overall likelihood of a landfill fire occurring is considered low due to the lack of readily decomposable (putrescible) waste in the landfill.

In the case that a deep-seated landfill fire did occur, impacts to open space and surrounding land would be mainly related to odour, smoke generation, and temporary reduction in landfill gas extraction. Potential impacts onto the road infrastructure would be mainly related to potential settlement of non-piled structures. The likelihood of early detection of a deep-seated fire would be increased through ongoing monitoring of landfill gas extraction wells for elevated gas temperatures and for the presence of oxygen or combustion products such as carbon monoxide. If signs of a fire are detected, the following management measures could be employed:

- Landfill gas extraction system temporary shutdown (to reduce potential oxygen ingress).
- Thermal imaging to identify location of fire.
- Location and sealing of the surface ingress of oxygen.
- Deep injection of nitrogen or water to control the fire.

8.4 Leachate drainage layer

In accordance with the requirements outlined in NSW EPA (1996), the leachate drainage layer should incorporate the following elements:

- a drainage layer with a thickness of greater than 30 centimetres. The drainage material should exhibit a co-efficient of permeability $K > 1 \times 10^{-3} ms^{-1}$.
- The drainage media should be selected to have sufficiently large pore space to prevent encrustation. Gravel or a combination of gravel and a geonet may be used. The gravel selected ideally should be:
    - Rounded.
    - Of grain size greater than 20 millimetres.
    - Smooth-surfaced.
    - Non-reactive in mildly acidic conditions.
    - Relatively uniform in grain size.
    - Free of carbonates that could form encrustations around the collector pipes.
    - Geotextiles should not be used where their low porosity and consequent encrustation could result in blockage of the drainage system.
- Perforated collector pipes should be placed within the drainage layer at intervals of not more than 50 metres to facilitate the collection and discharge of leachate. These pipes should generally:
    - Be a minimum 150 millimetres in diameter.
    - Be strong enough not to collapse under the weight of the waste.
    - Have a minimum longitudinal gradient of one percent.
    - Be capable of being rinsed and monitored.

The drainage media should comprise a full gravel layer across the entire newly installed leachate drainage network. A ‘french drain’ gravel drainage layer around the drainage collector pipes is not considered appropriate for the site.

Details of the proposed gas management system and layout are provided on the design drawings provided in **Appendix A**.

8.5 Leachate management

Prior to NSW Government ownership of the site, the Sydney Water TWA permitted a treated leachate disposal rate of 620 kilolitres per day. Following site acquisition by the NSW Government, Sydney Water prepared an updated TWA with the following permissible rates of discharge to sewer:

- Instantaneous maximum rate of gravitated discharge – 15 litres per second.
- Maximum daily discharge 1000 kilolitres.
- Average daily discharge – 500 kilolitres.

An effluent improvement program has been agreed with Sydney Water to upgrade the leachate treatment plant to a compliant standard S which outlines the steps to achieve reliable full compliance with the ammonia TWA discharge limit of less than 100 milligrams per litre within six months. Upgrade works to the leachate treatment plant have commenced and it is expected that the upgrade would be completed by the end of 2015.

The existing leachate treatment plant system is currently being upgraded to treat a minimum of 100 kilolitres per day of raw leachate from the site and be compliant for the next two years (until 2017). Roads and Maritime would design and construct a new leachate treatment plant (with an approximate maximum leachate treatment capacity of 200 kilolitres per day) in the western portion of the site (refer AECOM, 2015j in **Appendix D**). Construction of the new leachate treatment plant is proposed to commence in 2016 for completion in 2017. The construction of the leachate treatment plant is discussed further in the following sections.

8.5.1 Leachate treatment plant

A new leachate treatment plant would be constructed to mitigate the risk of system failure associated with the existing aging facility. It is assumed that the existing plant would be removed but selected components of the collection system would remain and be incorporated in the new leachate collection system. A summary of the proposed changes are provided below:

- The existing subsurface collection grid located at depth on the circa 2000 landfill pit floor and associated sump and well riser. The well riser is to be extended and a new pump and rising main installed to connect into the new network. Note that the existing collection grid layout is derived from historical records which are not based on “as constructed” records. As such, the location, form and condition are unknown. Pumping from this system is however considered to be of benefit and is anticipated to continue as long as the existing collection system remains functional.
- The leachate treatment plant will biologically treat the raw leachate to remove the high levels of ammonia which are typically found in landfill leachate wastewaters. The ammonia is converted to nitrate by providing aeration to bioreactors. Treated water is then pumped to sewer.
- The proposed leachate treatment system has been designed to treat double the current daily flow inputs to the site (200 kilolitres per day). The proposed design limits were adopted for planning purposes and can be up-scaled to allow for increased capacity if required.
- The layout for the treatment plant requires sealed access roadways and paved surface to ensure containment of spills from either waste water or chemicals. The design vehicle would be a flatbed truck as typical for the delivery of chemicals, or the maintenance of equipment. A bunded chemical unloading area has been included in the pavement design.
- Botany Sands groundwater interception drain, sump and pump system is to be retained/upgraded/replaced as required.

8.5.2 Stormwater and leachate pump station

The design of the stormwater and leachate system is shown on Drawing M5-AJV-SKT-700-320-DR-7801 in **Appendix D**. The key landfill closure components are summarised below:

- The existing leachate collection system would be maintained in the short term, although it is anticipated that the system may cease to function in the near future based on the historical performance and the anticipated life of similar systems;
- Construction of a new leachate collection system at the base of the proposed waste containment cell, prior to placement of waste. The new leachate collection system would be installed to collect leachate under the capping layer for new works in fill material, the new landfill cell and the subsoil drain at the toe of batters;

- Collected leachate will be pumped to a new leachate treatment plant through a rising main. Treated leachate would continue be discharged into the local sewer system under a Sydney Water TWA;
- Stormwater runoff outside the tunnel portal, including pavement and batter run-off will be collected through a pipe and pit stormwater system into the stormwater pump station which would be equipped with water quality control installations including, gross pollutant collection, sedimentation collection and hydrocarbon spill collection;
- Collected stormwater would be pumped to the surface through a rising main and conveyed to a water quality control basin before discharging to Alexandra Canal (to be approved); and
- The proposed system is shown in Figure 1 in **Section 8.4** below.

Further information regarding location of the combined pump station and concept development for the combined pump station is provided in AECOM 2015j in **Appendix D**.

8.6 Surface water drainage management

The proposed surface water drainage design is shown in the following figures in **Appendix A**:

- M5-AJV-DWG-700-320-DR-7251 – Drainage and Water Quality Plan Sheet 1
- M5-AJV-DWG-700-320-DR-7252 – Drainage and Water Quality Plan Sheet 2
- M5-AJV-DWG-700-320-DR-7253 – Drainage and Water Quality Plan Sheet 3
- M5-AJV-SKT-700-320-DR-7251 - Drainage and Water Quality Catchment Plan 1
- M5-AJV-SKT-700-320-DR-7252 - Drainage and Water Quality Catchment Plan 2
- M5-AJV-SKT-700-320-DR-7253 - Drainage and Water Quality Catchment Plan 3
- M5-SKT-DWG-700-320-DR-7271 - Drainage and Water Quality Catchment Plan

There are six proposed sub catchments within the site:

- A – Canal Road portal catchment
- B – Campbell Street portal catchment
- C – Western catchment
- D – Campbell Road to Euston Road intersection catchment
- E – Minor catchment (eastern portion of the site)
- F – Minor catchment (south west portion of the site)

Surface water runoff from, batters and pavements will be diverted to either the Canal Road or Campbell Street Stormwater Pump Station where there would be a gross pollution trap and hydrocarbon collection. The surface water would then be discharged into a water quality basin and then final discharge into the Alexandra Canal.

8.7 Asbestos management

As an outcome of the Phase 2 ESA, asbestos containing materials (including friable asbestos), have been identified at the site. As such, an interim Asbestos Management Plan (AMP) has been prepared for the management of asbestos containing materials (ACM) that may be encountered during current operations at the site. This document has been provided in **Appendix E** for information purposes only. It is noted that a new AMP would need to be prepared by the landfill closure/remediation contractor that specifies site management requirements which are specific to the adopted landfill closure methodology, outline the management requirements to control the asbestos hazard and mitigate risk both during and post landfill closure. The AMP would also nominate specific roles and responsibilities of the personnel responsible for implementing the plan.

9.0 Proposed management and monitoring

It is noted that the requirements outlined in the EPLs and TWA which applied during the active landfilling, recycling and waste transfer phase of landfill operations have been transferred to WestConnex Delivery Authority (and eventually to Roads and Maritime) as the new custodians of the site and would remain in force during the landfill closure phase of operations. Monitoring is currently being undertaken in accordance with current EPL and TWA requirements. It is anticipated that the EPL requirements would be superseded and a new monitoring program developed following installation of the final capping layer and associated leachate and gas management and monitoring infrastructure. These monitoring requirements are contemplated in the management plans detailed in **Appendices F, G, H** and **I**.

The landfill closure phase monitoring and post closure requirements are detailed in **Sections 9.1** and **9.2**.

9.1 Landfill closure phase monitoring and management requirements

During the landfill closure phase the monitoring and management requirements would largely be guided by the existing EPLs and TWA requirements which have been transferred over to WestConnex Delivery Authority (and eventually Roads and Maritime) following site acquisition. It is noted that the ultimate responsibility for the EPL monitoring would be transferred to the landfill remediation contractor (subject to EPA approval).

A summary of the applicable monitoring and management requirements are provided in **Table 14** to **Table 16.**

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Table 14 Monitoring and management requirements stipulated in EPL 4,627 (prior to landfill closure works)

Task	Details		Reference (where applicable)	Applicable prior to commencement of landfill closure (Yes/No)
Groundwater quality monitoring	Locations: MW01, MW02s, MW02d, MW03, MW04	- Standing water level monitored quarterly - Quarterly Analytes: Alkalinity ($CaCO_3$), bicarbonate, calcium, chloride, magnesium, nitrogen (ammonia), pH, potassium, sodium, sulfate, total dissolved solids (TDS) - Annual Analytes: Aluminium, arsenic, barium, benzene, cadmium, chromium (hexavalent), chromium (total), cobalt, copper, ethylbenzene, fluoride, lead, mercury, nitrate, nitrite, organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), polycyclic aromatic hydrocarbons (PAHs), toluene, total organic carbon (TOC), total petroleum hydrocarbons (TPH), total phenolics, xylenes and zinc	Figure 5 Leachate & Groundwater Management Features in *Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004*	Yes
Leachate quality monitoring	Location: Leachate Sump	- The licensee must measure the level of leachate daily, prior to pumping from the leachate sump - Standing water level quarterly (same date as analysis below) - Quarterly Analytes: Alkalinity (CaCO3), bicarbonate, calcium, chloride, magnesium, nitrogen (ammonia), pH, potassium, sodium, Sulfate, TDS, aluminium, arsenic, barium, benzene, cadmium, chromium (hexavalent), chromium (total), cobalt, copper, ethylbenzene, fluoride, lead, mercury, nitrate, nitrite, OCPs, OPPs, PAHs, toluene, TOC, TPH, total phenolics, xylenes and zinc		Yes
Leachate	Defined as water which has come into contact with waste/the tipping face/the green waste processing/storage areas, liquid removed from the leachate collection system, treated or untreated	- By 16 August 2012 the licensee must install the leachate drainage system (leachate sump, interception drain and injection trench) in accordance with the document titled 'Filling Plan' dated May 2012 prepared by Genesis - Within two weeks of installing the leachate drainage system the licensee must submit to the EPA as built design drawings		No
		- Leachate must only be disposed of by pumping to sewer, or removed from the premises by tanker and disposed of lawfully off-site - Leachate must not be used in the truck was facility at the premises. - Leachate must not be irrigated and/or used for dust control at the premises. - The licensee must maintain the level of leachate below -16.0 metres AHD and at least 0.5 metres below the standing groundwater level.		Yes

Task	Details		Reference (where applicable)	Applicable prior to commencement of landfill closure (Yes/No)
		- The licensee must notify DEC of the actions it will take to dispose of leachate in compliance with the conditions of this licence, in the event that it no longer has an agreement with Sydney Water to dispose of up to 792 kilolitres per day of treated leachate to sewer. This advice must be provided to DEC within seven days of the licensee no longer having access. - The licensee must notify DEC as soon as practicable and in any case within 48 hours after it becomes aware that the leachate level in the riser is above -16 metres AHD and/or less than 0.5 m to the standing groundwater level. - The licensee must provide to the DEC each quarter copies of a written log used to record the leachate levels in the sump.		
Landfill Gas	"Wood waste" is any unprocessed timber or green waste and any processed timber and green waste	- The licensee must monitor the concentration of methane in all stockpiled materials which contains wood waste located over landfilled waste at the premises. - The monitoring must be undertaken at least every three months and five readings must be taken at a depth of at least 50 centimetres into each stockpile at a height of no more than one metre off the surface of the landfilled waste. - The monitoring results including sampling locations and date of sampling, analysis results and instrument details (including calibration) must be recorded by the licensee. - The instrument be used to monitor methane must be capable of measuring methane to concentrations as low as 500 parts per million. - The licensee must take immediate action if methane concentrations/levels exceed 500 parts per million (parts per million) in any wood waste stockpile at the premises, by aerating the stockpiles to lower the methane concentrations to less than 500 parts per million.		Yes

Task	Details		Reference (where applicable)	Applicable prior to commencement of landfill closure (Yes/No)
Waste	Site is licensed to receive general solid waste (non-putrescible, no garden or wood waste), waste tyres, asbestos waste and any waste below the licensing thresholds	- All asbestos waste must be disposed at the Premises in accordance with the document titled 'Filling Plan' dated May 2012 prepared by Genesis and correspondence from the Licensee dated 21 June 2012 titled 'Alexandria Landfill Pty Ltd, Disposal of Asbestos Waste EPL 4,627' - All asbestos waste must be covered immediately to a depth of at least 0.15 metres and at the end of each day's operation, to a depth of 0.5 metres as per the requirements of Clause 42 of the POEO (Waste) Regulation 2005	Schedule 1 of the *POEO Act*	No
Noise	Noise from the premises must not exceed an LA10 (15 minute) noise emission criterion of 50dB (A) except as expressly provided by this licence			Yes
Potentially offensive odour	No condition of this licence identifies a potentially offensive odour for the purposes of Section 129 of the *POEO Act 1997*	Section 129 of the POEO Act 1997 indicates that the licensee must not cause or permit the emission of an offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour	Section 129 of the *POEO Act 1997*	Yes
Dust	All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises			Yes

Task	Details	Reference (where applicable)	Applicable prior to commencement of landfill closure (Yes/No)
Stormwater	- The tipping face must be surrounded by a 300 millimetre high impermeable bund which will prevent stormwater from flowing across the tipping face - Any stormwater which comes into contact with waste (other than inert waste), the tip face and/or the green waste areas must be managed in the same manner as leachate - Stormwater run-off from quadrant A and C must not enter quadrant B, unless otherwise approved by the EPA - The licensee must treat the liquid in the stormwater pond in quadrant C as leachate. The EPA would vary this condition to permit the water to be managed as stormwater provided the licensee can provide evidence to demonstrate that the water does not contain leachate		Yes

Table 15 Monitoring and management requirements stipulated in EPL 12,594

Task	Details		Reference	Applicable prior to commencement of landfill closure (Yes/No)
Dust monitoring	Dust Monitoring Points: DG1, DG2, DG3, DG4	PM10 (grams per square metre per month) quarterly in accordance with Australian Standard 3580.10.1-2003 The POEO (Clean Air) Regulation 2010 requires testing for certain Analytes as per the Methods for the Sampling and Analysis of Air Pollutants in NSW	Diagram attached to the letter to the Environment Protection Authority dated 30 January 2012 The POEO (Clean Air) Regulation 2010	Yes
Weather monitoring	- The licensee must monitor by sampling and obtaining results by analysis the parameters specified - The licensee must use the sampling method, units of measure, averaging period and sample at the frequency specified below: • Rainfall (millimetres) daily in accordance with sampling method AM-4 • Wind Speed at two metres (metres per second) continuous with a three hourly averaging period in accordance with sampling method AM-2 and AM-4 • Wind Direction at two metres continuous with a three hourly averaging period in accordance with sampling method AM-2 and AM-4 • Temperature at two metres (ºC) continuous with a three hourly averaging period in accordance with sampling method AM-4			Yes
Groundwater monitoring	Refer requirements of EPL 4,627			Yes
Leachate monitoring	Refer requirements of EPL 4,627			Yes

Task	Details		Reference	Applicable prior to commencement of landfill closure (Yes/No)
Waste	Waste Storage and Resource Recovery	The following wastes received at the premises must meet the following conditions: - Foundry Sands: As defined in the foundry sand in recovered aggregate exemption 2008 - Soils: That meet the CT1 thresholds for General Solid Waste in Table 1 of the Waste Classification Guidelines in accordance with the following limits: Arsenic (40 milligrams per kilogram), cadmium (two milligrams per kilogram), copper (200 milligrams per kilogram), mercury (1.5 milligrams per kilogram), zinc (600 milligrams per kilogram), TPH C6-C9 (150 milligrams per kilogram) TPH C10-C36 (16 milligrams per kilogram), PAHs (80 milligrams per kilogram), PCBs (individual) (1 milligrams per kilogram) No potential or actual acid sulfate soils is to be received at the premises - Garden Waste, Wood Waste, Metal Waste, Glass, Plastic, Building and Demolition Waste: As defined in Schedule 1 of the POEO Act 1997 Maximum of 240,000 tonnes of waste processed per annum - General or Specific exempted Waste: Waste that meets all the conditions of a resource recovery exemption under Clause 51A of the POEO (Waste) Regulation 2005 - Waste: Any waste received on site that is below the licensing thresholds in Schedule 1 of the POEO Act 1997 - No disposal of landfilling of waste must occur at the premises		No

Task	Details		Reference	Applicable prior to commencement of landfill closure (Yes/No)
	Stockpiles	- By 10 April 2012, the licensee must install a permanent stockpile height marker for all stockpiles located within 50 metres of properties at 2 Bishop St, St Peters that shows the height of 3 m so that a visual check can be made against the marker to determine the height of the stockpiles - Stockpiles of waste or recovered material (including stockpiled materials already processed on site) must not exceed the following limits: Wood waste for reuse – 2000 tonnes Shredded wood waste and garden waste – 2000 tonnes Metal, Glass, Plastic – 500 tonnes each Building and Demolition Waste – 180,000 tonnes - Stockpiles of processed or unprocessed waste (except bitumen) with particle size less than 20 mm should only be located within the Pit Are of the premises as shown on Plan 1 – General Layout – Proposed Waste Transfer Station dated 27/10/005 within development consent No. 11646 of 2004 issued by the Land and Environment Court of New South Wales on 28 September 2006 - Height of stockpiles as per EPL 4,627 - All stockpiles of waste within 75 metres of the north and north-western boundary of the premises must be located behind the physical barriers being shipping containers and walls in accordance with specifications outlined in Dial-A-Dump Industries letter dated 26 February 2010 (EPA Reference DOC10/9109) - Waste processing, crushing and grinding activities must only occur below eight metres RL and at the locations shown on Plan 1 – General Layout – Proposed Waste Transfer Station dated 27/10/005 within development consent No. 11646 of 2004 issued by the Land and Environment Court of New South Wales on 28 September 2006		No
Potentially offensive odour	Refer requirements of EPL 4,627			Yes

Task	Details	Reference	Applicable prior to commencement of landfill closure (Yes/No)
Surface Water and Leachate Management	- The licensee must operate the facility in accordance with the document titled "Alexandria Landfill Site Revised Surface Water and Leachate Management Plan" dated September 2004, prepared by Ian Grey Consulting Pty Limited (Report ID AJ001/Rp003 Rev D) - All stormwater and stormwater treatment devices (including drainage systems, sumps and traps) must be regularly maintained		No
Landfill Gas	Refer requirements of EPL 4,627, with the exception of the addition: - The licensee must notify the EPA as soon as practicable and in any case within 48 hours after it becomes aware of methane concentrations in any wood waste stockpile exceeding 12,500 parts per million		Yes
Stormwater	- By 17 September 2012 the licensee must install the new stormwater drain and dam system in accordance with the document titled 'Filling Plan' dated May 2012 prepared by Genesis - Within two weeks of installing the stormwater drain and dam the licensee must submit to the EPA as built design drawings		No
Dust	- Dust spray systems must be installed and operated to minimise dust from all stockpiles and processing areas at the facility - Dust sprays and/or dust collection systems must be installed and operating on all crushing, grinding and screening equipment at the facility - The licensee must ensure that all stockpiles are wetted prior to waste being removed from them for processing, and that during processing, they are kept wet and high-pressure water sprays are utilised to prevent the mitigation of dust - The vehicle routes in use around the premises, except for concrete hardstands, are to be kept damp from 0700 to 1700 Monday to Friday and 0700 to 1600 Saturday		Yes

Table 16 Existing monitoring and management requirements as stipulated in TWA 29304

Task	Details	Applicable to Closure Phase (Yes/No)
Trade Waste Water	- The Customer may discharge trade wastewater into the Sewer in a manner whereby the substance characteristics of the trade wastewater are of a type and discharged at a rate, level or concentration equal to or less than that described in this schedule - Analyte Limits: Ammonia as N: Long Term Average Daily Mass (LTADM) 1.5 kilograms per day Maximum Daily Mass (MDM) 25 kilograms per day Standard 100 milligrams per litre Suspended Solids: LTADM 5 kilograms per day MDM 20 kilograms per day Standard 600 milligrams per litre Total Dissolved Solids: LTADM 450 kilograms per day MDM 674 kilograms per day Standard 1000 milligrams per litre Barium: LTADM 0.21 kilograms per day MDM 1 kilograms per day Standard 5 milligrams per litre Iron: LTADM 0.7 kilograms per day MDM 4 kilograms per day Standard 50 milligrams per litre - Property Limits: Temperature: Not to exceed 38 degrees Celsius Colour: Determined on a system specific basis pH: Within the range 7.0 to 10.0 Fibrous material: None which could cause obstruction to Sydney Water's sewerage system Gross solids (other than faecal): A maximum linear dimension of less than 20 millimetres, a maximum cross section dimension of six millimetres and a quiescent setting velocity of 3m/h Flammability: Where flammable and/or explosive substances may be present, the customer must demonstrate to the satisfaction of Sydney Water that there is no possibility of explosions or fires occurring from the sewerage system. The flammability of the discharge must never exceed five per cent of the Lower Explosive Limit (LEL) at 25 degrees Celsius. - Rate of discharge: Instantaneous maximum rate of gravitated discharge six litres per second Maximum daily discharge 620 kilolitres Average daily discharge 121 kilolitres - Sampling Analysis, flow rates and volume determination as per **Appendix C**	Yes

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9.2 Post closure phase monitoring and management requirements

The following table summarises proposed monitoring activities to be undertaken at the site post construction of final landform (e.g. capping). It is anticipated that one EPL would be adapted for the site post closure with details regarding the specific monitoring locations and targets to be confirmed following completion of the construction phase. The monitoring requirements stipulated below are largely based on the existing monitoring requirements for EPL 4,627, EPL 12,594 and TWA 29,304.

Table 17 Proposed post closure monitoring and management summary

Task	Details	
Groundwater quality monitoring	Locations to be confirmed post construction phase	- Standing water level monitored quarterly - Quarterly Analytes: Alkalinity (CaCO3), bicarbonate, calcium, chloride, magnesium, nitrogen (ammonia), pH, potassium, sodium, sulfate, total dissolved solids (TDS) - Annual Analytes: Aluminium, arsenic, barium, benzene, cadmium, chromium (hexavalent), chromium (total), cobalt, copper, ethylbenzene, fluoride, lead, mercury, nitrate, nitrite, OCPs, OPPs, PAHs, toluene, TOC, TPH, total phenolics, xylenes and zinc Additional monitoring requirements to be undertaken in accordance with the approved Groundwater and Leachate Monitoring Plan (**Appendix F**)
Leachate quality monitoring	Locations to be confirmed post construction phase	- The licensee must measure the level of leachate daily, prior to pumping from the leachate sump - Standing water level quarterly (same date as analysis below) - Quarterly Analytes: Alkalinity (CaCO3), bicarbonate, calcium, chloride, magnesium, nitrogen (ammonia), pH, potassium, sodium, sulfate, TDS, Aluminium, arsenic, barium, benzene, cadmium, chromium (hexavalent), chromium (total), cobalt, copper, ethylbenzene, fluoride, lead, mercury, nitrate, nitrite, OCPs, OPPs, PAHs, toluene, TOC, TPH, total phenolics, xylenes and zinc Additional monitoring requirements to be undertaken in accordance with the approved Groundwater and Leachate Monitoring Plan (**Appendix E**)
Leachate	Defined as water which has come into contact with waste/the tipping face/the green waste processing/storage areas, liquid removed from the leachate collection system, treated or untreated	- Leachate must only be disposed of by pumping to sewer, or removed from the premises by tanker and disposed of lawfully off-site - Leachate must not be used in the truck was facility at the premises - Leachate must not be irrigated and/or used for dust control at the premises - The licensee must ensure containment by maintaining an inward hydraulic gradient - The licensee must notify DEC of the actions it will take to dispose of leachate in compliance with the conditions of this licence, in the event that it no longer has an agreement with Sydney Water to dispose of up to 792 kilolitres per day of treated leachate to sewer. This advice must be provided to DEC within seven days of the licensee no longer having access - The licensee must notify EPA as soon as practicable and in any case within 48 hours after it becomes aware that the leachate level in the riser is has exceeded the proposed target depth - The licensee must provide to the EPA each quarter copies of a written log used to record the leachate levels in the sump Additional monitoring and management requirements to be undertaken in accordance with the approved Leachate Extraction Management Plan (**Appendix G**) and the approved Groundwater and Leachate Monitoring Plan (**Appendix F**)

Task	Details	
Landfill Gas	Landfill gas system requirements and monitoring to be undertaken in accordance with the approved Landfill Gas Extraction Management Plan in **Appendix H**	
Capping	Regular surface integrity inspections would be conducted to confirm requirements for capping improvement works. Monitoring would be conducted in accordance with Section 9.2 (p. 55) of the NSW EPA (2015) Draft Environmental Guidelines: Solid Waste Landfills 2nd Edition	
Noise	Noise from the premises must not exceed an LA10 (15 minute) noise emission criterion of 50dB (A) except as expressly provided by the new EPL	
Potentially offensive odour	No condition of the existing EPL identifies a potentially offensive odour for the purposes of Section 129 of the *POEO Act 1997*	Section 129 of the POEO Act 1997 indicates that the licensee must not cause or permit the emission of an offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour
Dust	All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises	

10.0 Operational responsibilities and reporting requirements

10.1 Operational responsibilities

The current operational responsibilities for the site are summarised in **Table 18**. It is noted that the required operational items and associated responsibilities are likely to change as work on site progresses, particularly during the post closure phase of monitoring. As such, a Site Management Plan (SMP) detailing site operations, roles and responsibilities would require preparation by the landfill/remediation contractor. The operational responsibilities outline therein should be updated regularly to reflect changing compliance requirements. It is noted that the ongoing management of the site is the responsibility of the landfill/remediation contractor.

Table 18 Current operational responsibilities

Item	Description	Compliance requirement of:
Site Management	- A nominated Site Manager must be present during the hours of operation - Access to the site will be controlled - Site will be securely fenced	EPL 12,594
Hours of Operation	- Processing of materials and arrival and departure of trucks: 0700 to 1800 Mon to Fri and 0730 to 1600 Sat - For inward movement of goods only (no processing or outward movement): 0900 to 1500 Sun and on public holidays for trucks less than two tonne - For maintenance and office activities: 0700 to 1900 Mon to Fri and 0730 to 1700 Sat	EPL 12,594
Stockpile Management	- The height of any stockpile of waste within 50 metres of properties located at 2 Bishop Street must not exceed three metres. - All stockpiles of waste	EPL 12,594
Dust Management	- Dust spray systems must be installed and operating to minimise dust from all stockpiles and processing areas at the facility - Dust sprays and/or dust collection systems must be installed and operating on all crushed, grinding and screening equipment at the facility - All stockpiles are wetted prior to waste being removed from them for processing, and that during processing, they are kept wet and high-pressure water sprays are utilised to prevent the migration of dust - Vehicle routes in use around the premises, except for concrete hardstands, are to be kept damp from 0700 to 1700 Mon to Fri and 0700 to 1600 Sat	EPL 12,594
Preventing Fires	- All operations and activities occurring at the premises must be carried out in a manner that will prevent and minimise the risk of fire at the premises - Any fires at the premises must be extinguished as soon as possible	EPL 12,594
Wheel Wash	- All vehicles leaving the site must be first put though an operating wheel wash except those that have been in the landfilling or the material processing areas	EPL 12,594

10.2 Reporting frequency

The current reporting responsibilities for the site are summarised in **Table 19**.

Table 19 Current reporting responsibilities

Item	Frequency	Description	Compliance requirement of:
Annual Report	Annual	An annual return is to be prepared that includes: - A statement of EPL compliance; and - A summary of monitoring results and complaints register	EPL 4,627 and EPL 12,594
Notification of Material Harm	Each occurrence		EPL 4,627 and EPL 12,594
Waste Levy Reporting	Monthly	Record all materials entering and leaving the site using the site weighbridge and software to enable monthly Section 88 reporting to the EPA utilising the WMCR online system and e-certify the monthly report	Section 88 of the POEO Regulation
Volumetric Survey	Biannual	Volumetric survey of the premises carried out by a registered surveyor: - During June in each year and provided to the EPA in the approved form and manner by no later than 31 July in that year; and - During December in each year and provided to the EPA in the approved form and manner by no later than 31 January in that year	EPL 12,594
TWA Reporting	22 day intervals in accordance with TWA	Submit results of composite sampling analysis to Sydney Water within 21 days from the date the sample was collected.	TWA consent No:29304

Note: During landfill closure works (from the access date to the site of the preferred landfill/remediation contractor) and during the defect liability period completed “Construction works, including landfill closure works”, these responsibilities are expected to be undertaken by the environmental management representative for the project (subject to EPA approval).

Following completion of landforming works, including final capping, installation of the new leachate treatment plant and landfill gas management system, the monitoring plan and reporting requirements would be amended to reflect the revised site conditions in accordance with the management plans in provided in **Appendices F, G** and **H**.

11.0 Closure phase communications and reporting

11.1 Communications protocols

Relevant site contact details for the landfill/remediation contractor shall be documented in the SMP to be prepared by the landfill/remediation contractor.

11.2 Environmental audit schedule

The landfill/remediation contractor would prepare an audit schedule and develop audit tools to examine the effective implementation of the WHS Management System, assess compliance and drive continuous improvement. Audit tools would include the following:

- Workplace audit;
- Mobilisation/Systems audit; and
- Weekly inspection.

Site Audits would be carried out monthly by the landfill/remediation contractor or their representatives on a monthly basis.

Formal weekly inspections would be carried out by the site management team and contractor supervision. The inspection is a forum to identify any hazards that may exist in the workplace or the work being carried out. Any hazards identified during inspections would be reported to company management using the checklist, which would be retained on file for the duration of the project to which it relates.

Identified hazards would be controlled using the recommended control measures taking into account the hierarchy of risk control measures. Immediate controls would be implemented wherever possible to eliminate or minimise the risk associated with an identified hazard.

11.3 Annual document review

The appendices of this plan are living operational documents that will be reviewed and revised annually (or by an date or frequency agreed with the EPA). Additional updates of the plan may be required to address:

- Changes to legislative requirements;
- Outcomes of environmental audit activities (if undertaken);
- Any potential environmental, health or safety risk;
- The adequacy of monitoring activities; and
- Advancements in applicable technologies.

Any updates of the plan appendices are to be controlled and maintained in a document register administered by the landfill/remediation contractor.

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12.0 Certified Statement of Completion

In accordance with requirements outlined in NSW EPA (2015), when sufficient evidence can be provided that the landfill is stable and non-polluting, the occupier may seek to complete all obligations and retrieve any financial assurance by submitting a certified statement of completion to the EPA. This statement must certify that the LCMP has been implemented, remediation work has been completed, and further environmental management of the premises is not required. This stage may not be reached until 30 years after the site stops receiving waste.

The certified statement of completion should demonstrate the following criteria have been met:

- Gas concentration levels in all perimeter gas wells have fallen to less than one per cent methane (volume/volume) and less than 1.5 per cent carbon dioxide for a period of 24 months.
- Analysis of the leachate composition indicates low levels of contamination posing no hazard to the environment, and surface water and groundwater monitoring indicates no water pollution. These matters should be addressed in accordance with the relevant published water quality guidelines.
- The landfill final capping has been assessed over some years and found to be in good condition and stable, with acceptable stormwater drainage and with no evidence of erosion, cracking, dead vegetation, ponding, differential settlement or slope instability.
- The level of suspended solids in rainwater running off the final capping should be less than 50 milligrams per litre.
- The methane concentration at the surface of the final capping should not exceed 500 parts per million at any point.
- The closed landfill no longer poses an adverse amenity risk. It does not generate offensive or excessive odour, dust, noise, litter and debris, present a fire risk, or attract scavengers and vermin.
- All other requirements of the Closure Plan and Surrender Notice have been completed and/or satisfied. Once the EPA has approved the certified statement of completion, the last licensee can stop maintaining and monitoring the site and any financial assurance requirements will lapse.

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13.0 References

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AECOM (2014a). *Phase 1 Environmental Site Assessment, Alexandria Landfill Acquisition Area, St Peters, NSW* . Draft, 3 November.

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Appendix A

Figures and Design Drawings

Appendix A Figures and Design Drawings

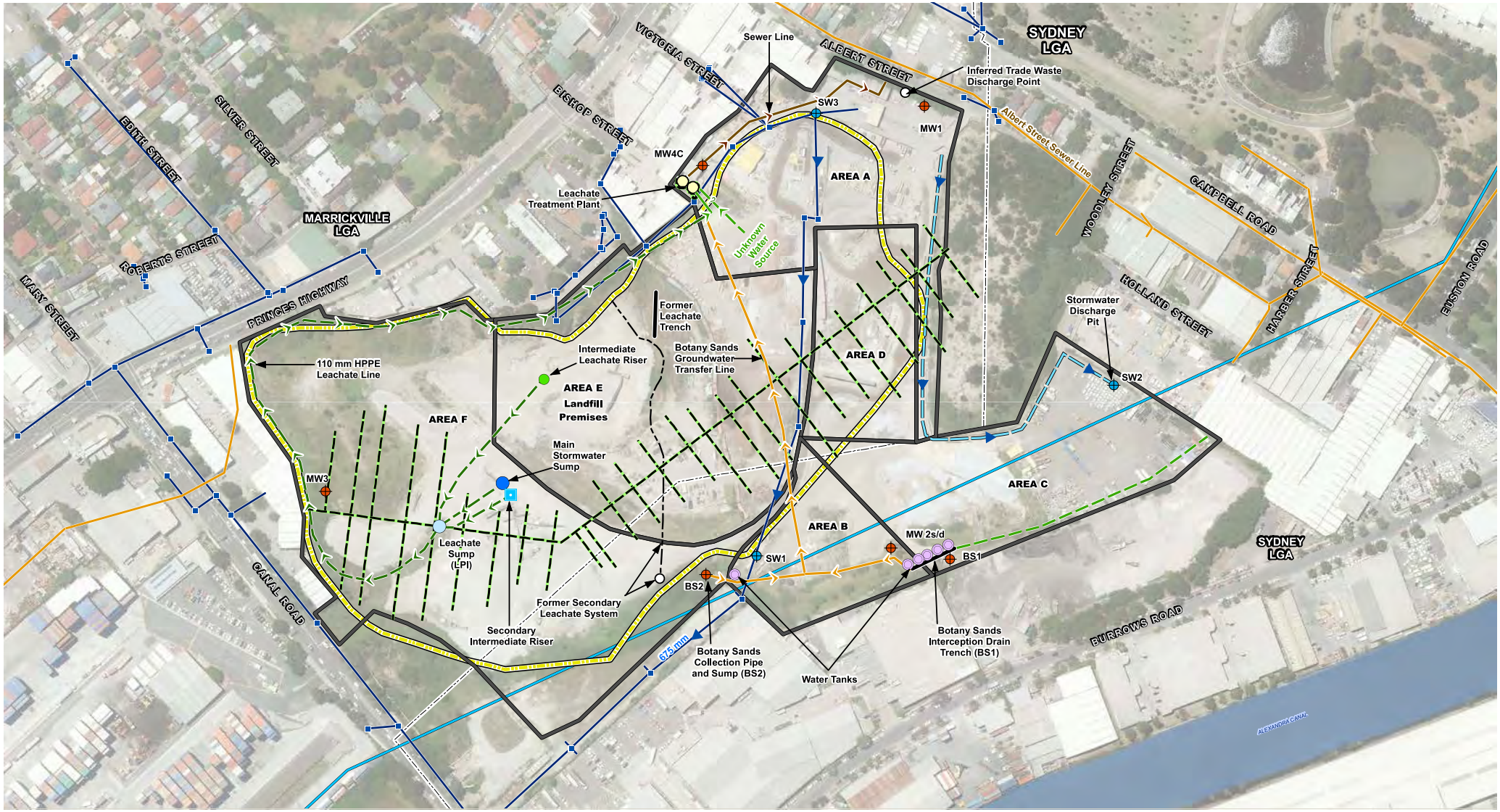
WESTCONNEX STAGE 2
Alexandria Landfill
Closure Management Plan

Figure 1: Site Location

0 0.75 1.5 3 km

MAY 2015

60327128



KEY

- Area Boundaries
- Quarry Pit Extent
- Local Government Area
- Desalination Pipeline
- Stormwater Drainage Line
- Concrete Dish Drain
- Groundwater Sampling Location
- Indicative Location of Herringbone Drainage
- Former Surface Drain
- Stormwater Drainage Line
- Botany Sands Transfer Line
- Leachate Transfer Line
- Sewer Discharge Line

0 50 100 m

CONFIDENTIAL GIS MAP

SCALE	1:2,750
	A3
SHEET	1 of 1
COORDINATE SYSTEM	GDA 1994 MGA Zone 56

TITLE WestConnex Motorway

FIGURE 2: Site Layout
Alexandria Landfill Closure Management Plan

PROJECT

WESTCONNEX STAGE 2 TA

CLIENT

WESTCONNEX DELIVERY AUTHORITY

DRAWN	PROJECT #	MAP #	REV	Project
DN	60327128			
CHECK	DATE			
	7/05/2015	G142 01 60327128		

WestConnex
Building for the future

AECOM

LEGEND

- EXTENT OF SITE CAPPING AND WASTE PLACEMENT
- RISER PIPELINE
- MAIN FEEDER DRAINS AND GAS COLLECTION (REFER NOTES 1 & 5)
- WASTE MOUND FEEDER DRAINS AND GAS COLLECTION (REFER NOTE 2)
- COLLECTOR DRAIN (SEE NOTE 3)
- LEACHATE COLLECTORS (REFER LINER DETAIL ON M5-LDS-DWG-700-390-TW-9140)
- LEACHATE FEEDER DRAINS ABOVE BASE LINER (REFER NOTE 6)
- LEACHATE FEEDER DRAINS BELOW BASE LINER (REFER NOTE 7)
- EXISTING LEACHATE COLLECTION SYSTEM MAINTAINED BY WDA
- GV — PROPOSED GAS VENT (REFER NOTE 4)
- A B G — LEACHATE SUMP / STORAGE TANKS
- C — EXISTING Ø2.1m LEACHATE RISER / SUMP WELL
- D — FUTURE LEACHATE EXTRACTION WELL FIELD (6 No. WELLS)
- E — EXISTING BOTANY SANDS GROUNDWATER EXTRACTION SYSTEM TO BE RETAINED
- F — PROPOSED TREATED LEACHATE DISCHARGE POINT

NOTES

1. Ø150mm PERFORATED HDPE PIPE LOCATED IN 350mm SQUARE GRAVEL TRENCH AT 10m CENTRES.
2. Ø100mm PERFORATED HDPE PIPE LOCATED IN A 300mm SQUARE GRAVEL TRENCH AT 20m CENTRES.
3. Ø375mm HDPE PIPE WITH 600mm SQUARE CONCRETE PITS AT MAX 200m CENTRES. ALLOW FOR VENTING OF PITS.
4. GAS VENTS AT 50m SPACING IN GAS COLLECTOR PIPES. Ø200mm GALVANISED VENT PIPE TO BE 3m HIGH AND PROTECTED BY A 1.8m HIGH PERIMETER FENCE.
5. FEEDER DRAINS BELOW PAVEMENT COULD BE REPLACED BY A PERMEABLE LAYER BELOW PAVEMENT.
6. Ø150mm PERFORATED HDPE PIPE AT 25m CENTRES.
7. Ø100mm PERFORATED HDPE PIPE AT 20m CENTRES IN A 300mm SQUARE GRAVEL TRENCH

INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY ONLY AND SUBJECT TO ADJUSTMENT DURING DETAILED DESIGN STAGE

REV	DATE	DESCRIPTION	D RAWN	RE VIEWED	APPROVAL
A	03.07.15	ISSUED FOR INFORMATION	SG	RH	BD

TITLE	INITIAL	DATE
D RAWING DESIGN	SG	03.07.15
D RAWING CHECK		
DESIGNER		
DESIGN CHECK		
DESIGN MANAGER		
PROJECT DIRECTOR		

ORIGINAL D RAWING AT A3 SIZE
SCALE 1:2000 (20 0 20 40 AT A3)
CO-ORDINATE SYSTEM: MGA Zone 56 — HEIGHT DATUM: A.H.D.

CLIENT: NSW GOVERNMENT — Transport WestConnex Delivery Authority

LEIGHTON HOLDINGS SAMSUNG C&T JOINT VENTURE: LEIGHTON CONTRACTORS · DRAGADOS · SAMSUNG · SAMSUNG C&T · WestConnex STAGE 2 M5 · aurecon · JACOBS · HASSELL

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ST. PETERS INTERCHANGE
LEACHATE TREATMENT AND GAS COLLECTION
PASSIVE SYSTEM
GENERAL ARRANGEMENT PLAN

STATUS: **SKETCH FOR INFORMATION**

REF. APP 2 - TENDER INFORMATION REQUIREMENTS VOLUME:

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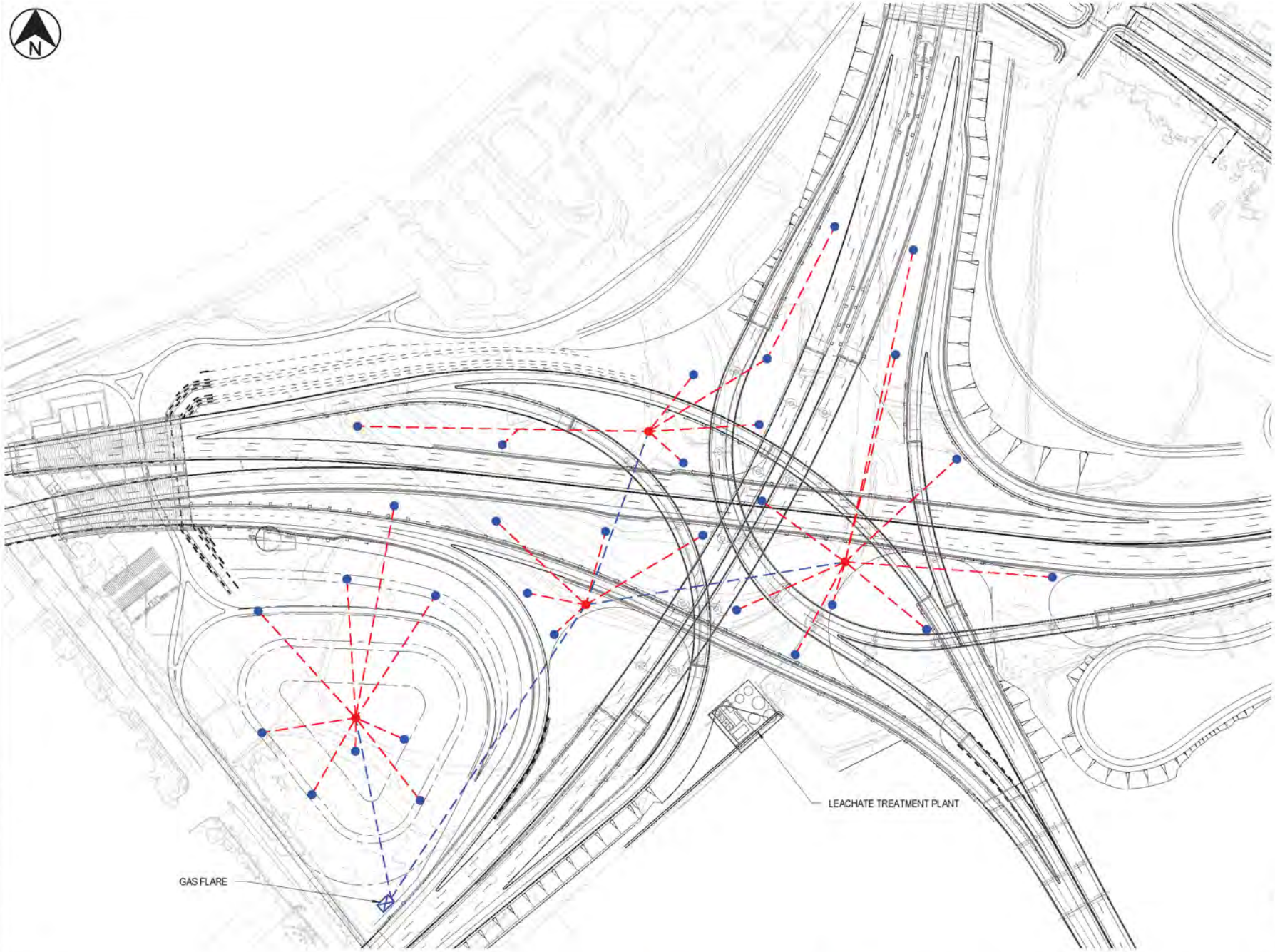
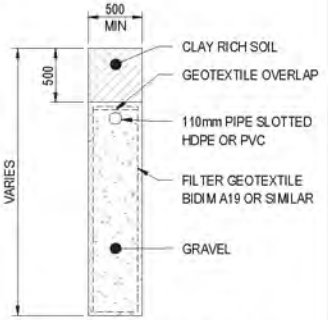


LEGEND

- GAS WELL
- MANIFOLD
- PIPES (FLOW LINES)
- HEADER LINES



TYPICAL LFG COLLECTION TRENCH
SCALE 1:50

NOTES:

1. LOCATION OF LFG COLLECTION TO BE DETERMINED IF LFG TRENCH NEEDED.

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TITLE	INITIAL	DATE
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D RAFTING CHECK		
DESIGNER		
DESIGN CHECK		
DESIGN MANAGER		
PROJECT DIRECTOR		

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CO-ORDINATE SYSTEM: MGA Zone 56 HEIGHT DATUM: A.H.D.

CLIENT: NSW GOVERNMENT Transport WestConnex Delivery Authority

LEIGHTON HOLDINGS SAMSUNG C&T JOINT VENTURE
DRAGADOS SAMSUNG C&T
WestConnex STAGE 2 M5
aurecon JACOBS HASSELL

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ST. PETERS INTERCHANGE
LEACHATE TREATMENT AND GAS COLLECTION
ACTIVE SYSTEM
GENERAL ARRANGEMENT PLAN

INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY ONLY AND SUBJECT TO ADJUSTMENT DURING DETAILED DESIGN STAGE

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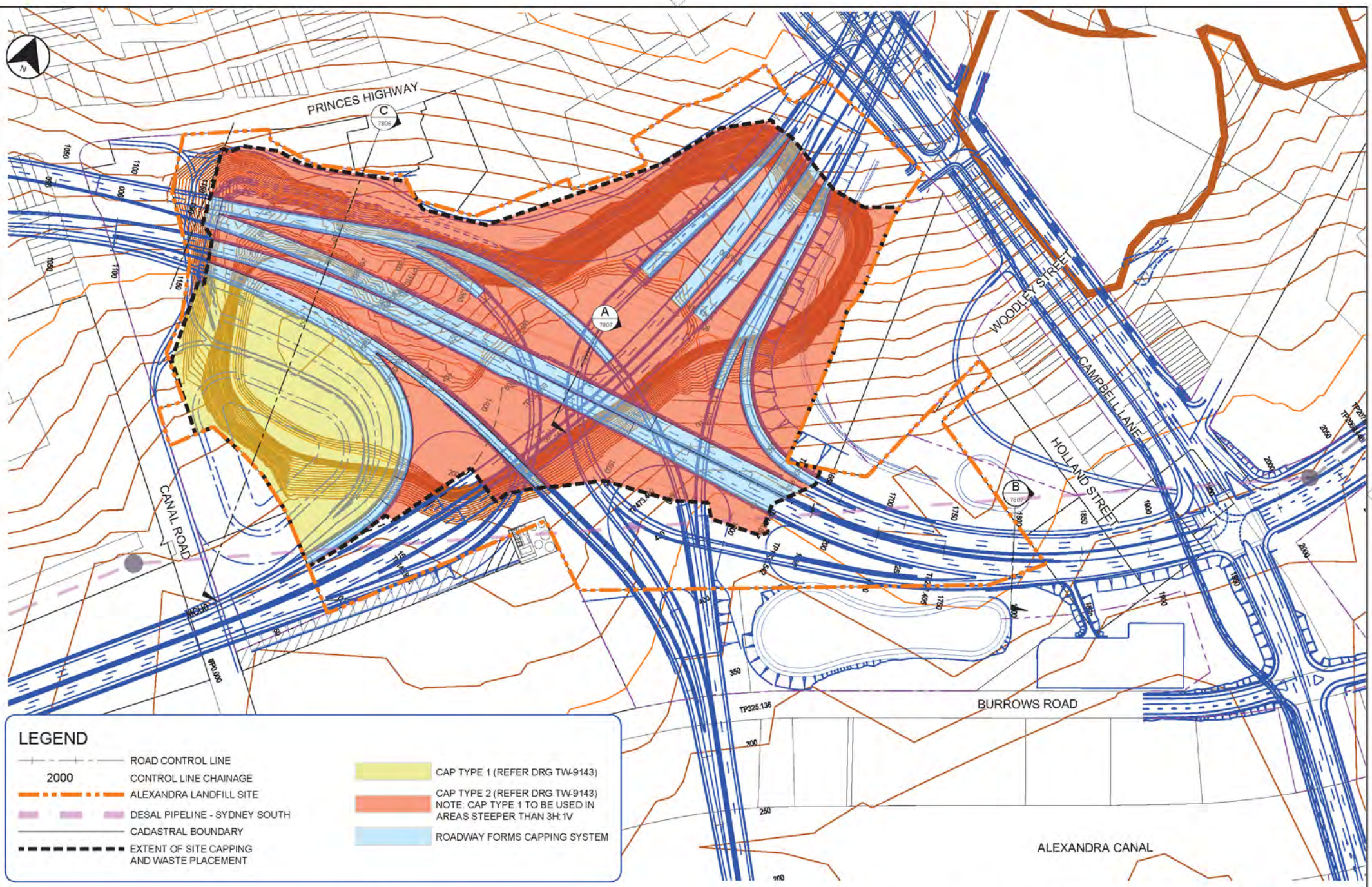

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TITLE	INITIAL	DATE
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D RAFTING CHECK		
DESIGNER		
DESIGN CHECK		
DESIGN MANAGER		
PROJECT DIRECTOR		

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CO-ORDINATE SYSTEM: MGA Zone 56 HEIGHT DATUM: A H D

CLIENT: NSW GOVERNMENT Transport WestConnex Delivery Authority

LEIGHTON-RAGADOS SAMSUNG C&T JOINT VENTURE: DRAGADOS SAMSUNG SAMSUNG C&T WestConnex STAGE 2 M5 aurecon JACOBS HASSELL

PROJECT: WESTCONNEX STAGE 2 NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ALEXANDRA LANDFILL CLOSURE PLANS EXTENT OF CAPPING

STATUS: SKETCH INFORMATION ONLY

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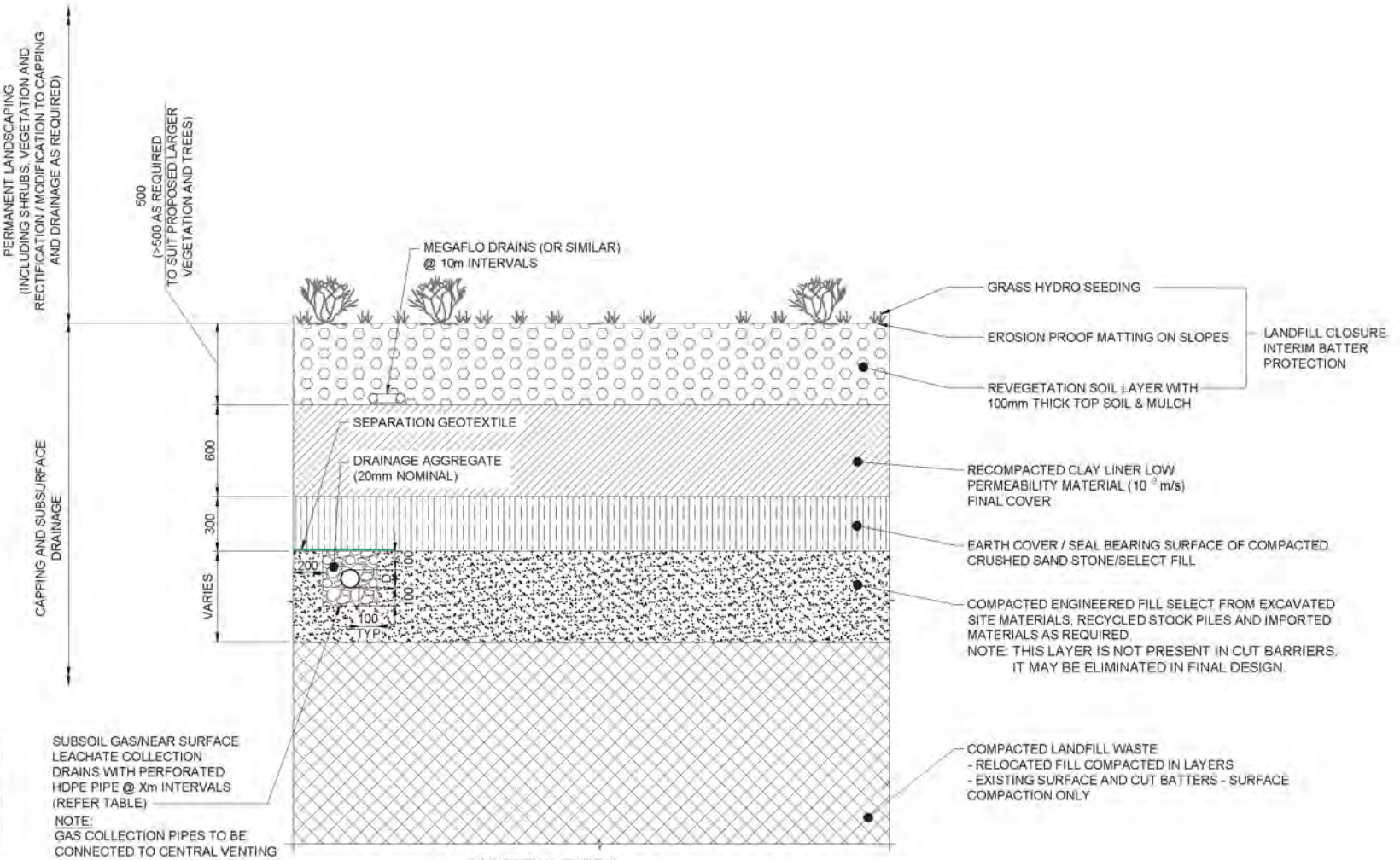

SUBSOIL GAS PIPE		
	DIAMETER D (mm)	SPACING X (mm)
CUT BATTERS	Ø150	10
WASTE MOUND	Ø100	20

CAP DETAIL TYPE 1
CUT BATTER STEEPER THAN 3H:1V
AND WASTE MOUND
NOT TO SCALE

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TITLE: ALEXANDRA LANDFILL CLOSURE PLANS TYPICAL CAPPING LAYER DETAILS SHEET 1

PROJECT: WESTCONNEX STAGE 2 NEW M5 MAIN WORKS DESIGN & CONSTRUCT

STATUS: SKETCH INFORMATION ONLY

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REV: A

CLIENT: NSW GOVERNMENT Transport WestConnex Delivery Authority

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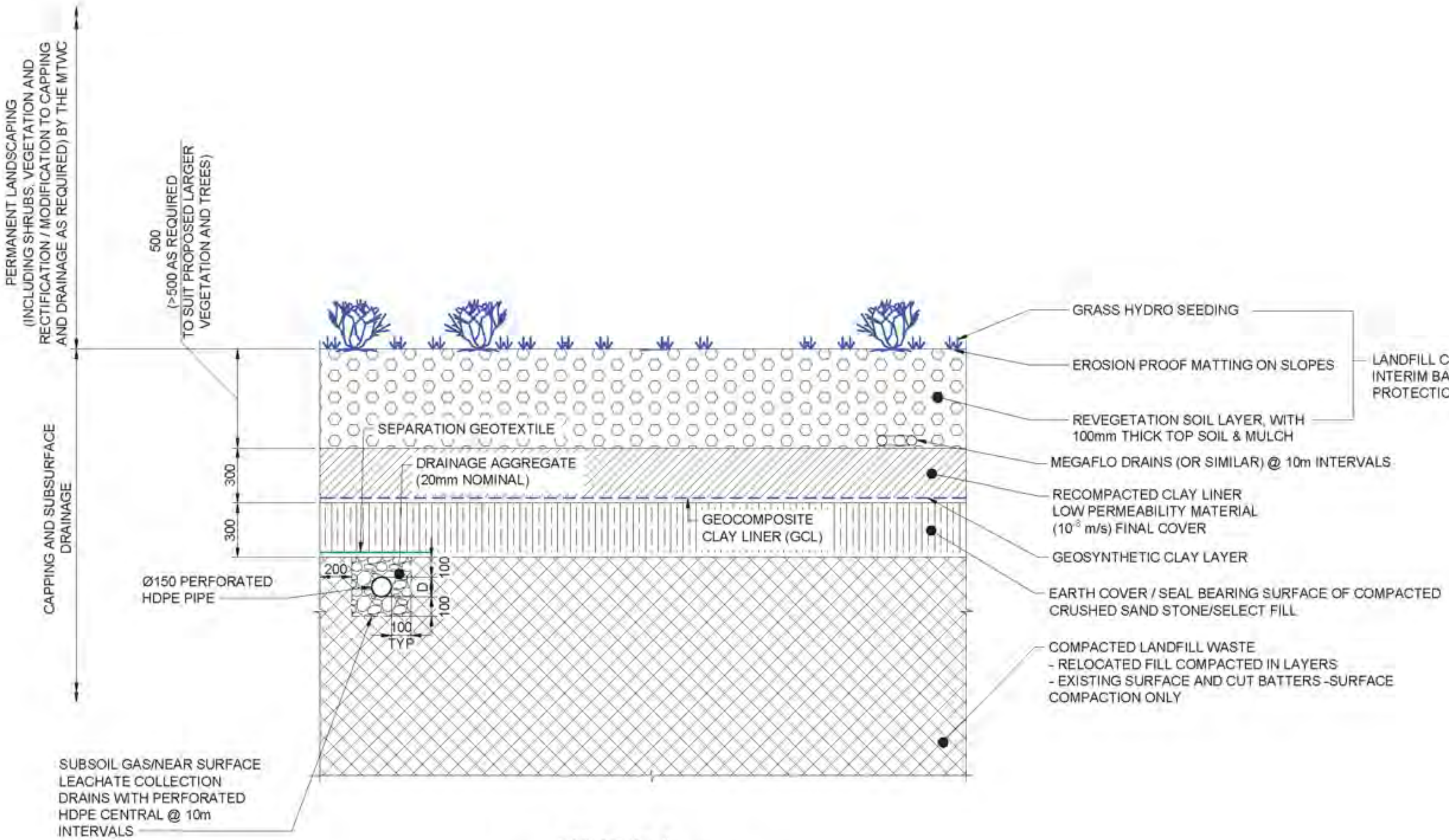

NOTE:
GAS COLLECTION PIPES TO BE CONNECTED TO CENTRAL VENTING POINTS REFER DRG. DR-7801.
PERFORATIONS TO BE 15mm.

CAP DETAIL 2
CUT BATTER IN WASTE
MAXIMUM SLOPE OF 3H:1V
NOT TO SCALE

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Transport WestConnex Delivery Authority — NSW Government

aurecon JACOBS HASSELL — WestConnex STAGE 2 M5

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ALEXANDRA LANDFILL CLOSURE PLANS
TYPICAL CAPPING LAYER DETAILS
SHEET 3

STATUS: **SKETCH INFORMATION ONLY**

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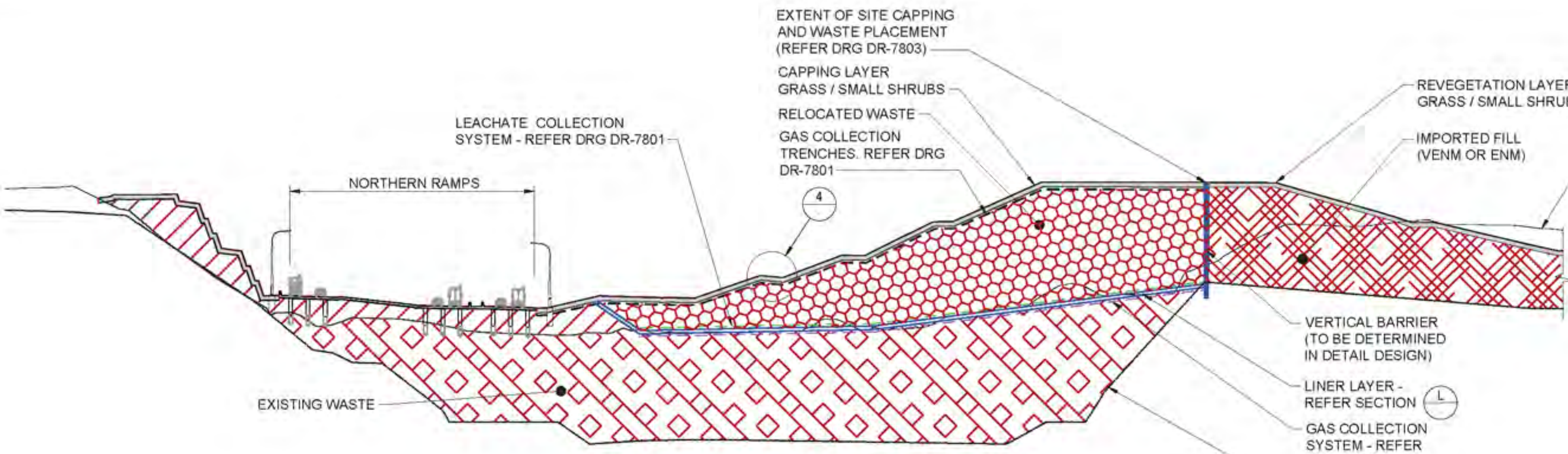

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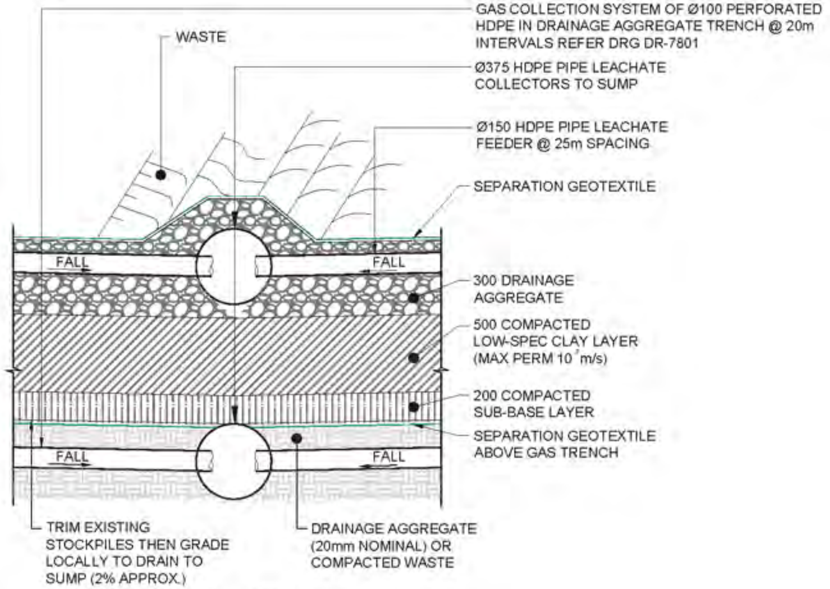

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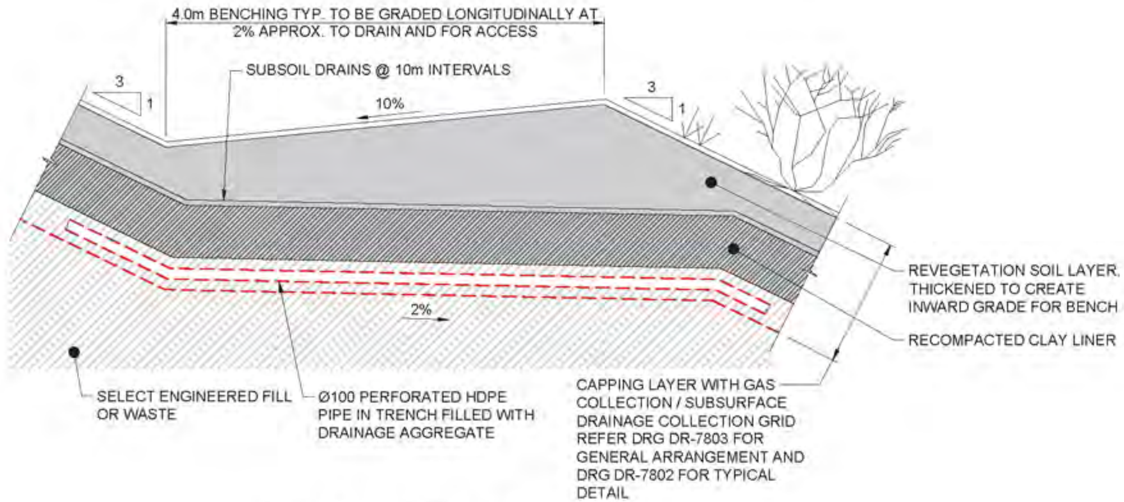

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DRAFTING CHECK		
DESIGNER		
DESIGN CHECK		
DESIGN MANAGER		
PROJECT DIRECTOR		

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SCALE 1:1000 — 10 0 10 20 AT A3
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0 | 5 | 10 | 15 | 20 | 20 mm ON A3 ORIGINAL
This Drawing may have been prepared using colour and may be incomplete if copied

CLIENT: NSW GOVERNMENT Transport WestConnex Delivery Authority

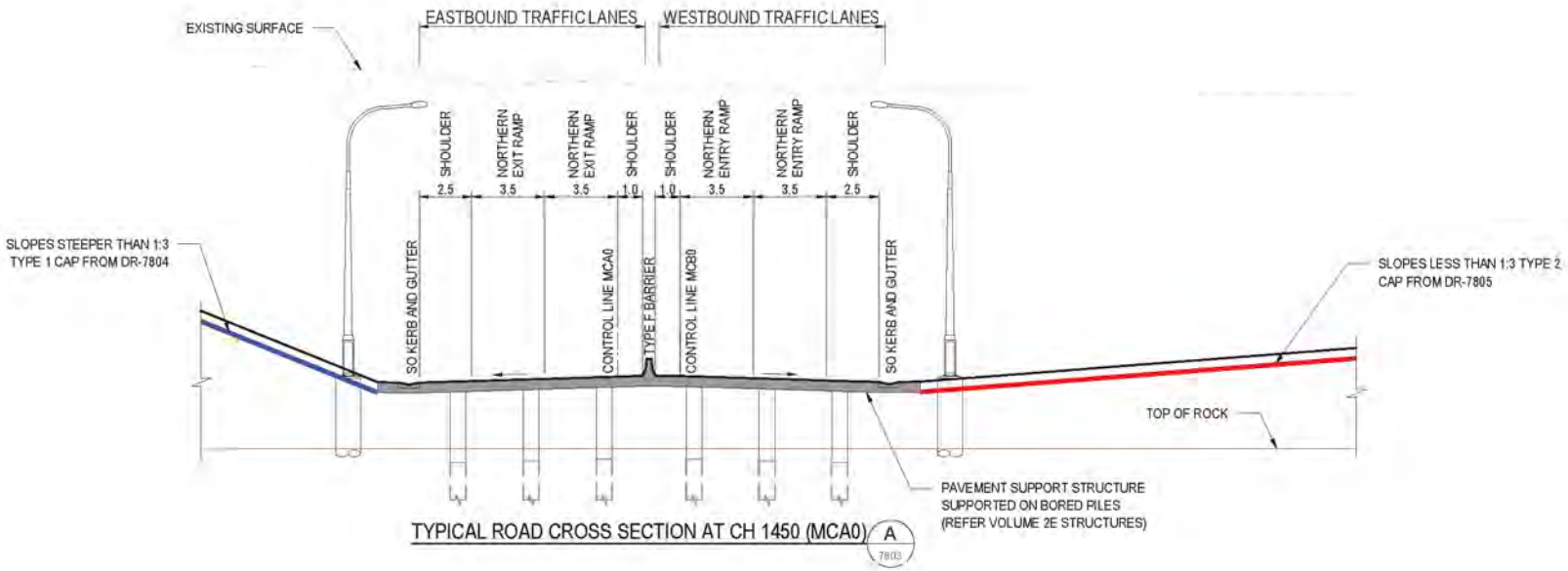
LEIGHTON DRAGADOS SAMSUNG C&T JOINT VENTURE
WestConnex STAGE 2 M5
aurecon JACOBS HASSELL Cardno

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

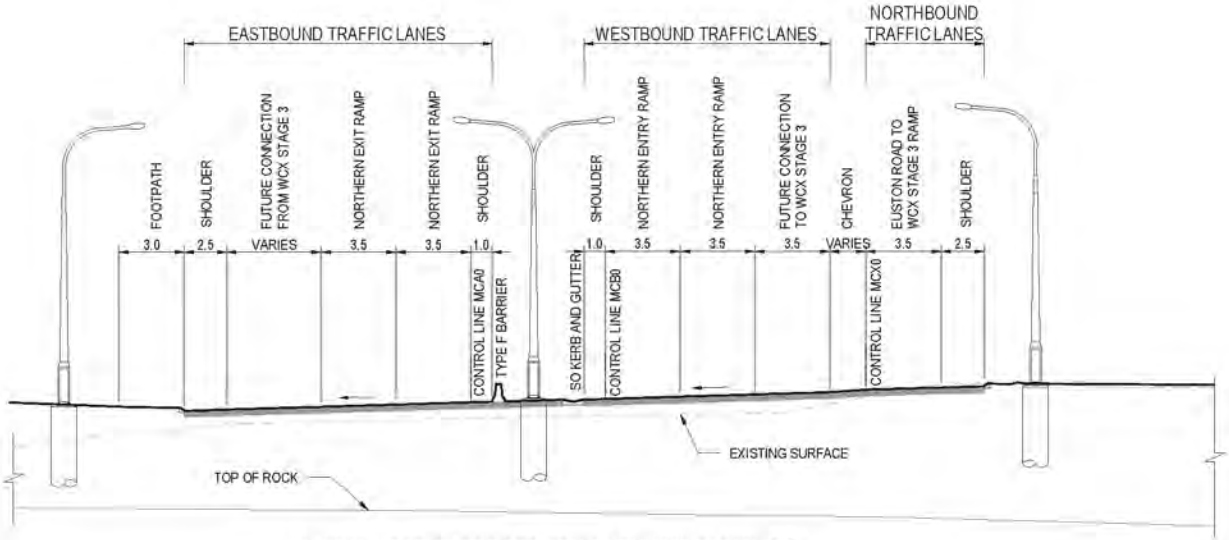
TITLE: ALEXANDRA LANDFILL CLOSURE PLANS
TYPICAL CROSS SECTIONS
MDA1 - SHEET 1

STATUS: SKETCH
INFORMATION ONLY

DRAWING NUMBER: M5-LDS-SKT-700-320-DR-7806
REV: A



TYPICAL ROAD CROSS SECTION AT CH 1450 (MCA0) A 7803



TYPICAL ROAD CROSS SECTION AT CH 1800 (MCA0) B 7803

REV	DATE	DESCRIPTION	DRAWN	REVIEWED	APPROVED
A	02.07.15	ISSUED FOR INFORMATION	BC	RH	DD

DRAWN DESIGN	BC	02.07.15	
DRAWING CHECK			
DESIGN MANAGER			
PROJECT DIRECTOR			

ORIGINAL DRAWING SIZE A1 SCALE 1:25 0.25 0 0.75 0.50 AT A3

CLIENT: NSW Government — Transport WestConnex Delivery Authority

LEIGHTON WATPAC SAMSUNG C&T JOINT VENTURE — WestConnex STAGE 2 M5 — DRAGADOS — SAMSUNG C&T — aurecon — JACOBS

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ALEXANDRA LANDFILL CLOSURE PLANS
TYPICAL ROAD DETAILS
SHEET 1

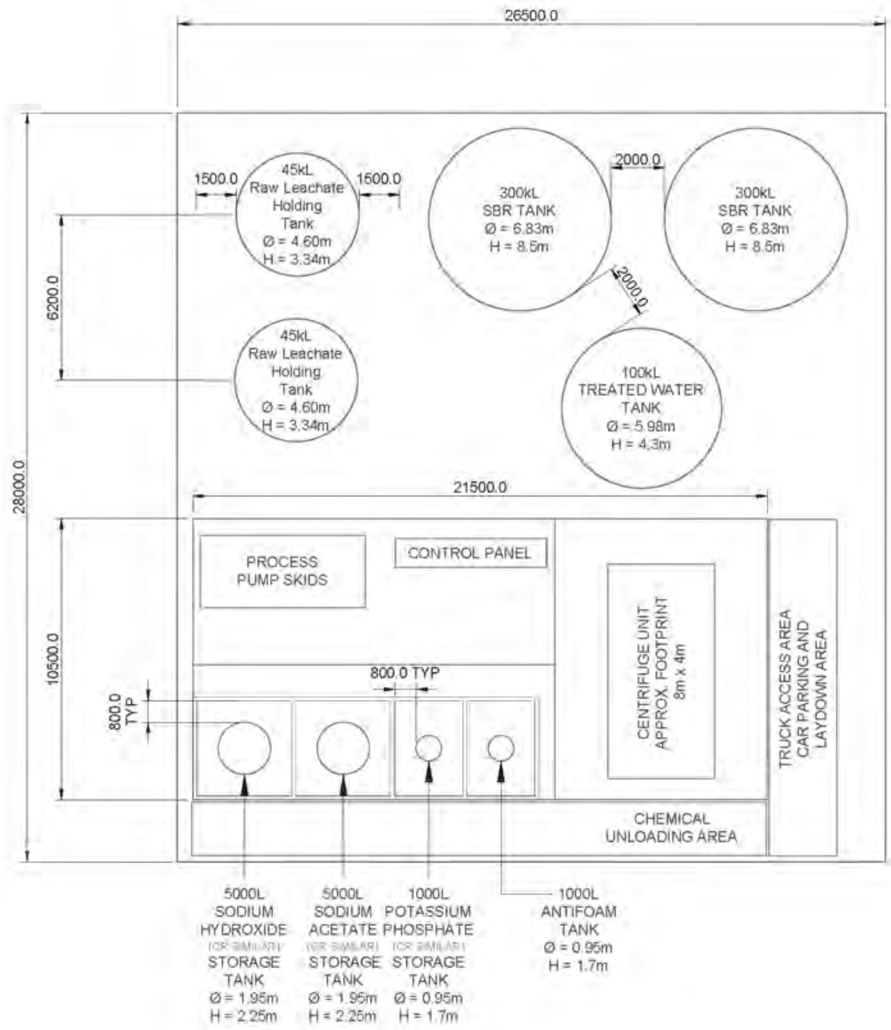
STATUS: SKETCH INFORMATION ONLY

DRAWING NUMBER: M5-LDS-SKT-700-320-DR-7807

REV: A

DATE: 30/07/15 4:51:53 PM LOGIN NAME: THROWELL, RYAN
LOCATION: U:\WCX Stage 2\DE...\Design\DEDJ - CADD\S PINAL\S00\040\05\00\M5-LDS-SKT-700-320-DR-7807.dwg

0 5 10 15 20 25 mm ON ORIGINAL



REV	DATE	DESCRIPTION	DRAWN	REVIEWED	APPROVED
A	03.07.15	ISSUED FOR INFORMATION	BC	RH	DD

TITLE	INITIAL	DATE
DRAFTSPERSON	BC	03.07.15
DRAFTING CHECK		
DESIGNER		
DESIGN CHECK		
DESIGN MANAGER		
PROJECT DIRECTOR		

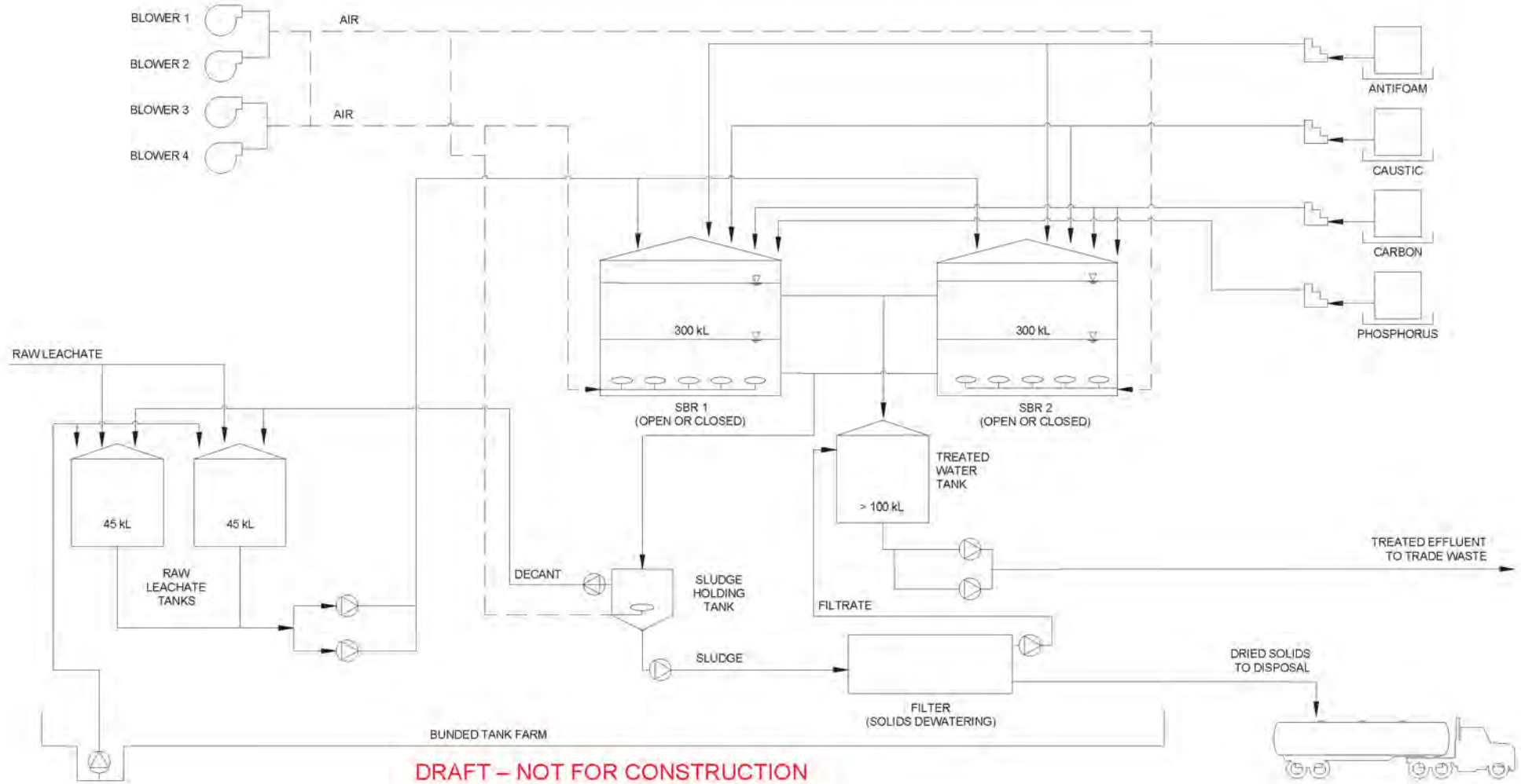
CLIENT: Transport WestConnex Delivery Authority

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ALEXANDRA LANDFILL CLOSURE PLANS
LEACHATE TREATMENT PLANT
PLAN

STATUS: **SKETCH INFORMATION ONLY**

DRAWING NUMBER: M5-LDS-SKT-700-320-DR-7809 | REV: A



DRAFT – NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRAWN	REVIEWED	APPROVED
A	30.07.15	ISSUED FOR INFORMATION	BC	RH	DD

TITLE	INITIAL	DATE
DRAFTED/DESIGN	BC	02.07.15
DRAFTING CHECK		
DESIGNER		
DESIGN CHECK		
DESIGN MANAGER		
PROJECT DIRECTOR		

ORIGINAL DRAWING SIZE A1

CLIENT: NSW GOVERNMENT Transport WestConnex Delivery Authority

CONTRACTOR: SAMSUNG C&T JOINT VENTURE — WestConnex STAGE 2 M5 — SAMSUNG C&T — DRAGADOS — aurecon JACOBS — LANDTEC

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ALEXANDRA LANDFILL CLOSURE PLANS
REVISED PROPOSED
LEACHATE TREATMENT PLANT
CONCEPTUAL PROCESS FLOW DIAGRAM

STATUS: SKETCH
INFORMATION ONLY

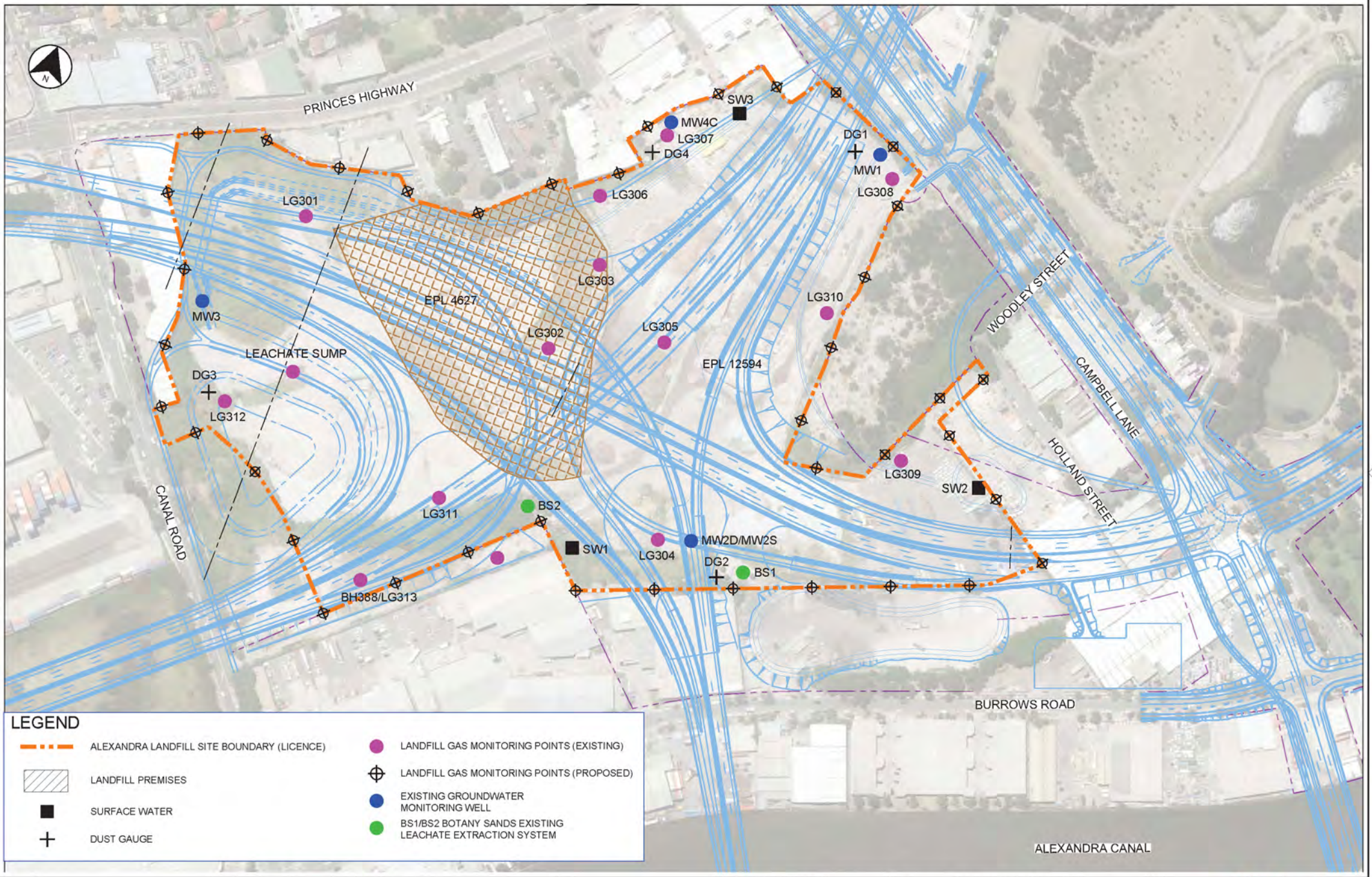
DRAWING NUMBER: M5-LDS-SKT-700-320-DR-7810

REV: A

DATE: 30/7/2015 4:52:59 PM LOGIN NAME: THROWELL, RYAN
LOCATION: U:\WCX Stage 2\DE...\Design\DEDJ - CAD\05 Drawings\PLAN\LOCAL ROADS\FINAL\S000400-0500\M5-LDS-SKT-700-320\DR-7810.dwg

0 5 10 15 20 25 mm ON A1 ORIGINAL

This drawing may have been prepared using colour and may be incomplete if viewed



REV	DATE	DESCRIPTION	DRAWN	REVIEWED	APPROVED
A	03.07.15	ISSUED FOR INFORMATION	BC	RH	BO

TITLE	INITIAL	DATE
DRAFTSPERSON	BC	03.07.15
DRAFTING CHECK		
DESIGNER		
DESIGN CHECK		
DESIGN MANAGER		
PROJECT DIRECTOR		

ORIGINAL DRAWING AT A3 SIZE
SCALE 1:2500 (25 0 25 50) AT A3
CO-ORDINATE SYSTEM: MGA Zone 56 | HEIGHT DATUM: A.H.D.

CLIENT: NSW Government — Transport WestConnex Delivery Authority

LEIGHTON-DRAGADOS-SAMSUNG C&T JOINT VENTURE: WestConnex STAGE 2 M5

aurecon JACOBS HASSELL

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ALEXANDRA LANDFILL CLOSURE PLANS
ENVIRONMENTAL
MONITORING LOCATIONS

STATUS: SKETCH
INFORMATION ONLY

RFT APP 2 - TENDER INFORMATION REQUIREMENTS VOLUME

DRAWING NUMBER: M5-LDS-SKT-700-320-DR-7811

REV: A

DATE: 20/7/2015 4:54:02 PM LOGIN NAME: THROWER_RYAN
LOCATION: U:\WCX Stage 2\DE - Design\DE60 - CAD\DB-Drawings\SP1 AND LOCAL ROADS FINAL\3000\400 (500)\M5-LDS-SKT-700-320-DR-7811.dwg

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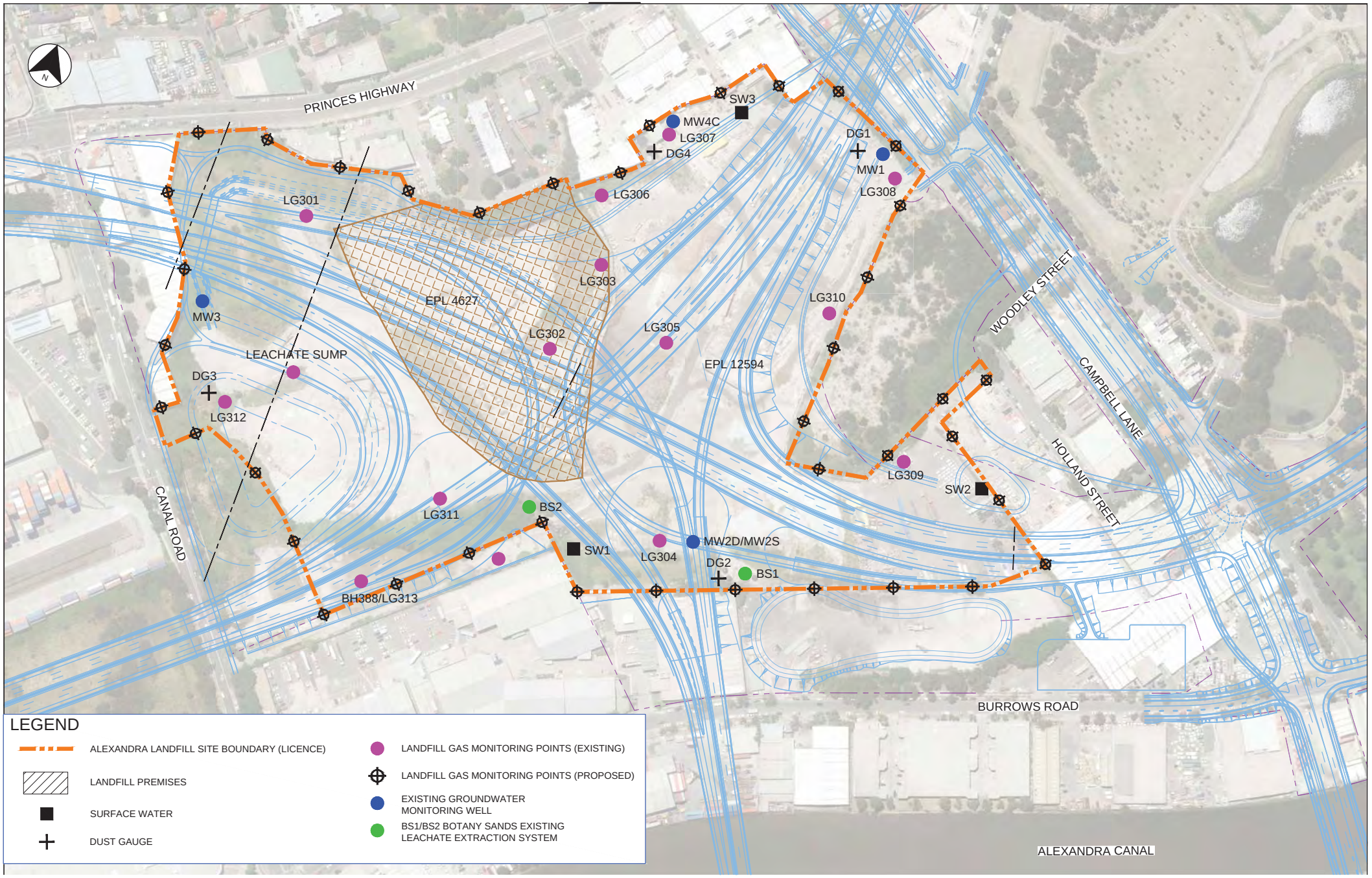

REV	DATE	DESCRIPTION	DRAWN	REVIEWED	APPROVAL
A	03.07.15	ISSUED FOR INFORMATION	BC	RH	BO

TITLE	INITIAL	DATE
DRAFTSPERSON	BC	03.07.15
DRAFTING CHECK		
DESIGNER		
DESIGN CHECK		
DESIGN MANAGER		
PROJECT DIRECTOR		

ORIGINAL DRAWING AT A3 SIZE
SCALE 1:2500 25 0 25 50 AT A3
CO-ORDINATE SYSTEM: MGA Zone 56
HEIGHT DATUM: A.H.D.

CLIENT: NSW Government — Transport WestConnex Delivery Authority

LEIGHTON DRAGADOS SAMSUNG C&T JOINT VENTURE
DRAGADOS SAMSUNG SAMSUNG C&T WestConnex STAGE 2 M5
durecon JACOBS HASSELL

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ALEXANDRA LANDFILL CLOSURE PLANS
ENVIRONMENTAL
MONITORING LOCATIONS

STATUS: **SKETCH INFORMATION ONLY**

RFT APP.2 - TENDER INFORMATION REQUIREMENTS VOLUME

DRAWING NUMBER: M5-LDS-SKT-700-320-DR-7811
REV: A

0 5 10 15 20 25 mm ON A3 ORIGINAL

This Drawing may have been prepared using colour and may be incomplete if copied

DATE: 2/07/2015 4:54:02 PM LOGIN NAME: THROWER, RYAN
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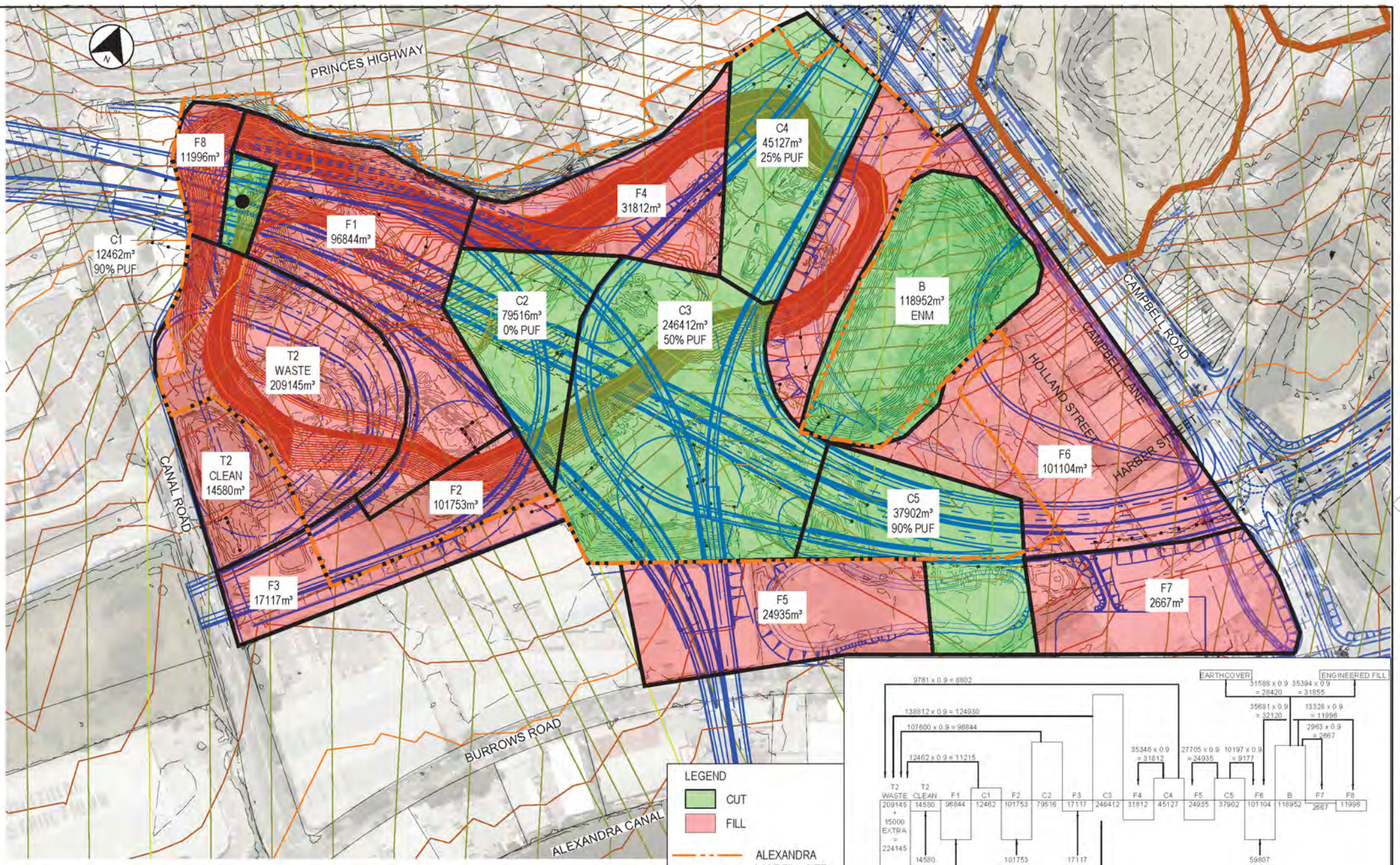

REV	DATE	DESCRIPTION	D RAWN	RE VIEWED	APPROVED
A	03.07.15	ISSUED FOR INFORMATION	BC	RH	BO

	TITLE	INITIAL	DATE
D RAFTSPERSON		BC	03.07.15
D RAFTING CHECK			
DESIGNER			
DESIGN CHECK			
DESIGN MANAGER			
PROJECT DIRECTOR			

ORIGINAL D RAWING AT A3 SIZE
SCALE 1:2500 25 0 25 50 AT A3
CO-ORDINATE SYSTEM: MGA Zone 56 HEIGHT DATUM: A H D

CLIENT: NSW GOVERNMENT Transport WestConnex Delivery Authority

LEIGHTON/DRAGADOS SAMSUNG C&T JOINT VENTURE
DRAGADOS SAMSUNG SAMSUNG C&T
WestConnex STAGE 2 M5
aurecon JACOBS HASSELL

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT
TITLE: ALEXANDRA LANDFILL CLOSURE PLANS
EARTHWORKS PLAN

STATUS: SKETCH INFORMATION ONLY
RIT APP 2 - TENDER INFORMATION REQUIREMENTS VOLUME
D RAWING NUMBER: M5-LDS-SKT-700-320-DR-7812
REV: A

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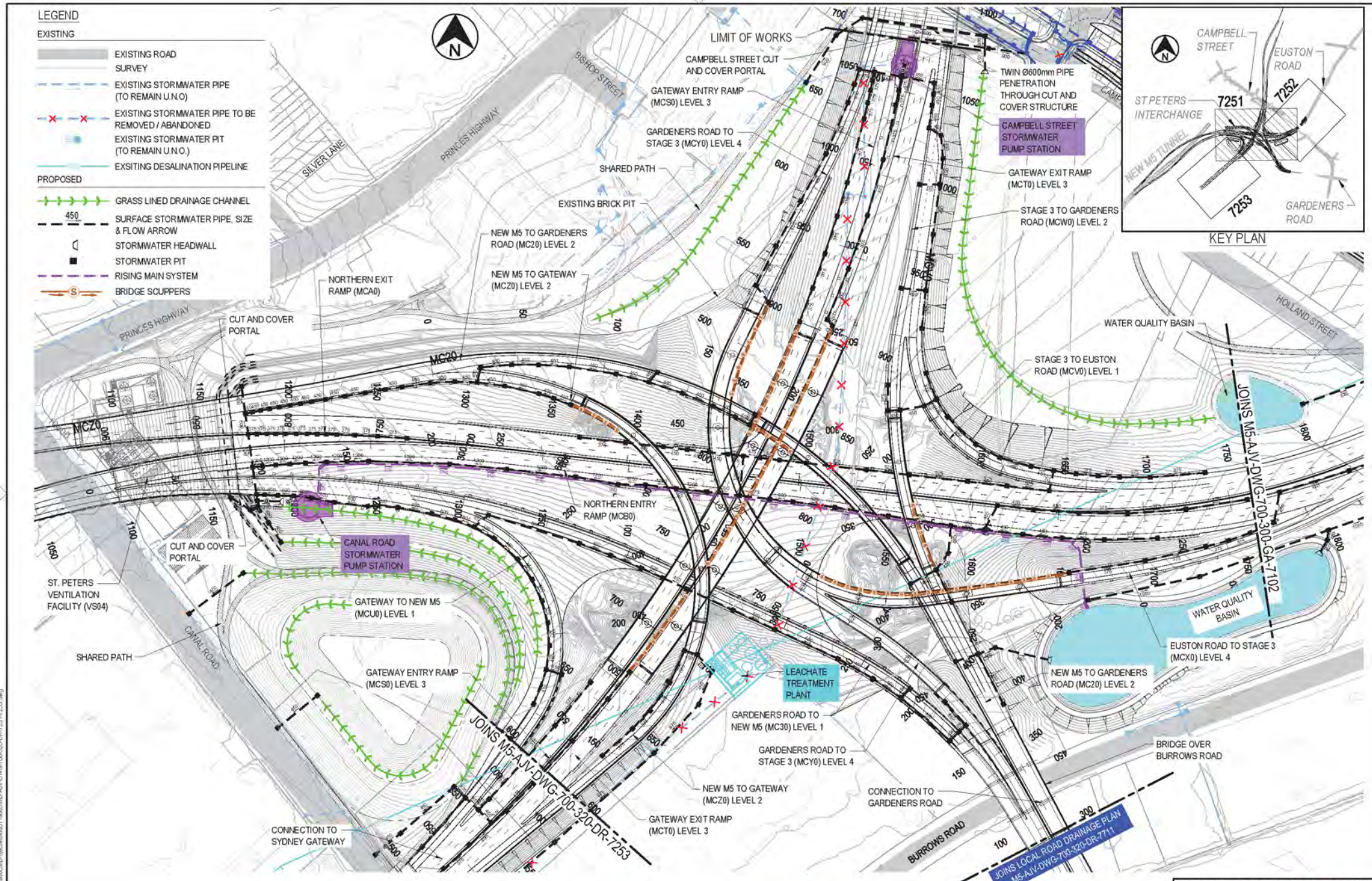
DATE: 20/7/2015 4:56:44 PM LOGIN NAME: THROWER_RYAN
LOCATION: U:\WCX Stage 2\DE--Design\DE693 - CAD\DB-Drawings\SP\ AND LOCAL ROADS FINAL\300\0400\0500\M5-LDS-SKT-700-320-DR-7812.dwg



REV	DATE	DESCRIPTION	D.RAWN	RENDERED	APPROVAL
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TITLE	INITIAL	DATE
DRAFTSPERSON	SG	03.07.15
DRAFTING CHECK	SG	03.07.15
DESIGNER	KH	03.07.15
DESIGN CHECK	RND	03.07.15
DESIGN MANAGER	MP	03.07.15
PROJECT DIRECTOR	TB	03.07.15

ORIGINAL DRAWING AT A3 SIZE
SCALE 1:2000 AT A3
CO-ORDINATE SYSTEM: MGA Zone 56
HEIGHT DATUM: A.H.D.

CLIENT: NSW Government — Transport WestConnex Delivery Authority

DESIGN TEAM FOR ROADS SAMSUNG C&T JOINT VENTURE: Dragados, Samsung, Samsung C&T, WestConnex Stage 2 M5, aurecon, JACOBS, HASSELL

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ST. PETERS INTERCHANGE
DRAINAGE AND WATER QUALITY PLAN
SHEET 1

INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY ONLY AND SUBJECT TO ADJUSTMENT DURING DETAILED DESIGN STAGE

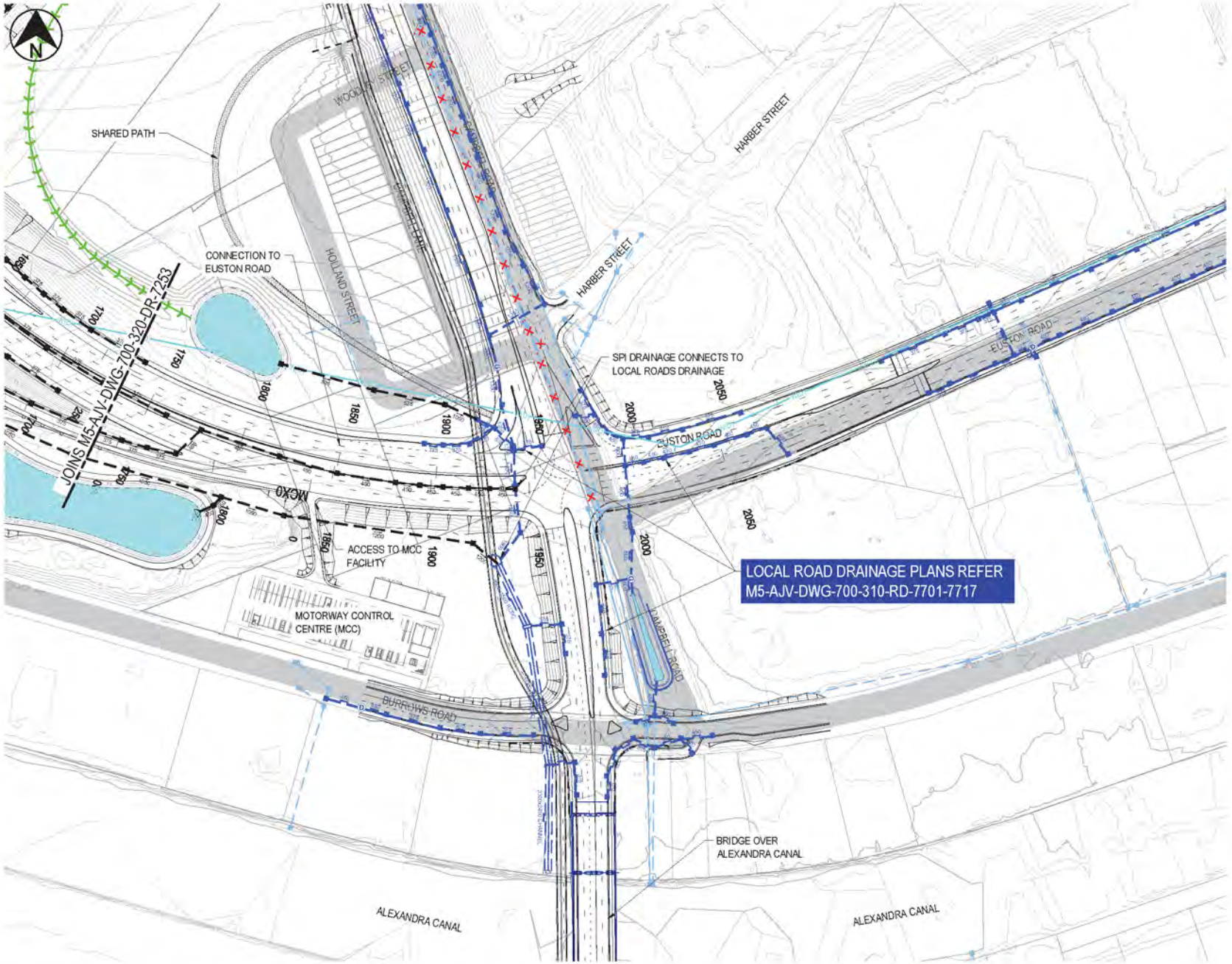
STATUS: CONCEPT DESIGN NOT FOR CONSTRUCTION

RFT APP 2 - TENDER INFORMATION REQUIREMENTS VOLUME: 2F - DRAINAGE DESIGN

DRAWING NUMBER: M5-AJV-DWG-700-320-DR-7251 | REV: 0

DATE: 30/7/2015 2:40:01 PM | LOGIN NAME: GALLOWAY, SCOTT
LOCATION: C:\users\sgalloway\appdata\local\temp\wes\d0116880\M5-AJV-DWG-700-320-DR-7251-7253.dwg

0 5 10 15 20 25 mm ON A0 ORIGINAL



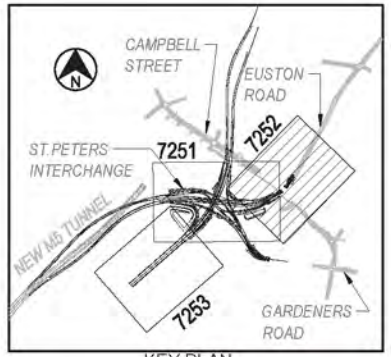
LEGEND

EXISTING

- EXISTING ROAD
- SURVEY
- EXISTING STORMWATER PIPE (TO REMAIN U.N.O)
- EXISTING STORMWATER PIPE TO BE REMOVED / ABANDONED
- EXISTING STORMWATER PIT (TO REMAIN U.N.O.)
- EXSITING DESALINATION PIPELINE

PROPOSED

- GRASS LINED DRAINAGE CHANNEL
- 450 SURFACE STORMWATER PIPE, SIZE & FLOW ARROW
- STORMWATER HEADWALL
- STORMWATER PIT
- RISING MAIN SYSTEM
- BRIDGE SCUPPERS



KEY PLAN

REV	DATE	DESCRIPTION	D.RAWN	RE-VIEWED	APPROVAL
0	03.07.15	CONCEPT DESIGN ISSUE TO REFLECT POST-TENDER ADDENDUM 1	SG	RNO	MP

TITLE	INITIAL	DATE
DRAFTSPERSON	SG	03.07.15
DRAFTING CHECK	SG	03.07.15
DESIGNER	KH	03.07.15
DESIGN CHECK	RND	03.07.15
DESIGN MANAGER	MP	03.07.15
PROJECT DIRECTOR	TB	03.07.15

ORIGINAL DRAWING AT A3 SIZE
SCALE 1:2000 — 20 0 20 40 AT A3
CO-ORDINATE SYSTEM: MGA Zone 56 — HEIGHT DATUM: A.H.D.

CLIENT: NSW GOVERNMENT Transport WestConnex Delivery Authority

LEIGHTON-RAGADOS SAMSUNG C&T JOINT VENTURE: RAGADOS SAMSUNG SAMSUNG C&T WestConnex STAGE 2 M5

aurecon JACOBS HASSELL

PROJECT: WESTCONNEX STAGE 2 NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ST. PETERS INTERCHANGE DRAINAGE AND WATER QUALITY PLAN SHEET 2

INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY ONLY AND SUBJECT TO ADJUSTMENT DURING DETAILED DESIGN STAGE

STATUS: **CONCEPT DESIGN NOT FOR CONSTRUCTION**

RFT APP 2 - TENDER INFORMATION REQUIREMENTS VOLUME: 2F - DRAINAGE DESIGN

DRAWING NUMBER: M5-AJV-DWG-700-320-DR-7252 REV: 0

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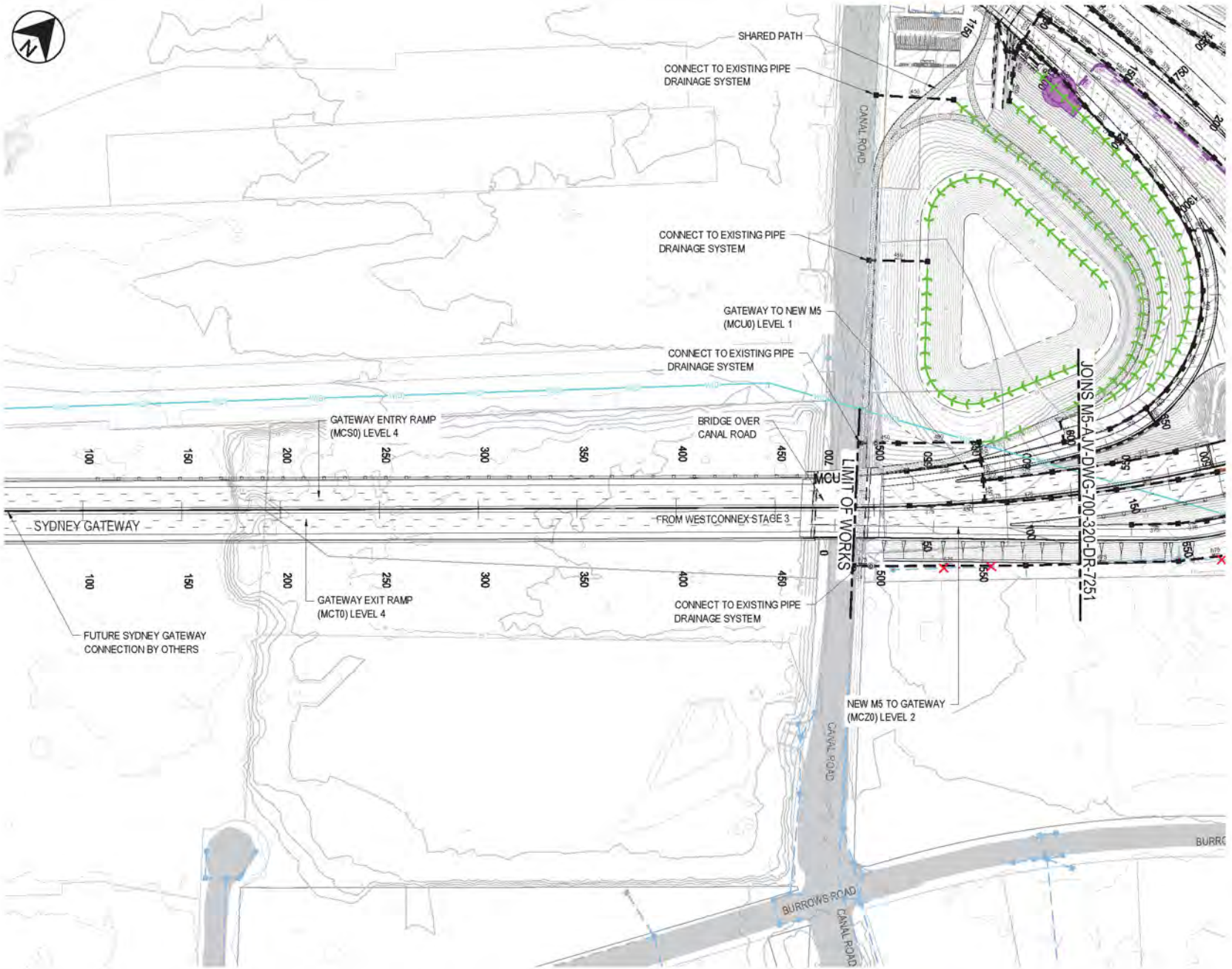


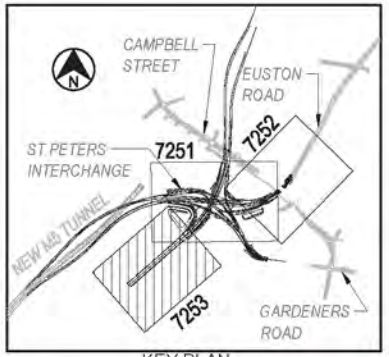
LEGEND

EXISTING

- EXISTING ROAD
- SURVEY
- EXISTING STORMWATER PIPE (TO REMAIN U.N.O)
- EXISTING STORMWATER PIPE TO BE REMOVED / ABANDONED
- EXISTING STORMWATER PIT (TO REMAIN U.N.O.)
- EXSITING DESALINATION PIPELINE

PROPOSED

- GRASS LINED DRAINAGE CHANNEL
- 450 SURFACE STORMWATER PIPE, SIZE & FLOW ARROW
- STORMWATER HEADWALL
- STORMWATER PIT
- RISING MAIN SYSTEM
- BRIDGE SCUPPERS



KEY PLAN

REV	DATE	DESCRIPTION	DRAWN	RE-DRAWED	APPROVAL
0	03.07.15	CONCEPT DESIGN ISSUE TO REFLECT POST-TENDER ADDENDUM 1	SG	RND	MP

TITLE	INITIAL	DATE
DWP TEAM DESIGN	SG	03.07.15
DWP TEAM CHECK	SG	03.07.15
DESIGNER	KH	03.07.15
DESIGN CHECK	RND	03.07.15
DESIGN MANAGER	MP	03.07.15
PROJECT DIRECTOR	TB	03.07.15

ORIGINAL DRAWING AT A3 SIZE
SCALE 1:2000 (20, 0, 20, 40 AT A3)
CO-ORDINATE SYSTEM: MGA Zone 56 | HEIGHT DATUM: A.H.D.

CLIENT: NSW GOVERNMENT Transport WestConnex Delivery Authority

LEIGHTON HOLDINGS DRAGADOS SAMSUNG C&T JOINT VENTURE
DRAGADOS SAMSUNG SAMSUNG C&T
WestConnex STAGE 2 M5
aurecon JACOBS HASSELL

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ST. PETERS INTERCHANGE
DRAINAGE AND WATER QUALITY
PLAN
SHEET 3

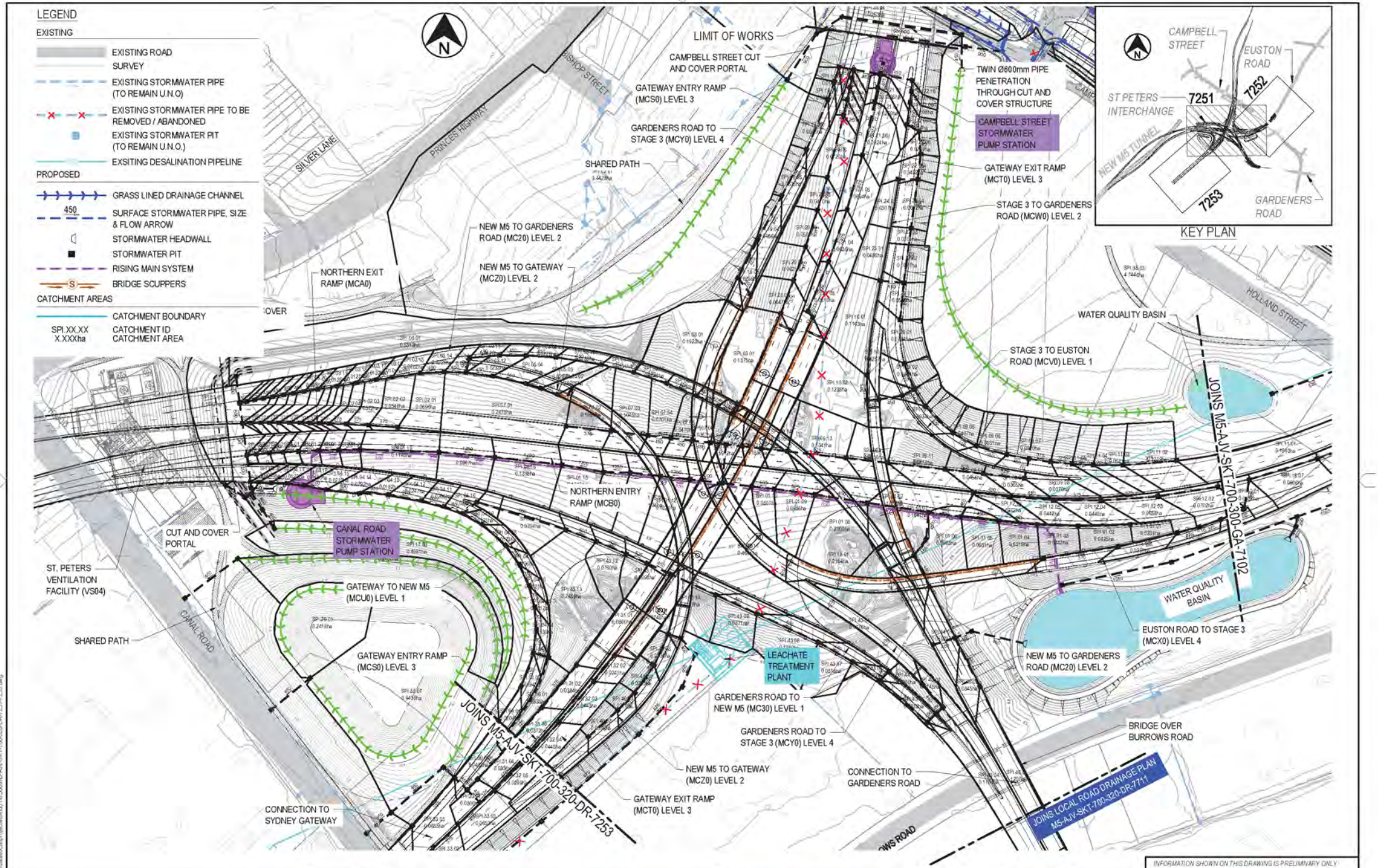
INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY ONLY AND SUBJECT TO ADJUSTMENT DURING DETAILED DESIGN STAGE

STATUS: CONCEPT DESIGN NOT FOR CONSTRUCTION

RFT APP 2 - TENDER INFORMATION REQUIREMENTS VOLUME: 2F - DRAINAGE DESIGN

DRAWING NUMBER: M5-AJV-DWG-700-320-DR-7253 | REV: 0

DATE: 30/7/2015 2:40:59 PM LOGIN NAME: GALLOWAY, SCOTT
LOCATION: C:\Users\scgalloway\appdata\local\projectwise\d01\ps8036\M5-AJV-DWG-700-320-DR-7251-7253.dwg



REV	DATE	DESCRIPTION	DRAWN	REVIEWED	APPROVED
0	02.07.15	ISSUED FOR INFORMATION	SG	RND	MP

TITLE	INITIAL	DATE
DRAFTPERSON	SG	02.07.15
DRAFTING CHECK	SG	02.07.15
DESIGNER	KH	02.07.15
DESIGN CHECK	RND	02.07.15
DESIGN MANAGER	MP	02.07.15
PROJECT DIRECTOR	TB	02.07.15

ORIGINAL DRAWING AT A3 SIZE
SCALE 1:2000 (20 0 20 40 AT A3)
CO-ORDINATE SYSTEM: MGA Zone 56 — HEIGHT DATUM: A.H.D.

CLIENT: NSW GOVERNMENT Transport WestConnex Delivery Authority

DESIGN JV HIGHROADS: SAMSUNG C&T JOINT VENTURE
DRAGADOS SAMSUNG SAMSUNG C&T WestConnex STAGE 2 M5
aurecon JACOBS HASSELL

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ST. PETERS INTERCHANGE
DRAINAGE AND WATER QUALITY
CATCHMENT PLAN
SHEET 1

INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY ONLY AND SUBJECT TO ADJUSTMENT DURING DETAILED DESIGN STAGE

STATUS: SKETCH FOR INFORMATION

RFT APPD TENDER INFORMATION REQUIREMENTS VOLUME: 2F - DRAINAGE DESIGN

DRAWING NUMBER: M5-AJV-SKT-700-320-DR-7251 REV: 0

DATE: 30/7/2015 2:52:07 PM LOGIN NAME: GALLOWAY, SCOTT
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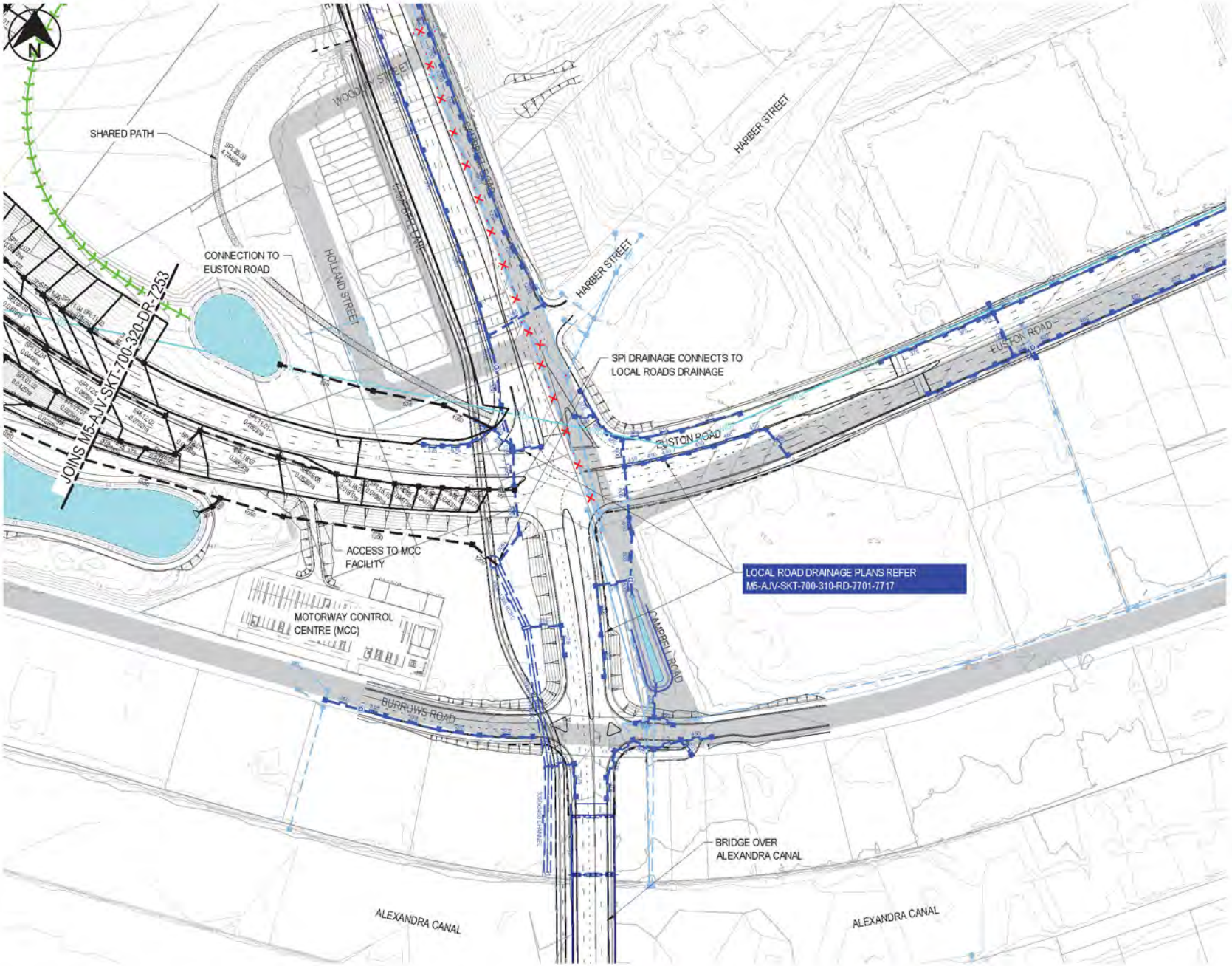


LEGEND

EXISTING

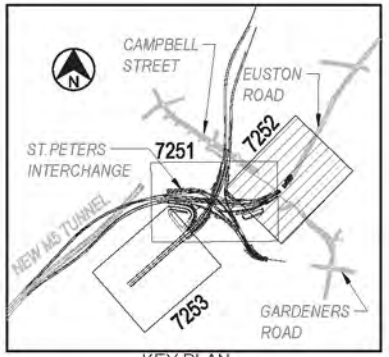
- EXISTING ROAD
- SURVEY
- EXISTING STORMWATER PIPE (TO REMAIN U.N.O)
- EXISTING STORMWATER PIPE TO BE REMOVED / ABANDONED
- EXISTING STORMWATER PIT (TO REMAIN U.N.O.)
- EXSITING DESALINATION PIPELINE

PROPOSED

- GRASS LINED DRAINAGE CHANNEL
- 450 SURFACE STORMWATER PIPE, SIZE & FLOW ARROW
- STORMWATER HEADWALL
- STORMWATER PIT
- RISING MAIN SYSTEM
- BRIDGE SCUPPERS

CATCHMENT AREAS

- CATCHMENT BOUNDARY
- SPI.XX.XX CATCHMENT ID
- X.XXXha CATCHMENT AREA



KEY PLAN

REV	DATE	DESCRIPTION	DRAWN	REVIEWED	APPROVED
0	03.07.15	ISSUED FOR INFORMATION	SG	RND	MP

TITLE	INITIAL	DATE
DRAFTSPERSON	SG	03.07.15
DRAFTING CHECK	SG	03.07.15
DESIGNER	KR	03.07.15
DESIGN CHECK	RND	03.07.15
DESIGN MANAGER	MP	03.07.15
PROJECT DIRECTOR	TB	03.07.15

ORIGINAL DRAWING AT A3 SIZE
SCALE 1:2000 — 20 0 20 40 AT A3
CO-ORDINATE SYSTEM: MGA Zone 56 — HEIGHT DATUM: A.H.D.

CLIENT: NSW GOVERNMENT Transport WestConnex Delivery Authority

LEIGHTON-RAGADOS SAMSUNG C&T JOINT VENTURE: RAGADOS SAMSUNG SAMSUNG C&T WestConnex STAGE 2 M5 aurecon JACOBS HASSELL

PROJECT: WESTCONNEX STAGE 2 NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ST. PETERS INTERCHANGE DRAINAGE AND WATER QUALITY CATCHMENT PLAN SHEET 2

INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY ONLY AND SUBJECT TO ADJUSTMENT DURING DETAILED DESIGN STAGE

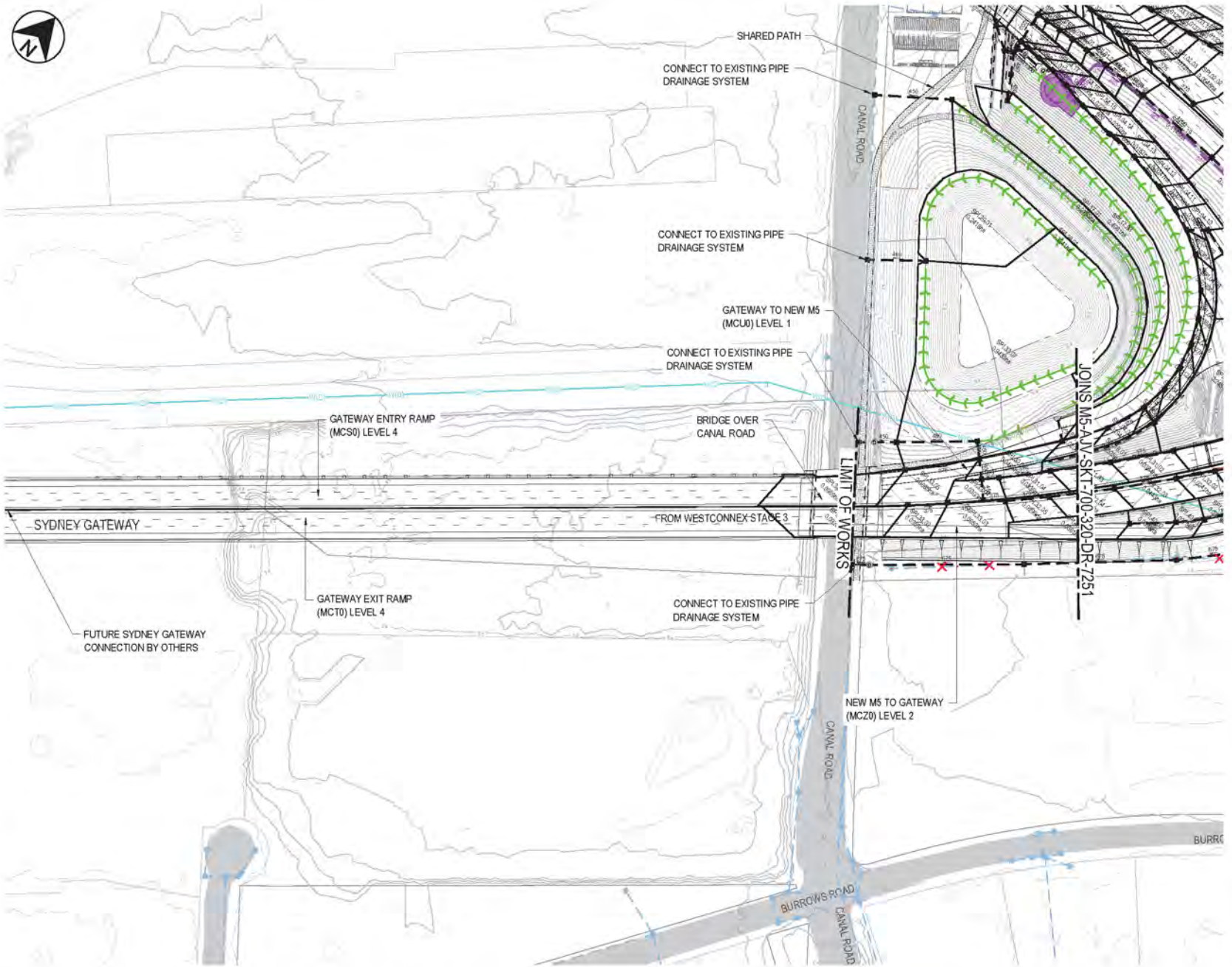
STATUS: SKETCH FOR INFORMATION

RFT APP 2 - TENDER INFORMATION REQUIREMENTS VOLUME: 2F - DRAINAGE DESIGN

DRAWING NUMBER: M5-AJV-SKT-700-320-DR-7252 REV: 0

DATE: 30/7/2015 2:52:16 PM LOGIN NAME: GALLOWAY SCOTT
LOCATION: C:\users\egalloway\appdata\local\projectwise\d0147500\M5-AJV-SKT-700-320-DR-7251-7253.dwg

0 5 10 15 20 25 mm ON A0 ORIGINAL



LEGEND

EXISTING

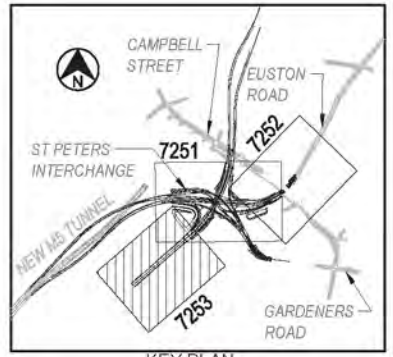
- EXISTING ROAD
- SURVEY
- EXISTING STORMWATER PIPE (TO REMAIN U.N.O)
- EXISTING STORMWATER PIPE TO BE REMOVED / ABANDONED
- EXISTING STORMWATER PIT (TO REMAIN U.N.O.)
- EXSITING DESALINATION PIPELINE

PROPOSED

- GRASS LINED DRAINAGE CHANNEL
- 450 SURFACE STORMWATER PIPE, SIZE & FLOW ARROW
- STORMWATER HEADWALL
- STORMWATER PIT
- RISING MAIN SYSTEM
- S BRIDGE SCUPPERS

CATCHMENT AREAS

- CATCHMENT BOUNDARY
- SPI.XX.XX X.XXXha CATCHMENT ID CATCHMENT AREA



KEY PLAN

REV	DATE	DESCRIPTION	DRAWN	RE-VERIFIED	APPROVED
0	03.07.15	ISSUED FOR INFORMATION	SG	RND	MP

TITLE	INITIAL	DATE
DRAFTSPERSON	SG	03.07.15
DRAFTING CHECK	SG	03.07.15
DESIGNER	KR	03.07.15
DESIGN CHECK	RND	03.07.15
DESIGN MANAGER	MP	03.07.15
PROJECT DIRECTOR	TB	03.07.15

ORIGINAL DRAWING AT A3 SIZE
SCALE 1:2000 20 0 20 40 AT A3
COORDINATE SYSTEM: MGA 2zone 56 | HEIGHT DATUM: A H D

CLIENT: NSW GOVERNMENT Transport WestConnex Delivery Authority

LEIGHTON HOLDINGS DRAGADOS SAMSUNG C&T JOINT VENTURE
DRAGADOS SAMSUNG SAMSUNG C&T
WestConnex STAGE 2 M5
aurecon JACOBS HASSELL

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ST. PETERS INTERCHANGE
DRAINAGE AND WATER QUALITY
CATCHMENT PLAN
SHEET 3

INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY ONLY AND SUBJECT TO ADJUSTMENT DURING DETAILED DESIGN STAGE

STATUS: **SKETCH FOR INFORMATION**

KEY APP 2 - TENDER INFORMATION REQUIREMENTS VOLUME: 2F - DRAINAGE DESIGN

DRAWING NUMBER: M5-AJV-SKT-700-320-DR-7253 | REV: 0

DATE: 30/7/2015 2:32:25 PM LOGIN NAME: GALLOWAY, SCOTT
LOCATION: C:\users\sgalloway\appdata\local\projectwise\d0147500\M5-AJV-SKT-700-320-DR-7251-7253.dwg

0 5 10 15 20 25 mm ON A1 ORIGINAL

INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY ONLY AND SUBJECT TO ADJUSTMENT DURING DETAILED DESIGN STAGE

REV	DATE	DESCRIPTION	DRAWN	REVIEWED	APPROVAL
0	03.07.15	ISSUED FOR INFORMATION - POST TENDER ADDENDUM 1	SG	RND	MP

TITLE	INITIAL	DATE
DRAFTSPERSON	SG	03.07.15
DRAFTING CHECK	SG	03.07.15
DESIGNER	KH	03.07.15
DESIGN CHECK	RND	03.07.15
DESIGN MANAGER	MP	03.07.15
PROJECT DIRECTOR	TB	03.07.15

ORIGINAL DRAWING AT A3 SIZE
SCALE 1:4000 AT A3

CO-ORDINATE SYSTEM: MGA Zone 56 — HEIGHT DATUM: A.H.D.

0 | 5 | 10 | 15 | 20 | 25 mm ON A3 ORIGINAL — This Drawing may have been prepared using colour and may be incomplete if copied

CLIENT: NSW GOVERNMENT — Transport WestConnex Delivery Authority

LEIGHTON DRAGADOS SAMSUNG C&T JOINT VENTURE — DRAGADOS — SAMSUNG C&T — WestConnex STAGE 2 M5 — aurecon JACOBS HASSELL

PROJECT: WESTCONNEX STAGE 2
NEW M5 MAIN WORKS DESIGN & CONSTRUCT

TITLE: ST. PETERS INTERCHANGE
DRAINAGE AND WATER QUALITY
COARSE CATCHMENT PLAN

STATUS: **SKETCH FOR INFORMATION ONLY**

SIT APPX: TENDER INFORMATION REQUIREMENTS VOLUME: 2F - DRAINAGE DESIGN

DRAWING NUMBER: M5-AJV-SKT-700-320-DR-7271 — REV: 0

DATE: 3/07/2015 1:46:21 PM LOGIN NAME: RAHMAN, SYED

Appendix B

SEARs

Appendix B SEARs

NSW GOVERNMENT | Planning & Environment

Mr Peter Duncan
Chief Executive
Roads and Maritime Serivces
Locked Bag 928
North Sydney NSW 2059

Our ref: 14/18688

Dear Mr Duncan

SEARs WestConnex New M5 (SSI 6788)

Please find attached a copy of the Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) for the WestConnex New M5. These SEARs replace those issued for this project on 5 March 2015.

The Department has prepared these SEARs to reflect the decision that the project is a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). As identified in the SEARs, the Environmental Impact Statement must be prepared in accordance with the *Guidelines for preparing Assessment Documentation relevant to the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) — WestConnex New M5 Project (EPBC 2015/7520)*. These guidelines provide detailed information about the requirements for assessment of matters of national environmental significance.

In accordance with the Agreement between the Commonwealth of Australia and the State of New South Wales relating to Environmental Assessment, the Department will undertake an assessment of matters of national environmental significance. Enquiries about the requirements for assessment of matters of national environmental significance should be directed to the Department.

If you do not lodge an EIS for the proposal within two (2) years, you must consult further with the Secretary in relation to the preparation of the EIS.

On lodgement of the EIS, the Department will review the document in consultation with the relevant authorities to determine if it addresses the requirements in Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*.

I would appreciate it if you would contact the Department at least two weeks before you propose to submit your EIS. This will enable the Department to determine the number of copies (hard-copy and CD-ROM) of the EIS that will be required for reviewing purposes.

Should you have any enquiries regarding these SEARs, please contact Dominic Crinnion on (02) 9228 2084 or at Dominic.Crinnion@planning.nsw.gov.au.

Yours sincerely

26/8/15

Daniel Keary
A/Executive Director
Infrastructure and Industry Assessments
Delegate for the Secretary

Secretary's Environmental Assessment Requirements

Section 115Y of the *Environmental Planning and Assessment Act 1979*

Application Number	SSI 6788
Proposal	Multi-lane road link, including twin motorway tunnels, between the M5 East Motorway east of King Georges Road, Beverly Hills and St Peters.
Location	Land generally located between the M5 East Motorway east of King Georges Road, Beverly Hills and St Peters in the Canterbury, Hurstville, Rockdale, Marrickville, Botany Bay and City of Sydney local government areas.
Proponent	Roads and Maritime Services
Date of Issue	26 August 2015
General Requirements	The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of Part 3 of Schedule 2 of the *Environmental Planning and Assessment Regulation* 2000 (the Regulation), including: 1. the information required under clause 6 of Schedule 2 of the Regulation. 2. the content listed in clause 7 of Schedule 2 of the Regulation, including but not limited to: • a statement of the objectives of the proposal, including a description of the strategic need, justification, objectives and outcomes for the proposal, taking into account existing and proposed transport infrastructure and services within the adjoining subregions, and as relevant, the outcomes and objectives of relevant strategic planning and transport policies, including, but not limited to: *NSW 2021; NSW State Infrastructure Strategy 2012* (and update)*; NSW Long Term Transport Master Plan* (December 2012); *A Plan for Growing Sydney* (December 2014); *NSW Freight and Ports Strategy 2013;* and any other relevant plans or draft plans published after the date of these requirements; • an analysis of feasible alternatives to the carrying out of the proposal and proposal justification, including: o an analysis of alternatives/options considered, having regard to the proposal objectives (including an assessment of the environmental costs and benefits of the proposal relative to alternatives and the consequences of not carrying out the proposal), and whether or not the proposal is in the public interest, o justification for the preferred proposal taking into consideration the objects of the *Environmental Planning and Assessment Act 1979*, o details of the alternative ventilation options considered during the tunnel design to meet the air quality criteria for the proposal, o details of the short-listed route and tunnel options from the tender process and the criteria that was considered in the selection of the preferred route and tunnel design, and o staging of the proposal and the broader WestConnex scheme, and in particular access to Sydney Airport and Port Botany and improved freight efficiencies; • a detailed description of the proposal, including: o proposed route, o design of the tunnels, interchanges (including tunnel portals and entry and exit ramps), and potential future connections to Stage 3 of WestConnex and other proposals such as southern Sydney

	connection, and road user, pedestrian and cyclist facilities, and lighting, o surface road upgrade works, including road widening, intersection treatment and grade separation works, property access, parking, pedestrian and cyclist facilities (including appropriate locations for overbridges) and public transport facilities, and integration with the M5 East Motorway, o ancillary infrastructure and operational facilities, such as operational and maintenance facilities, ventilation structures and systems, and fire and emergency services and infrastructure for the proposal, including (if required) additional infrastructure (such as tolling infrastructure) for the M5 East Motorway, o location and operational requirements of construction ancillary facilities and access, o land use changes as a result of the proposal and the acquisition of privately owned, Council and Crown lands, and impacts to Council and Crown lands, and o relationship and/or integration with existing public and freight transport services; • an analysis of the proposal including an assessment, with a particular focus on the requirements of the listed key issues, in accordance with clause 7(1)(d) of Schedule 2 of the Regulation (where relevant), including an identification of how relevant planning, land use and development matters (including relevant strategic and statutory matters) have been considered in the impact assessment (direct, indirect and cumulative impacts) and/or in developing mitigation measures (to avoid, manage, offset and monitor impacts and where relevant, improve the existing environment); • detail how the principles of ecologically sustainable development will be incorporated in the design, construction and ongoing operation phases of the proposal; and • details of the proposal's relationship to and consistency with the broader WestConnex, and an assessment of the cumulative impacts taking into consideration the WestConnex program of works. Where relevant, the assessment of key issues below, and any other significant issues identified in the risk assessment, must include: • adequate baseline data, in terms of temporal, spatial and parameters monitored; • consideration of the potential cumulative impacts due to other development in the vicinity (completed, underway or proposed); and • measures to avoid, minimise and if necessary offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment.
Key issues	The EIS must also address the following specific matters: **Traffic and Transport** — including but not limited to: • details of how the proposal meets the objectives of the overall WestConnex program; • details of how the traffic and transport objectives of the proposal, and service and infrastructure responses, take into account: adjacent sensitive land uses; future housing and employment growth areas; existing town, employment and industrial centres; approved and proposed infrastructure proposals; and broader transport needs (including public transport, cyclist and pedestrian requirements and facilities); including with specific reference to: • the preferred alignment and design, • the proposed interchanges and connections to the surrounding road network, and • associated road and related transport infrastructure facilities;

- an assessment and modelling of operational traffic and transport impacts on the local and regional road network (in consultation with affected councils), and the Sydney motorway network, including the consideration of planning proposals, major urban renewal and development, the potential cumulative impacts of Stage 3 – M4 South (Haberfield to St Peters), and the impacts of potential shifts of traffic movements to alternative routes outside the proposal area (including as a result of tolls);
- induced traffic and operational implications for public transport (particularly with respect to strategic bus corridors and bus routes) and future public transport opportunities;
- impacts on property and business access and on street parking provision, including permanent and temporary (construction) changes to access and parking, and traffic management measures such as clearways;
- impacts on cyclists and pedestrian access and safety and consideration of opportunities to integrate cycleway and pedestrian elements with surrounding networks;
- construction traffic and transport impacts of the proposal (including ancillary facilities) and associated management measures, in particular:
    - impacts on the road network (including safety and level of service, parking, pedestrian and cyclist access, and disruption to public transport services and access to properties),
    - route identification and suitability for heavy vehicles, and scheduling of transport movements, particularly movements outside standard construction hours,
    - the number, frequency and size of construction related vehicles (both light and heavy vehicles),
    - the nature of existing traffic on construction access routes (including consideration of peak traffic times), and
    - the need to close, divert or otherwise reconfigure elements of the road network associated with construction of the proposal, and
    - having reference to the cumulative construction impacts of other infrastructure preparing for or commencing construction.

Air Quality – including but not limited to:

- an assessment of construction and operational activities that have the potential to impact on in-tunnel, local and regional air quality. The air quality impact assessment must provide an assessment of the risk associated with potential discharges of fugitive and point source emissions on sensitive receivers, and include:
    - the identification of all sources of air pollution and assess potential emissions of PM_{10}, $PM_{2.5}$, CO, NO_2 and other nitrogen oxides and volatile organic compounds (eg BTEX) and consider the impacts from the dispersal of these air pollutants on the ambient air quality along the proposal route, proposed ventilation outlets and portals, surface roads in the vicinity of the St Peters interchange, the alternative surface road network, and in-tunnel air quality,
    - assessment of worst case scenarios for in-tunnel and ambient air quality, including assessment of a range of traffic scenarios, including worst case design maximum traffic flow scenario (variable speed) and worst case breakdown scenario, and discussion of the likely occurrence of each,
    - details of the proposed tunnel design and mitigation measures to address in-tunnel air quality and the air quality in the vicinity of portals and any mechanical ventilation systems (ie ventilation stacks and air inlets) including details of proposed air quality monitoring (including criteria),
    - demonstrate how the project and ventilation design ensures that concentrations of air emissions meet NSW, national and international best practice for in-tunnel and ambient air quality,

	and taking into consideration the approved criteria for the NorthConnex project, • consideration of any advice from the Advisory Committee on Tunnel Air Quality on the project particularly in relation to assessment methodology, • details of any emergency ventilation systems, such as air intake/exhaust stacks, including protocols for the operation of these systems in emergency situations, potential emission of air pollutants and their dispersal, and safety procedures, and • details of in-tunnel air quality control measures considered, including air filtration. Justification must be provided to support the proposed measures; • details of the proposed mitigation measures to prevent the generation and emission of dust (particulate matter and TSP) and air pollutants (including odours) during the construction of the proposal, particularly in relation to ancillary facilities (such as concrete batching plants), the use of mobile plant, stockpiles and the processing and movement of spoil; • cumulative assessment of the local and regional air quality due to the operation of the M5 East Motorway ventilation stack, operation of Stage 3 – M4 South (Haberfield to St Peters), and surface road operations; • The air quality assessment including the setting of air quality criteria must be done in consultation with NSW Health, and the Environment Protection Authority and the consideration of any applicable advice provided by the Advisory Committee on Tunnel Air Quality; and • modelling (including dispersion modelling) must be conducted in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2005) or a suitably justified and verified alternative method based on current scientific understanding of atmospheric dispersion. Particular attention must be given to the verification of the method of predicting local air quality or meteorological conditions based on non-local or modelled data. **Human Health** – including but not limited to: • an assessment of human health impacts with particular consideration of: • how the design of the proposal minimises adverse health impacts, • human health impacts from the operation of the tunnel under a range of conditions, including worst case operating condition, • human health risks and costs associated with the proposal, including those associated with air quality, noise and vibration, and social impacts, during the construction and operation of the proposal, and • the Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards (enHealth, 2012) and Air Quality in and Around Traffic Tunnels (NHMRC, 2008). **Noise and Vibration** — including but not limited to: • an assessment of the noise impacts of the proposal during operation, consistent with the *Road Noise Policy* (EPA, 2011) and *NSW Industrial Noise Policy* (EPA, 2000). The assessment must address: • the redistribution of traffic, • impacts to receivers (dwellings, child care centres, educational establishments, hospitals, motels, nursing homes, or places of worship), • sleep disturbance, and • the characteristics of noise (eg. low frequency noise); • an assessment of construction noise and vibration impacts, consistent with the *Interim Construction Noise Guideline* (ICNG) (DECCW, 2009) and *Assessing Vibration: a technical guideline* (DEC, 2006). The assessment must address:

- the nature of construction activities (including transport, tonal or impulsive noise-generating works and the removal of operational noise barriers, as relevant),
- the intensity and duration of noise and vibration impacts (both air and ground borne),
- the nature, sensitivity and impact to receivers,
- the need to balance timely conclusion of noise and vibration-generating works with periods of receiver respite, and other factors that may influence the timing and duration of construction activities (such as traffic management),
- an indication of potential for works outside standard construction hours, including predicted levels, exceedances and number of potentially affected receivers, justification for the activity in terms of the ICNG; and

- cumulative assessment of potential construction noise and vibration impacts due to other developments in the vicinity, including future stages of WestConnex.

Biodiversity — including but not limited to:

- an assessment of the potential ecological impacts of the proposal, with specific reference to vegetation and habitat clearing, connectivity, edge effects, weed dispersal, riparian and aquatic habitat impacts, soil and water quality impacts and operational impacts. The assessment must:
  - make specific reference to impacts on landscape values, biodiversity values of native vegetation and threatened species or populations, including worst case estimates of vegetation clearing and operational impacts;
  - demonstrate a design philosophy of impact avoidance on ecological values, and in particular, ecological values of high significance, and be consistent with the 'avoid, minimise or offset' principle;
  - be undertaken in accordance with the *Framework for Biodiversity Assessment* (OEH, 2014) and the *NSW Biodiversity Offsets Policy for Major Projects* (OEH, 2014), and by a person accredited in accordance with section 142B(1)(c) of the *Threatened Species Conservation Act, 1995.* Impacts on species, populations and ecological communities that will require further consideration and provision of information specified in section 9.2 of the *Framework for Biodiversity Assessment* include those identified by the OEH. Species specific surveys shall be undertaken for those species and in accordance with the survey requirements specified by the OEH; and
  - in relation to aquatic biodiversity be consistent with the draft *Policy and Guidelines for Fish Habitat Conservation and Management – Update* 2013 (DPI, 2013).
- The assessment of potential ecological impacts is to comply with the requirements of the *Guidelines for preparing Assessment Documentation relevant to the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) — WestConnex New M5 Project (EPBC 2015/7520)*. The assessment is to contain detailed identification and assessment of direct and indirect impacts on threatened species and ecological communities that will, are likely to, or may be significantly impacted by the proposal, including but not limited to:
  - Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion,
  - Green and Golden Bell Frog (*Littoria aurea*),
  - Turpentine-Ironbark Forest in the Sydney Basin Bioregion,
  - Bynoe's Wattle (*Acacia bynoeana*),
  - Downy Wattle (*Acacia pubescens*),
  - Deane's Paperbark (*Melaleuca deanei*),

- Hairy Geebung (*Persoonia hirsuta*),
- Spiked Rice-flower (*Pimelea spicata*),
- Magenta Lilly Pilly (*Syzygium paniculatum*), and
- Black-eyed Susan (*Tetratheca juncea*).

Urban Design and Visual Amenity – including, but not limited to:

- a consideration of the urban design and visual amenity implications of the proposal, including supporting infrastructure, during construction and operation. The assessment must identify urban design and landscaping objectives to enhance the ventilation stacks, interchanges, tunnels, 'cut and cover' arrangements, consider resulting residual land and treatments, and demonstrate how the proposed hard and soft urban design elements of the proposal would be consistent with the existing and desired future character of the area traversed affected by the proposal;
- identification of opportunities to utilise surplus or residual land, and utilise key structures (such as stacks) for multiple uses ie integration with other structures;
- evaluation of the visual impacts and urban design aspects of the proposal (and its components) on surrounding areas, and consistency with the urban and landscape design of the M5 East Motorway and WestConnex Urban Design Corridor Framework;
- a consideration of impacts on views and vistas, streetscapes, key sites and buildings, and direct amenity impacts (such as proximity and overshadowing);
- details of urban design and landscape mitigation measures, having regard to the urban design and landscape objectives for the proposal;
- measures to manage lighting impacts both during construction and operation, in particular lighting of the St Peters interchange and impacts on the operation of Sydney Airport; and
- artists' impressions and perspective visualisations of the proposal from a variety of locations along and adjacent to the route.

Land Use, Social and Economic — including, but not limited to:

- a description of the existing socio-economic environment;
- impacts on directly affected properties and land uses, including impacts related to access, land use, settlement and subsidence associated with tunnel excavation, property acquisition (including relocations and expenses for those properties acquired) and amenity related changes;
- social and economic impacts to businesses and the community within the vicinity of the proposal, with associated property acquisition, traffic, access, property, public domain and open space, and amenity and health related changes (including the broader regional impacts associated with the closure of the Alexandria landfill site should this be part of the proposal);
- opportunities for local centre and street revitalisation near the St Peters interchange;
- an assessment of the impact of the proposal on community facilities, including open space and recreational facilities. The assessment must include the use of existing facilities impacted by the proposal, and options and opportunities for the relocation and/or reconfiguration of the community facilities, both temporary and permanent;
- where there are potential impacts to the OEH estate reserved under the *National Parks and Wildlife Act 1974* or where the proposal is located upstream of OEH estate, an assessment of the matters to be considered outlined in the *Guidelines for developments adjoining land and water managed by DECCW* (DECCW 2010);
- potential impacts on utilities (including communications, electricity, gas, and water and sewerage) and the relocation of these utilities; and
- a draft Community Consultation Framework identifying relevant stakeholders, procedures for distributing information and

	receiving/responding to feedback and procedures for resolving stakeholder and community complaints during construction and operation. Key issues that must be addressed in the draft Strategy include: • traffic management (including property access, pedestrian access), • landscaping/urban design matters, • construction activities including out of hours work, and • noise and vibration mitigation and management. **Soil, Water and Hydrology**— including but not limited to: • an assessment of construction and operational erosion and sediment and water quality discharge impacts, taking into account impacts from treated discharge, accidents and runoff (i.e. acute and chronic impacts), having consideration to impacts to surface water runoff, soil erosion and sediment transport, mass movement, salinity and iron levels. The assessment must include identification and estimation of the quality and quantity of pollutants that may be introduced into any waterways by source and discharge point; • an assessment of water quality impacts on receiving waterways likely to be affected by the proposal (including Wolli, Cup and Saucer Creeks, Cooks River and Alexandria Canal). The assessment must include existing water quality, geomorphology, riparian vegetation and rehabilitation of riparian land, and have reference to the *NSW Water Quality Objectives and* relevant public health and environmental water quality trigger values and criteria, including those specified in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC/ARMCANZ 2000), any applicable regional, local or site-specific guidelines and any licensing requirements; • an assessment of groundwater impacts (including ancillary facilities such as the tunnel control centre and any deluge systems), considering local impacts along the length of the tunnels and impacts on local and regional hydrology including consideration of any Water Sharing Plan and impacts on groundwater flow. The assessment must consider: extent of drawdown; impacts to groundwater quality; volume of groundwater that will be taken (including inflows); discharge requirements; location and details of groundwater management and implications for groundwater-dependent surface flows, groundwater-dependent ecological communities, and groundwater users. The assessment must include details of proposed surface and groundwater monitoring and be prepared having consideration to the requirements of the *NSW Aquifer Interference Policy*; • identification of potential impacts of the proposal on existing flood regimes, consistent with the *Floodplain Development Manual* (Department of Natural Resources, 2005), including impacts to existing receivers and infrastructure and the future flood mitigation options for and development potential of affected land, demonstrating consideration of the changes to rainfall frequency and/or intensity as a result of climate change on the proposal. The assessment must demonstrate due consideration of flood risks during construction and in the proposal design; • identifying potential impacts of the development on acid sulphate soils in accordance with the relevant guidelines and a description of the mitigation measures proposed to minimise potential impacts; and • a Spoil Management Strategy detailing how spoil will be managed during construction, including likely volumes, likely nature and classification of excavated material, opportunities for recycling, potential disposal sites (including description of sites), stockpile management, and method(s) and route of transportation. **Contaminated Sites –** including but not limited to: • an assessment of contaminated sites in accordance with the guidelines

made or approved under section 105 of the *Contaminated Land Management Act 1997.* The assessment must include details of proposed remediation measures and justification for the proposed measures in terms of the proposed final use of that land;

- status of site contamination and suitability of the site for the proposal, including the suitability of the Alexandria landfill site for the St Peters interchange;
- an assessment of the potential disturbance of contaminated bed sediments in the Alexandra Canal, and interception of contaminated water from the Botany Sand Beds aquifer; and
- having reference to the assessments conducted in satisfaction of the above, consideration of whether or not a site auditor, accredited under the *Contaminated Land Management Act 1997,* has or will be engaged to issue a site audit statement to certify on the suitability of the current or proposed uses.

Heritage — including but not limited to:

- impacts to State and local non-Aboriginal heritage (including conservation areas, built heritage landscapes and archaeology) must be assessed. Where impacts to State or locally significant historic heritage are identified, the assessment must:
    - outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with the guidelines in the *NSW Heritage Manual* (Heritage Office and Department of Urban Affairs and Planning 1996),
    - be undertaken by a suitably qualified heritage consultant(s) with relevant heritage expertise (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria),
    - include a statement of heritage impact for all heritage items/conservation areas to be impacted (including significance assessment), This must include detailed mapping of all heritage items and how they are affected by the proposal,
    - include details of any proposed mitigation measures (architectural and landscape),
    - consider the impacts from vibration, demolition, archaeological disturbance, altered historical arrangements and access, increased traffic, landscape and vistas, and architectural noise treatment, and
    - develop an appropriate archaeological assessment methodology, including research design, in consultation with the Department and the Heritage Council of New South Wales, to guide physical archaeological test excavations and include the results of these excavations; and
- impacts to Aboriginal heritage (including cultural and archaeological significance), in particular impacts to Aboriginal objects and potential archaeological deposits (PAD), should be assessed. Where impacts are identified, the assessment shall:
    - outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures) generally consistent with the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (Department of Environment and Conservation 2005) and other relevant guidelines and requirements,
    - be undertaken by a suitably qualified heritage consultant(s),
    - demonstrate effective consultation with Aboriginal stakeholders in determining and assessing impacts and developing and selecting

	options and mitigation measures (including the final proposed measures), • assess and document the archaeological and cultural heritage significance of affected sites, and • undertake appropriate archaeological investigations generally in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010), to establish the full spatial extent and significance of any archaeological evidence across each site/area of PAD, and include the results of these excavations. If an alternative excavation method is proposed, it shall be developed in consultation with OEH. **Environmental Risk Analysis** — notwithstanding the above assessment requirements, the EIS must include an environmental risk analysis to identify potential environmental impacts associated with the proposal (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of this additional key environmental impact must be included in the EIS.
Consultation	During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. • local, State and Commonwealth government authorities, including the: o Environment Protection Authority, o Office of Environment and Heritage (including Heritage Division), o The Heritage Council of NSW, o Department of Primary Industries, o NSW Office of Water, o NSW Health (including Local Health Districts), o Roads and Maritime Services, o Transport for NSW, o UrbanGrowth NSW; o Sydney Water, o Canterbury City Council, o Hurstville City Council, o Rockdale City Council, o Marrickville Council, o City of Botany Bay Council, o City of Sydney, o Civil Aviation Safety Authority, and o Air Services Australia; • specialist interest groups, including Local Aboriginal Land Councils, Aboriginal stakeholders, and pedestrian and bicycle user groups; • utilities and service providers; and • the public, including community groups and adjoining and affected landowners. The EIS must describe the consultation process and the issues raised, and identify where the design of the proposal has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation must be provided.
Further consultation after 2 years	If you do not lodge an EIS for the proposal within 2 years of the issue date of these SEARs, you must consult further with the Secretary in relation to the preparation of the EIS.

Guidelines for preparing Assessment Documentation relevant to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

WestConnex New M5 Project (EPBC 2015/7520)

The WestConnex New M5 Project will be assessed under the Assessment Bilateral Agreement (2015) with NSW. These Guidelines are intended to ensure there is sufficient information in the assessment report on the impacts of this controlled action on each relevant matter of national environmental significance so the Commonwealth decision-maker may consider those impacts when determining whether or not to approve the action and, if so, on what conditions. These Guidelines do not stand alone but are a supplement to the Secretary's Environmental Assessment Requirements issued on 5 March 2015 and must be addressed in conjunction with these requirements.

1 GENERAL REQUIREMENTS - BACKGROUND AND DESCRIPTION OF THE ACTION

The Assessment Documentation must include the precise location of all works to be undertaken (including associated offsite works and infrastructure), structures to be built or elements of the action that may have impacts on matters of national environmental significance (MNES).

2 KEY ISSUES – BIODIVERSITY -MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

The Assessment Documentation must identify and/or describe each MNES protected by controlling provisions of Part 3 of the EPBC Act likely to be located in the project area or in the vicinity. For this proposal there is one MNES:

- **listed threatened species and communities (EPBC Act Section 18 and 18A)**.

The Department of the Environment has provided a list of threatened species and communities that are considered to be at risk of impact from the proposal at Attachment 1. This is not necessarily an inclusive list and it is the responsibility of the proponent to ensure that all EPBC Act listed threatened species and communities have been identified and assessed accordingly.

The Assessment Documentation must describe:

i. the environment with regard to each relevant listed threatened species and community (including suitable breeding habitat, suitable foraging habitat, important populations, habitat critical for survival, etc). Consideration of, and reference to any relevant Commonwealth guidelines and policy statements including listing advice, conservation advice, recovery plans and threat abatement plans is essential.

ii. Details of the scope, timing/effort (survey season/s) and methodology for studies or surveys used to provide information on the EPBC Act listed species and species habitat or listed ecological communities at the site (and in areas that may be impacted by the project. Include details of:

    - o best: practice survey guidelines applied; and
    - o how they are consistent with (or a justification for divergence from) published Australian Government guidelines and policy statements.

3 IMPACTS

The Assessment Documentation must include a description of all of the relevant direct and indirect impacts of the action on relevant listed species and communities (identified in Section 2). Impacts during all phases of the project must be addressed, and the following information provided:

i. a description of the impacts of the action on listed species and communities;

ii. a detailed analysis of the nature and extent of the likely direct, indirect and consequential impacts relevant to listed species and communities, including likely short-term and long-term impacts – refer to the Significant Impact Guidelines 1.1 - Matters of National Environmental Significance for guidance on the various types of impact that need to be considered;

iii. consideration of, and reference to any relevant Commonwealth guidelines and policy statements including listing advice, conservation advice, recovery plans and threat abatement plans is essential.

iv. a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible;

v. any technical data and other information used or needed to make a detailed assessment of the relevant impacts;

vi. an explanation of how the views of Indigenous stakeholders, directly affected by the action, have been sought and considered in the assessment if the action will have or is likely to have a significant impact on threatened species and communities that relates to their Indigenous cultural heritage. Including where relevant, how guidelines published by the Commonwealth in relation to consulting with Indigenous peoples for proposed actions that are under assessment have been considered and applied.

The Assessment Documentation must identify and address cumulative impacts to listed threatened species and communities, where potential project impacts are in addition to existing impacts of other activities (including known potential future expansions or developments by the proponent and other proponents in the region and vicinity).

The Assessment Documentation must also provide a detailed assessment of any likely impact that this proposed action may facilitate on the relevant listed threatened species and communities at the local, regional, state and national scale.

4 AVOIDANCE AND MITIGATION MEASURES / ALTERNATIVES

The Assessment Documentation must provide information on all proposed avoidance and mitigation measures to manage the relevant impacts of the action on listed threatened species and communities.

The Assessment Documentation also must take into account relevant agreements and plans that cover impacts on listed threatened species and communities including but not limited to:

- any recovery plan, conservation advice for the species or community;

- any threat abatement plan for a process that threatens the species;
- any wildlife conservation plan for the species.

The Assessment Documentation must include, and substantiate, specific and detailed descriptions of the proposed avoidance and mitigation measures, based on best available practices and must include the following elements:

(a) A list of avoidance and mitigation measures proposed to be undertaken to prevent or minimise the relevant impacts of the action on specific listed threatened species and communities, including:

   i. a description of proposed avoidance and mitigation measures to deal with relevant impacts of the action;

   ii. assessment of the expected or predicted effectiveness of the mitigation measures, including the scale and intensity of impacts of the proposed action and the on-ground benefits to be gained through each of these measures; and

   iii. a description of the outcomes that the avoidance and mitigation measures will achieve.

(b) A detailed outline of a plan for the continuing management, mitigation and monitoring of impacts of the action on relevant listed threatened species and communities, including a description of the outcomes that will be achieved and any provisions for independent environmental auditing.

(c) Consideration of, and reference to any relevant Commonwealth guidelines and policy statements including listing advice, conservation advice, recovery plans and threat abatement plans is essential.

5 RESIDUAL IMPACTS / OFFSETS

The Assessment Documentation must provide details of the likely residual unavoidable impacts on listed threatened species and communities that are likely to occur after the proposed activities to avoid and mitigate all impacts are taken into account. The Assessment Documentation must:

   i. include the reasons why avoidance or mitigation of impacts is not reasonably achieved; and

   ii. identify the significant residual impacts on listed threatened species and communities.

If after all reasonable avoidance and mitigation measures have been put in place, there is a residual adverse impact on an EPBC Act listed threatened species or ecological community, offsets must be applied. The Assessment Documentation must include details of how the current published *NSW Framework for Biodiversity Assessment* (FBA) has been applied in accordance with the objects of the EPBC Act. The Assessment Documentation must include details of the offset package to compensate for significant residual impacts on EPBC listed threatened species and communities.

For the purposes of approval under the EPBC Act, it is a requirement that offsets directly contribute to the ongoing viability of the specific protected matter impacted by a proposed

action i.e. 'like for like'. In applying the FBA, residual impacts on EPBC Act listed threatened ecological communities must be offset with Plant Community Type(s) (PCT) that are ascribed to the specific EPBC listed ecological community. PCTs from a different vegetation class will not generally be acceptable as offsets for EPBC listed communities.

Any significant residual impacts not addressed by the FBA may need to be addressed in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offset Policy. http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy

If EPBC Act Environmental Offset Policy is used to calculate proposed offsets for a threatened species or community please contact the Department of Planning and Environment for specific information on applying the EPBC Act offset policy calculator.

6 ENVIRONMENTAL RECORD OF PERSON(S) PROPOSING TO TAKE THE ACTION

The information provided must include details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

(a) the person proposing to take the action; and

(b) for an action for which a person has applied for a permit, the person making the application.

If the person proposing to take the action is a corporation, details of the corporation's environmental policy and planning framework must also be included.

7 INFORMATION SOURCES PROVIDED IN THE ASSESSMENT DOCUMENTATION

For information given in the Assessment Documentation, state:

(a) the source of the information;

(b) how recent the information is;

(c) how the reliability of the information was tested;

(d) what uncertainties (if any) are in the information; and

(e) what guidelines, plans and/or policies were considered.

REFERENCES

1. *Environment Protect and Biodiversity Conservation Act 1999* - section 51-55, section 96A(3)(a)(b), 101A(3)(a)(b), section 136, section 527E

2. Environment Protect and Biodiversity Conservation Regulations 2000 - Division 3.2, 3.02(a)(b)(ii)(iii), Division 5.2, Schedule 4

3. NSW Assessment Bilateral Agreement (2015) - Item 18.1, Item 18.5, Schedule 1

4. Matters of National Environmental Significance Significant impact guidelines 1.1 (2013) EPBC Act

5. *Environment Protect and Biodiversity Conservation Act 1999* Environmental Offsets Policy October 2012

ATTACHMENT 1 – Listed threatened species and communities relevant to the construction and operation of WestConnex new M5, NSW (EPBC 2015/7520)

The construction and operation of WestConnex new M5 was determined to be a controlled action under section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 11 August 2015.

The controlled action is likely to have a direct and indirect impact on matters of national environment significance, in particular, threatened species and ecological communities (sections 18 and 18A).

A number of threatened species and ecological communities protected under Part 3 of the EPBC Act have been identified as potentially impacted by the proposed action.

The Department considers that the following threatened species and ecological communities will be impacted directly and or indirectly by the proposed action:

- Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion– critically endangered
- Green and Golden Bell Frog (GGBF) (*Littoria aurea*) – vulnerable

The Department considers that the following threatened species and ecological communities may be at risk from the proposed action. The Assessment Documentation must identify whether or not a significant impact is likely for these matters and the describe the basis for the conclusion.

- Turpentine Ironbark Forest in the Sydney Basin Bioregion – critically endangered
- Bynoe's Wattle (*Acacia bynoeana*) - vulnerable
- Downy Wattle (*Acacia pubescens*) - vulnerable
- Deane's Paperbark (*Melaleuca deanei*) - vulnerable
- Hairy Geebung (*Persoonia hirsuta*) - endangered
- Spiked Rice-flower (*Pimelea spicata*) - endangered
- Magenta Lilly Pilly (*Syzygium paniculatum*) - vulnerable
- Black-eyed Susan (*Tetratheca juncea*) – vulnerable

It is the responsibility of the proponent to ensure all EPBC Act listed threatened species and ecological communities potentially impacted have been identified and assessed. Any significant residual impacts must be offset.

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Appendix C

Existing EPLs and TWA

Appendix C Existing EPLs and TWA

Healthy Environment, Healthy Community, Healthy Business

Licence summary

Search Again Return to Previous Page

Summary Licence No: 4627

View this licence (PDF document 137 kb)

Licence holder:	**ALEXANDRIA LANDFILL PTY LTD**
Premises:	ALEXANDRIA LANDFILL 10 ALBERT STREET, ST PETERS, NSW, 2044 **LGA:** MARRICKVILLE **Catchment:** Sydney Coast & Georges River
Administrative fee:	$3,808.00
Licence status:	Issued
Activity type:	Waste disposal by application to land
Licence review:	Complete date 30 Jun 2014 Complete date 30 Jun 2009 Complete date 01 Jul 2003 Due date 30 Jun 2019
Pollution incident management plan:	Last tested 01 Jan 2014 Last updated 01 Jan 2014

Applications

Number	Application type	Current status	Date received
140516	s.55 Licence Transfer	Approved	18 Jun 2001
140976	s.55 Licence Transfer	Approved	19 Dec 2001

Connect **Fee**

Wel
Pub

Notices

Number	Issue date	Notice type
1017904	31 May 2002	s.91 Clean Up Notice
1017963	06 Jun 2002	s.91 Clean Up Notice
1018247	18 Jun 2002	s.91 Clean Up Notice
1018386	21 Jun 2002	s.91 Clean Up Notice
1018818	09 Jul 2002	s.58 Licence Variation
1024148	07 Jan 2003	s.58 Licence Variation
1028703	04 Jul 2003	s.58 Licence Variation
1040317	02 Sep 2004	s.58 Licence Variation
1041133	29 Sep 2004	s.58 Licence Variation
1042998	30 Sep 2005	s.58 Licence Variation
1057971	31 Mar 2006	s.58 Licence Variation
1061862	02 Nov 2006	s.58 Licence Variation
1067504	04 Dec 2006	s.58 Licence Variation
1068196	21 Jun 2007	s.58 Licence Variation
1093194	31 Oct 2008	s.58 Licence Variation
1099148	30 Mar 2009	s.58 Licence Variation
1127043	15 Apr 2011	s.91 Clean Up Notice
1127407	21 Apr 2011	s.110 Variation of Clean Up Notice
1127781	28 Apr 2011	s.110 Variation of Clean Up Notice
1128035	03 May 2011	s.110 Variation of Clean Up Notice
1128694	21 Jun 2011	s.91 Clean Up Notice
1507165	03 Aug 2012	s.58 Licence Variation

Pollution studies and reduction programs

Title	Program type	Start date	Complete date	
Improvements to design of active cell	Waste	16 Jul 2012		Conditions

Annual Returns

Start date	End date	Date received	Non-compliance	LBL data	
01-Dec-2012	30-Nov-2013	30-Jan-2014	yes	Not available	
01-Dec-2011	30-Nov-2012	30-Jan-2013	yes	Not available	
01-Dec-2010	30-Nov-2011	31-Jan-2012		Not available	
01-Dec-2009	30-Nov-2010	10-Feb-2011	No	Not available	
01-Dec-2008	30-Nov-2009	29-Jan-2010	No	Not available	
01-Dec-2007	30-Nov-2008	27-Jan-2009	No	Not available	
01-Dec-2006	30-Nov-2007	01-Feb-2008	yes	Not available	
01-Dec-2005	30-Nov-2006	30-Jan-2007	No	Not available	
01-Dec-2004	30-Nov-2005	25-Jan-2006	yes	Not available	
01-Dec-2003	30-Nov-2004	15-Apr-2005	No	Not available	
01-Dec-2002	30-Nov-2003	29-Jan-2004	No	Not available	
01-Dec-2001	30-Nov-2002	29-Jan-2003	No	Not available	
01-Dec-2000	30-Nov-2001	30-Jan-2002	No	Not available	
01-Dec-1999	30-Nov-2000				Download Annual Return Form

Environment Protection Licence

Licence - 4627

Licence Details	
Number:	4627
Anniversary Date:	01-December

Licensee

WESTCONNEX DELIVERY AUTHORITY

LOCKED BAG 928

NORTH SYDNEY NSW 2059

Premises

ALEXANDRIA LANDFILL

10 ALBERT STREET

ST PETERS NSW 2044

Scheduled Activity

Waste Disposal (application to land)

Fee Based Activity	Scale
Waste disposal by application to land	Any annual capacity

Region

Waste & Resources - Waste Management

59-61 Goulburn Street

SYDNEY NSW 2000

Phone: (02) 9995 5000

Fax: (02) 9995 5999

PO Box A290 SYDNEY SOUTH

NSW 1232

Environment Protection Licence

Licence - 4627

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Environment Protection Licence

Licence - 4627

Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

WESTCONNEX DELIVERY AUTHORITY
LOCKED BAG 928
NORTH SYDNEY NSW 2059

subject to the conditions which follow.

Environment Protection Licence

Licence - 4627

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Waste Disposal (application to land)	Waste disposal by application to land	Any annual capacity

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
ALEXANDRIA LANDFILL
10 ALBERT STREET
ST PETERS
NSW 2044
LOT 100 DP 845651, PART LOT 11 DP 1013168
AS SHOWN AS "LANDFILL PREMISES" ON APPROVED SURVEY PLAN AS BEING USED FOR THE SCHEDULED ACTIVITIES AUTHORISED BY THIS LICENCE. NOTE: DEFINITIONS OF APPROVED SURVEY PLANS IN CONDITION E3

A2.2 The Licensee may vary the area of premises that are subject to this licence and upon which scheduled activities authorised by this licence are carried out by lodging with the EPA an application for variation under section 58 of the Act of the area of the premises together with a Survey Plan.

Note: Licence 12594 does not apply to the area of Lot 11 DP 1013168 and Lot 100 DP 845651 used for the scheduled activities authorised by this licence as shown on the Approved Survey Plan.

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:
a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and

b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

A3.2 The following documents (and any future amendments to them) are not to be taken as part of the documentation in A4.1, other than those parts specifically referenced in this licence.

A3.3 a) Albert Street Disposal Depot Landfill Environmental management Plan, dated December 1997;

b) Alexandria Landfill Site Revised Surface Water & Leachate Management Plan dated September 2004, prepared by Ian Grey Groundwater Consulting Pty Limited dated September 2004 (Report ID AJ001/Rp003 Rev D). An updated Figure 2 emailed to the DEC on 1 June 2005 from Ian Grey Groundwater Consulting Pty Limited.

Note: For the purposes of this licence the abbreviation “LEMP” is defined as the document titled Albert Street Disposal Depot Landfill Environmental Management Plan dated December 1997.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

P1.2 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
2	Groundwater quality monitoring		Groundwater monitoring bore as labelled as "MW01" on map titled "Figure 5: Leachate & Groundwater Management Features" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004"
3	Groundwater quality monitoring		Groundwater monitoring bore as labelled as "MW02s" on map titled "Figure 5: Leachate & Groundwater Management Features" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004"

4	Groundwater quality monitoring	Groundwater monitoring bore as labelled as "MW02d" on map titled "Figure 5: Leachate & Groundwater Management Features" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004"
5	Groundwater quality monitoring	Groundwater monitoring bore as labelled as "MW03" on map titled "Figure 5: Leachate & Groundwater Management Features" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004"
6	Groundwater quality monitoring	Groundwater monitoring bore as labelled as "MW04b" on map titled "Figure 5: Leachate & Groundwater Management Features" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004"
7	Leachate quality monitoring	Leachate sump as labelled as "Leachate Sump" on map titled "Figure 1: Site Layout" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004

3 Limit Conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Waste

L2.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled “Waste” and meeting the definition, if any, in the column titled “Description” in the table below.
Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled “Activity” in the table below.
Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled “Other Limits” in the table below.
This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	General solid waste (non-putrescible)			No garden and wood waste is to be accepted at the Premises.
NA	Waste tyres			NA
NA	Asbestos waste			NA
NA	Waste			NA

L2.2 The licensee must not dispose of any tyres on the premises which;
a) have a diameter of less than 1.2 metres; and
b) are delivered at the premises in a load containing more than 5 whole tyres; and
c) became waste in the Sydney Metropolitan Area.

L2.3 Tyres stockpiled on the premises must:
a) not exceed fifty (50) tonnes of tyres at any one time; and
b) be located in a clearly defined area away from the tipping face; and
c) be managed to control vermin; and
d) be managed to prevent any tyres from catching fire.

L3 Noise limits

L3.1 Noise from the premises must not exceed an LA10 (15 minute) noise emission criterion of 50 dB(A), except as expressly provided by this licence.

L4 Potentially offensive odour

L4.1 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
a) must be maintained in a proper and efficient condition; and
b) must be operated in a proper and efficient manner.

O3 Dust

O3.1 All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.

O4 Processes and management

Note: The EPA would vary condition O6.4 to permit the water to be managed as stormwater provided the licensee provides evidence to demonstrate that the water does not contain leachate.

O4.1 The licensee must take all practicable steps to control entry to the premises.

O5 Waste management

O5.1 There must be no incineration or burning of any waste at the premises.

O5.2 The licensee must fill and cap quadrants B, then C (as shown in map titled “Figure 1: Site Layout” contained in the report titled “Alexandria Landfill Site Revised Surface Water & Leachate Management Plan“ dated September 2004). No landfilling of waste must occur in more than one quadrant at any time.

O5.3 The licensee must not commence landfilling in quadrant C until capping works for quadrants A and B are approved by the EPA.

O5.4 Cover material must be :
a) Daily cover
Daily cover material must be either:
i) virgin excavated natural material, or
ii) approved alternative daily cover.

Cover material must be applied to a minimum depth of 15 centimetres over all exposed landfilled waste prior to ceasing operations at the end of each day.

b) Intermediate cover
Cover material must be applied to a depth of 30 centimetres over surfaces of the landfilled waste at the premises which are to be exposed for more than 90 days.

c) Cover material stockpile

At least two weeks cover material must be available at the premises under all weather conditions. This material may be won on site, or alternatively a cover stockpile must be maintained adjacent to the tip face.

O5.5 d) The licensee may conduct a trial using timber cover plates as alternative daily cover.

e) The licensee must inform the EPA in writing of the date the trial commences and carry out the trial for a period of 6 months from the date of commencement, unless the trial is abandoned by the licensee. The trial may commence anytime after 2 July 2007 and must end by 31 January 2008.

f) The timber cover plates may only be used as alternative daily cover according to the terms and conditions outlined the EPA's letter dated 4 December 2006 (EPA ref DOC06/57269) and the letter dated 17 November 2006 prepared by The Odour Unit to the licensee titled "Revised Proposal for Odour Emissions Study Trial of Current and Alternative Day Covers for Landfill Operations at Alexandria Landfill".

g) The licensee must inform the EPA in writing the dates that odour monitoring will be undertaken with at least 24 hours prior notice.

O5.6 For the purposes of condition O5.1(a (ii)) the approved alternative daily cover is to be a combination of virgin excavated natural material and crushed bricks/concrete at a minimum ratio of 1:3 and be in accordance with specifications outlined within EPA correspondence dated 23 September 2005.

O5.7 The proposed alternative daily cover trial set out in condition O5.1 (d) – (g) inclusive is suspended until further notice in writing from the DEC.

O5.8 Landfilled waste which has been covered by daily cover must not be exhumed, except for:

a) fire fighting reasons; or
b) written approval from the EPA is obtained.

O5.9 Leachate must only be disposed of by pumping to sewer, or removed from the premises by tanker and disposed of lawfully off-site.

O5.10 The licensee must not cause or permit any leachate to pool in any area above the tipping face.

O5.11 All water contained within the bunded tipping face area must be managed as leachate.

O5.12 Leachate must not be used in the truck wash facility at the premises.

O5.13 Leachate must not be irrigated and/or used for dust control at the premises.

O5.14 Definition:

"Leachate" is water which has come into contact with:
a) waste (other than inert waste); and/or
b) the tipping face; and/or
c) the greenwaste processing/storage areas.

"Leachate" is also liquid removed from the leachate collection system

"Leachate" is a reference to treated or untreated leachate.

"Treated leachate" is leachate that has been treated in the leachate pre-treatment facility required under the Sydney Water Trade Waste Agreement.

All other leachate on the premises is untreated leachate.

O5.15 The licensee must maintain the level of the leachate below -16.0 metres AHD and at least 0.5 metres below the standing water level.

O5.16 The licensee must measure the level of leachate daily, prior to pumping from the leachate sump.

O5.17 The licensee must take immediate action if methane concentrations levels exceed 500 parts per million (ppm) in any wood waste stockpile at the premises, by aerating the stockpiles to lower the methane concentrations to less than 500 ppm.

"Wood waste" is any unprocessed timber or greenwaste and any processed timber and greenwaste.

O5.18 All asbestos waste must be disposed of at the Premises in accordance with the document titled 'Filling Plan' dated May 2012 prepared by Genesis and correspondence from the Licensee dated 21 June 2012 titled 'Alexandria Landfill Pty Ltd, Disposal of Asbestos Waste EPL 4627'.

O5.19 All asbestos waste must be covered immediately to a depth of at least 0.15 metre and at the end of each day's operation, to a depth of at least 0.5 metre as per the requirements of clause 42 of the *Protection of the Environment Operations* (Waste Regulation) 2005.

O6 Other operating conditions

O6.1 The tipping face must be surrounded with a 300mm high impermeable bund which will prevent stormwater from flowing across the tipping face.

O6.2 Any stormwater which comes into contact with waste (other than inert waste), the tip face and/or the greenwaste areas must be managed in the same manner as leachate.

O6.3 Stormwater run-off from quadrant A and C must not enter quadrant B, unless otherwise approved by the EPA.

O6.4 The licensee must treat the liquid in the stormwater pond in quadrant C as leachate.

5 Monitoring and Recording Conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
a) in a legible form, or in a form that can readily be reduced to a legible form;
b) kept for at least 4 years after the monitoring or event to which they relate took place; and
c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
a) the date(s) on which the sample was taken;
b) the time(s) at which the sample was collected;
c) the point at which the sample was taken; and
d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Water and/ or Land Monitoring Requirements

POINT 2,3,4,5,6

Pollutant	Units of measure	Frequency	Sampling Method
Alkalinity (as calcium carbonate)	milligrams per litre	Quarterly	Grab sample
Aluminium	milligrams per litre	Yearly	Grab sample
Arsenic	milligrams per litre	Yearly	Grab sample
Barium	milligrams per litre	Yearly	Grab sample
Benzene	milligrams per litre	Yearly	Grab sample
Bicarbonate	milligrams per litre	Quarterly	Grab sample
Cadmium	milligrams per litre	Yearly	Grab sample
Calcium	milligrams per litre	Quarterly	Grab sample
Chloride	milligrams per litre	Quarterly	Grab sample
Chromium (hexavalent)	milligrams per litre	Yearly	Grab sample
Chromium (total)	milligrams per litre	Yearly	Grab sample
Cobalt	milligrams per litre	Yearly	Grab sample
Copper	milligrams per litre	Yearly	Grab sample
Ethyl benzene	milligrams per litre	Yearly	Grab sample
Fluoride	milligrams per litre	Yearly	Grab sample
Lead	milligrams per litre	Yearly	Grab sample
Magnesium	milligrams per litre	Quarterly	Grab sample
Manganese	milligrams per litre	Yearly	Grab sample
Mercury	milligrams per litre	Yearly	Grab sample
Nitrate	milligrams per litre	Yearly	Grab sample

Nitrite	milligrams per litre	Yearly	Grab sample
Nitrogen (ammonia)	milligrams per litre	Quarterly	Grab sample
Organochlorine pesticides	milligrams per litre	Yearly	Grab sample
Organophosphate pesticides	milligrams per litre	Yearly	Grab sample
pH	pH	Quarterly	Probe
Polycyclic aromatic hydrocarbons	milligrams per litre	Yearly	Grab sample
Potassium	milligrams per litre	Quarterly	Grab sample
Sodium	milligrams per litre	Quarterly	Grab sample
Standing Water Level	metres	Quarterly	In situ
Sulfate	milligrams per litre	Quarterly	Grab sample
Toluene	milligrams per litre	Yearly	Grab sample
Total dissolved solids	milligrams per litre	Quarterly	Grab sample
Total organic carbon	milligrams per litre	Yearly	Grab sample
Total petroleum hydrocarbons	milligrams per litre	Yearly	Grab sample
Total Phenolics	milligrams per litre	Yearly	Grab sample
Xylene	milligrams per litre	Yearly	Grab sample
Zinc	milligrams per litre	Yearly	Grab sample

POINT 7

Pollutant	Units of measure	Frequency	Sampling Method
Alkalinity (as calcium carbonate)	milligrams per litre	Quarterly	Grab sample
Aluminium	milligrams per litre	Quarterly	Grab sample
Arsenic	milligrams per litre	Quarterly	Grab sample
Barium	milligrams per litre	Quarterly	Grab sample
Benzene	milligrams per litre	Quarterly	Grab sample
Bicarbonate	milligrams per litre	Quarterly	Grab sample
Cadmium	milligrams per litre	Quarterly	Grab sample
Calcium	milligrams per litre	Quarterly	Grab sample
Chloride	milligrams per litre	Quarterly	Grab sample
Chromium (hexavalent)	milligrams per litre	Quarterly	Grab sample
Chromium (total)	milligrams per litre	Quarterly	Grab sample
Cobalt	milligrams per litre	Quarterly	Grab sample
Copper	milligrams per litre	Quarterly	Grab sample
Ethyl benzene	milligrams per litre	Quarterly	Grab sample
Fluoride	milligrams per litre	Quarterly	Grab sample
Lead	milligrams per litre	Quarterly	Grab sample
Magnesium	milligrams per litre	Quarterly	Grab sample
Manganese	milligrams per litre	Quarterly	Grab sample
Mercury	milligrams per litre	Quarterly	Grab sample

Nitrate	milligrams per litre	Quarterly	Grab sample
Nitrite	milligrams per litre	Quarterly	Grab sample
Nitrogen (ammonia)	milligrams per litre	Quarterly	Grab sample
Organochlorine pesticides	milligrams per litre	Quarterly	Grab sample
Organophosphate pesticides	milligrams per litre	Quarterly	Grab sample
pH	pH	Quarterly	Probe
Polycyclic aromatic hydrocarbons	milligrams per litre	Quarterly	Grab sample
Potassium	milligrams per litre	Quarterly	Grab sample
Sodium	milligrams per litre	Quarterly	Grab sample
Standing Water Level	metres	Quarterly	In situ
Sulfate	milligrams per litre	Quarterly	Grab sample
Toluene	milligrams per litre	Quarterly	Grab sample
Total dissolved solids	milligrams per litre	Quarterly	Grab sample
Total organic carbon	milligrams per litre	Quarterly	Grab sample
Total petroleum hydrocarbons	milligrams per litre	Quarterly	Grab sample
Total Phenolics	milligrams per litre	Quarterly	Grab sample
Xylene	milligrams per litre	Quarterly	Grab sample
Zinc	milligrams per litre	Quarterly	Grab sample

M3 Testing methods - concentration limits

M3.1 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4 Recording of pollution complaints

M4.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M4.2 The record must include details of the following:
a) the date and time of the complaint;
b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.

M4.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M4.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M5 Telephone complaints line

M5.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M5.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M5.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

M6 Other monitoring and recording conditions

M6.1 The licensee must monitor the concentration of methane within all stockpiled materials which contains wood waste located over landfilled waste at the premises. The monitoring must be undertaken at least every 3 months and 5 readings must be taken at a depth of at least 50 cm into each stockpile at a height of no more than 1 metre off the surface of the landfilled waste. The monitoring results, including sampling locations and date of sampling, analysis results and instrument details (including its calibration) must be recorded by the licensee. The instrument to monitor methene must be capable of measuring methane at concentrations as low as 500 ppm.

6 Reporting Conditions

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
a) a Statement of Compliance; and
b) a Monitoring and Complaints Summary.
At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

R1.3 Where this licence is transferred from the licensee to a new licensee:
a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

R2.3 The licensee must notify the DEC as soon as practicable and in any case within 48 hours after it becomes aware of methane concentrations in any wood waste stockpiles exceeding 12,500ppm.

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
a) where this licence applies to premises, an event has occurred at the premises; or
b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
a) the cause, time and duration of the event;
b) the type, volume and concentration of every pollutant discharged as a result of the event;
c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

R4 Other reporting conditions

R4.1

R4.2 The licensee must advise the DEC of the actions it will take to dispose of leachate in compliance with the conditions of this licence, in the event that it no longer has an agreement with Sydney Water to dispose of up to 792 kL/day of treated leachate to sewer.

This advice must be provided to the DEC in writing within 7 days of the licensee no longer having access to dispose of treated leachate to sewer.

R4.3 The licensee must notify the DEC as soon as practicable and in any case within 48 hours after it becomes aware that the leachate levels in the riser goes above –16.0 metres AHD and/or less than 0.5 metres to the standing groundwater level.

R4.4 The licensee must provide to the DEC each quarter, copies of a written log used to record the leachate levels in the sump.

7 General Conditions

G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

8 Pollution Studies and Reduction Programs

U1 Improvements to design of active cell

U1.1 By 16 August 2012 the licensee must install the leachate drainage sytem (leachate sump, interception drain and injection trench) in accordance with the document titled 'Filling Plan' dated May 2012 prepared by Genesis.

Within two weeks of installing the leachate drainage system the licensee must submit to the EPA as built design drawings.

9 Special Conditions

E1 Definitions

E1.1 Approved Survey Plan means a plan showing a survey carried out by a registered surveyor of the land comprising Lot 11 DP 1013168 and Lot 100 DP 845651 and identifying the land to be used for scheduled activities authorised by this licence and also the remainder area of land to be used for the scheduled activities authorised by Licence No. 12594 and the location of the significant physical barrier between those two areas of land, being the plan titled “Alexandria Landfill” (Reference No. 250038) dated January 2009 and lodged with the EPA on 20 February 2009 being the most recent such plan lodged under condition A2.2 and approved as a variation under section 58 of the Act by the EPA.

E1.2 Survey Plan means a plan showing a survey carried out by a registered surveyor of the land comprising Lot 11 DP 1013168 and Lot 100 DP 845651 and identifying the land to be used for scheduled activities authorised by this licence and also the remainder area of land to be used for the scheduled activities authorised by licence 12594 and the location of the significant physical barrier between those two areas of land.

E2 Financial assurance

E2.1 A financial assurance, in favour of the Environment Protection Authority (EPA), in the form of an irrevocable and unconditional guarantee from a bank, building society or credit union must be maintained as follows;

a) By 25 June 2007, the licensee must provide to the EPA a financial assurance in the amount of four hundred thousand dollars ($400,000);

b) By 1 June 2008, the licensee must provide to the EPA an additional financial assurance in the amount of two hundred and ten thousand dollars ($210,000);

c) By 1 June 2009, the licensee must provide to the EPA an additional financial assurance in the amount

of two hundred and ten thousand dollars ($210,000).

The above assurances must be replenished to the full amount should the EPA have any reason to call up the financial assurance or any part thereof to correct environmental problems which have not been remedied by the occupier upon being given notice to do so.

E3 Survey plan

E3.1 The licensee shall by no later than 1 February each year during the currency of this licence provide to the EPA a new survey plan.

Note: Definition of survey plan is provided in condition E3.

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder describe d at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same me aning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 mo nths. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.

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TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste

Mr Bernie Weir

Environment Protection Authority

(By Delegation)

Date of this edition: 15-January-2001

Environment Protection Licence

Licence - 4627

End Notes

1	Licence transferred through application 140516, approved on 18-Jun-2001, which came into effect on 01-Dec-2000.
2	Licence varied by change to Common Name field, issued on 16-Jan-2002, which came into effect on 16-Jan-2002.
3	Licence transferred through application 140976, approved on 25-Jan-2002, which came into effect on 23-Jan-2002.
4	Licence varied by correction of File Number , issued on 04-Apr-2002, which came into effect on 04-Apr-2002.
5	Licence varied by notice 1024148, issued on 07-Jan-2003, which came into effect on 07-Jan-2003.
6	Licence varied by notice 1028703, issued on 04-Jul-2003, which came into effect on 29-Jul-2003.
7	Licence varied by notice 1040317, issued on 02-Sep-2004, which came into effect on 27-Sep-2004.
8	Licence varied by notice 1041133, issued on 29-Sep-2004, which came into effect on 24-Oct-2004.
9	Licence varied by notice 1042998, issued on 30-Sep-2005, which came into effect on 04-Oct-2005.
10	Licence varied by notice 1057971, issued on 31-Mar-2006, which came into effect on 25-Apr-2006.
11	Licence varied by notice 1061862, issued on 02-Nov-2006, which came into effect on 02-Nov-2006.
12	Licence varied by notice 1067504, issued on 04-Dec-2006, which came into effect on 04-Dec-2006.
13	Licence varied by notice 1068196, issued on 21-Jun-2007, which came into effect on 21-Jun-2007.
14	Licence varied by notice 1093194, issued on 31-Oct-2008, which came into effect on 31-Oct-2008.
15	Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
16	Licence varied by notice 1099148, issued on 30-Mar-2009, which came into effect on 30-Mar-2009.
17	Licence varied by Correction to EPA Region data record., issued on 25-Jun-2010, which came into effect on 25-Jun-2010.
18	Licence varied by correction to DECCW Region data record, issued on 07-Jul-2010, which came into effect on 07-Jul-2010.

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19	Licence varied by notice 1507165 issued on 03-Aug-2012
20	Licence transferred through application 1529361 approved on 23-Mar-2015 , which came into effect on 23-Mar-2015

Section 91 of the Protection of the Environment Operations Act 1997

Clean-Up Notice

BOILING PTY LTD,
ABN 72 087 444 460,
PO BOX 1040,
MASCOT NSW 1460

Attention: Mr. IAN MALOUF

Notice Number 1128662
File Number LIC06/161-09
Date 08-Jun-2011

NOTICE OF CLEAN-UP ACTION

BACKGROUND

A. The Environment Protection Authority ("EPA") is responsible for the administration and enforcement of the *Protection of the Environment Operations Act 1997* ("POEO Act").

B. This Notice relates to Alexandria Recycling Centre located at 10-16 Albert Street, St Peters ("the Premises").

C. Boiling Pty Ltd holds Environment Protection Licence No. 12594 that permits waste storage and resource recovery at the Premises. Licence condition L5.1 of Environment Protection Licence No. 12594 only permits or allows, garden waste, wood waste, metal waste, glass waste, plastic waste, building and demolition waste and general or specific exempted waste that meets all conditions of a resource recovery exemption under Clause 51a of the Protection of the Environment Operations (Waste) Regulation 2005 to be received at the Premises.

D. Alexandria Landfill Pty Ltd holds Environment Protection Licence No. 4627 that permits waste disposal (application to land) of general solid waste (non-putrescible), waste tyres and asbestos waste at Alexandria Landfill located at 10 Albert St, St Peters ("Alexandria Landfill"). Alexandria Landfill adjoins the Premises.

E. The EPA is the appropriate regulatory authority for the activities at the Premises and the Landfill .

F. On 19 May 2011, EPA authorised officers undertook an inspection of the Premises and observed several large stockpiles near the western boundary of the Premises. Visual inspections of two stockpile areas (Area 1 (photos 1 & 2) and Area 2 (Photo 3) located on map 1) identified fragments of suspected asbestos sheeting. EPA's Environmental Forensic and Analytical Science Section have provided laboratory results for the samples taken in Area 1 and 2 confirming eleven out of twelve samples positively contain asbestos.

G. EPA officers verbally requested that the areas identified by EPA authorised officers in Paragraph F be restricted and no further waste is added, removed or processed in Areas 1 and 2.

H. Area 2 consists of a number of stockpiles joined together. The EPA understands that these stockpiles have been generated by the processing of waste contained within Area 2 (photo 3).

I. Given that the stockpile containing suspected asbestos fragments and the other stockpiles within Area 2 were processes from one stockpile. The EPA reasonably suspects that each stockpile contained within Area 2 contains asbestos.

J. On 20 May 2011 EPA officers conducted an inspection of the Premises and observed a large stockpile (Area 3 (photo 4) located on map 1). Area 3 consisted of soil, bricks, tiles and concrete. EPA's Environmental Forensic and Analytical Science Section have provided laboratory results for the samples taken in Area 3 confirming two out of three samples positively contain asbestos.

K. EPA officers verbally requested that the areas identified by EPA authorised officers in paragraph J be restricted and no further waste is added, removed or processed in Areas 3.

L. During the same inspection EPA authorised officers observed approximately eight stockpiles of orange-brown-black sandy material containing black sludge (Area 4 (photo 5-6) located on map 2) . An oily sheen was observed in the leachate surrounding the stockpile. Representatives of the licensee advised EPA authorised officers that the Stockpiles were foundry sands. EPA authorised officers were advised by representatives of the Licensee that the foundry sands were processed with waste soil, shredded wood waste and garden waste.

M. EPA authorised officers took samples of the foundry sands. Preliminary results from EPA's Environmental Forensic and Analytical Science Section indicate that the foundry sands may be Restricted Solid Waste with elevated levels of Benzo(a)pyrene, lead, pH and nickel. The EPA is waiting for further analysis and test results to confirm the waste classification.

N. During the inspection of the premises on 20 May 2011, the EPA observed that one of the stockpiles of waste in Area 2 where asbestos was found as described in Paragraph F, had been moved. An employee of the Licensee was unable to advise EPA authorised officers where the waste had been moved to. A further inspection of the Premises and the Landfill on 3 June 2011, the same employee advised EPA authorised officers that the stockpile had been moved to the Landfill where the waste was stockpiled on the Landfill (Photo 7). During the same inspection of the Premises on 20 May 2011, employees of the Licensee started excavating waste in Area 1. EPA authorised officers requested that no further waste is to be moved, added, removed or processed in Area 1.

O. During an inspection of the Premises on 3 June 2011, EPA authorised officers were advised by the employee of the Licensee that further waste had been added to the stockpile in Area 3. EPA authorised officers requested that no further waste is to be moved, added, removed or processed in Area 1.

P. During the same inspection EPA authorised officers took GPS readings of the stockpiles and has accurately transferred the data to Map 1.

Q. Asbestos is classified as "special waste" as defined in the POEO Act. Asbestos cannot lawfully be stored or transferred or recovered by ways of separating or processing at the Premises. Foundry sands are classified as general solid waste however preliminary results indicate that the waste may be Restricted Solid Waste. Foundry sands are not permitted to be accepted at the Premises.

R. The EPA reasonably suspects that a pollution incident has occurred at the Premises, in that waste containing asbestos and foundry sands has been transported and deposited at the Premises without lawful authority.

S. The EPA reasonably suspects that Boiling Pty Ltd has caused the pollution incident referred to in paragraph Q above, in that it has accepted waste without lawful authority.

DIRECTION TO TAKE CLEAN-UP ACTION

The EPA directs BOILING PTY LTD to take the following clean-up action:

1. **Immediately** cease stockpiling, applying, removing or disposing of any waste from areas 1-4;

2. **Immediately** secure areas 1-4 of the Premises and any other areas where asbestos waste has been applied and restrict access;
3. By no later than **4pm, 29 June 2011**, provide to the Manager of Waste Operations PO Box A290 Sydney South NSW 1232 with an asbestos report. The Asbestos report must:
    - i Contain details of the nature and extent of asbestos and asbestos contaminated material (including friable and bonded asbestos) in areas 1-3;
    - ii Be prepared by an independent and suitably qualified expert, consultant and/ or an occupational (asbestos) hygienist; and
    - iii Must be sufficient in scope to provide a statistically valid assessment of asbestos contamination (included friable and bonded asbestos) of areas 1-3; and
    - iv Must include a visual walkover of areas 1-3 to identify any pieces of bonded asbestos on the surface of the stockpiles.
4. By no later than **4pm, 29 June 2011** provide to the Manager of Waste Operations PO Box A290 Sydney South NSW 1232 a report on any movement, blending or processing that has occurred in Areas 1-4 prior to the issue of this Clean-Up Notice. Details must include:
    - i How much waste has been blended, moved or processed in Areas 1-4?;
    - ii How must waste has been added and removed to and from the stockpiles in Areas 1-4?;
    - iii Where has the waste was transported off-site in after processing, moving and blending in Areas 1-4?;
    - iv Details of who did the processing, moving and blending in Areas 1-4?; and
    - v Details of what transport companies have transported waste to and from the Premises in Areas 1-4?

Clean-Up Notice

Map 1- Approximate location of stockpiles containing asbestos and foundry sands

Clean-Up Notice

Photos 1 & 2: Area 1

Photo 3: Area 2

Photo 4: Area 3

Photo 5: Black sludgy material – Foundry sands – Area 4

Photo 6: Foundry Sands

Clean-Up Notice

Area 7: Photo taken on 3 June 2011. Asbestos found in one of the waste stockpiles in Area 2 on 19 May 2011. the waste stockpile had been moved on 20 May 2011. During the inspections on 3 June 2011, the Licensee advised that the stockpile had been moved to the Landfill. However the waste had not been landfilled or covered with VENM as required by *clause 42(4)(d)* of the *Protection of the Environment Operations (Waste) Regulation 2005.*

FEE TO BE PAID

- You are required by law to pay a fee of $444 for the administrative costs of issuing this notice.
- It is an offence not to pay this fee. However you can apply for an extension of time to pay the fee or for the fee to be waived. At the end of this notice there is information about how and when to pay the fee and how to apply for an extension or a waiver of the fee.

.....

Ms Julie Currey

Head Sydney (Landfills & AWTs)

Waste Operations (Sydney)

(By Delegation)

Clean-Up Notice

INFORMATION ABOUT THIS CLEAN-UP NOTICE

- This notice is issued under section 91 of the Protection of the Environment Operations Act 1997.
- It is an offence against the Act not to comply with a clean-up notice unless you have a reasonable excuse.

Penalty for not complying with this notice

- The maximum penalty for a corporation is $1,000,000 and a further $120,000 for each day the offence continues. The maximum penalty for an individual is $250,000 and a further $60,000 for each day the offence continues.

Cost recovery from the person who caused the incident

- If you comply with this clean-up notice but you are not the person who caused the pollution incident to which the notice relates, you have a right to go to court to recover your costs of complying with the notice from the person who caused the incident.

Deadline for paying the fee

- The fee must be paid by **no later than 30 days after the date of this notice**, unless the EPA extends the time to pay the fee, or waives the fee.

How to pay the fee

- Possible methods of payment are listed on the last page of the attached invoice/statement.
- Please include the payment slip from the attached invoice/statement with your payment.

How to apply for an extension of time to pay/waive the fee

- Any application for and extension of time to pay the fee or for the fee to be waived should be made in writing to the EPA and sent to Manager Waste Operations, PO Box A290, Sydney South NSW 1232. The application should set out clearly why you think your application should be granted.

Other costs

- The Protection of the Environment Operations Act allows the EPA to recover from you reasonable costs and expenses it incurs in monitoring action taken under this notice, ensuring the notice is complied with and associated matters. (If you are going to be required to pay these costs and expenses you will later be sent a separate notice called a “Notice Requiring Payment of Reasonable Costs and Expenses”).

Continuing obligation

- Under section 319A of the Act, your obligation to comply with the requirements of this notice continues until the notice is complied with, even if the due date for compliance has passed.

Variation of this notice

- This notice may only be varied by subsequent notices issued by EPA.

Environment Protection Licence

Licence - 12594

Licence Details	
Number:	12594
Anniversary Date:	01-December

Licensee
WESTCONNEX DELIVERY AUTHORITY
LOCKED BAG 928
NORTH SYDNEY NSW 2059

Premises
ALEXANDRIA RECYCLING CENTRE
10-16 ALBERT STREET
ST PETERS NSW 2044

Scheduled Activity
Resource Recovery
Waste Storage

Fee Based Activity	Scale
Recovery of general waste	> 0 T recovered
Waste storage - other types of waste	> 0 T stored

Region
Waste & Resources - Waste Management
59-61 Goulburn Street SYDNEY NSW 2000
Phone: (02) 9995 5000
Fax: (02) 9995 5999
PO Box A290 SYDNEY SOUTH
NSW 1232

Environment Protection Licence

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Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

Environment Protection Licence

Licence - 12594

The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

WESTCONNEX DELIVERY AUTHORITY
LOCKED BAG 928
NORTH SYDNEY NSW 2059

subject to the conditions which follow.

Environment Protection Licence

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1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Resource Recovery	Recovery of general waste	> 0 T recovered
Waste Storage	Waste storage - other types of waste	> 0 T stored

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
ALEXANDRIA RECYCLING CENTRE
10-16 ALBERT STREET
ST PETERS
NSW 2044
LOT 100 DP 845651, PART LOT 11 DP 1013168
THAT PART OF LOT 11 DP1013168 & LOT 100 DP845651 AS SHOWN AS "RECYLCING PREMISES" ON APPROVED SURVEY PLAN AS BEING USED FOR THE SCHEDULED ACTIVITIES AUTHORISED BY THIS LICENCE

A3 Other activities

A3.1 The Licensee may vary the are of premises that are subject to this licence and upon which scheduled activities authorised by this licence are carried out by lodging with the EPA an application for variation under section 58 of the Act of the area of the premises together with a Survey Plan.

Note: Licence 4627 does not apply to the area of Lot 11 DP 1013168 and Lot 100 DP 845651 used for the scheduled activities authorised by this licence as shown on the Approved Survey Plan.

A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

A4.2 The following documents (and any future amendments to them) are not to be taken as part of the documentation in A4.1, other than those parts specifically referenced in this licence.

a) Alexandria Landfill Site Revised Surface Water & Leachate Management Plan dated September 2004, prepared by Ian Grey Consulting Pty Limited (Report ID AJ001/Rp003 Rev D). An updated Figure 2 emailed to the DEC on 1 June 2005 from Ian Grey Groundwater Consulting Pty Limited).

A5 Other administrative conditions

A5.1 The licence operates subject to the Development Consents for Lot 1 in DP 1013168 and Lot 100 in DP 845651 granted by the Land and Environment Court of New South Wales on 28 September 2006 (Court numbers No.11646 of 2004 and 10079 of 2005) which Consents are limited to a period of 5 years from the date of the Consent.

Note: If an application for an extension of time under the condition of the consent is lodged with the consent authority at least 3 months before the required cessation of the development under the condition of the consent, the development can continue to be carried out until such time as that modification application is finally determined.

A5.2 The licensee must cease the activities allowed by this license within 6 months of the cessation of the current solid waste landfill operation if the solid waste landfill ceases operation prior to the 5 year development consent

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
7	Dust Monitoring Point - DG1		Adjacent to weighbridge as identified in the diagram attached to the letter to the Environment Protection Authority dated 30 January 2012
8	Dust Monitoring Point - DG2		Southern boundary close to "Sealed Air" as identified in the diagram attached to the letter to the Environment Protection Authority dated 30 January 2012

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9	Dust Monitoring Point - DG3	Southwest boundary close to Canal Road as identified in the diagram attached to the letter to the Environment Protection Authority dated 30 January 2012
10	Dust Monitoring Point - DG4	Adjacent to Sequential Batch Reactor and workshopas identified in the diagram attached to the letter to the Environment Protection Authority dated 30 January 2012

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

P1.3 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Groundwater quality monitoring		Groundwater monitoring bore as labelled as "MW01" on map titled "Figure 5: Leachate & Groundwater Management Features" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004".
2	Groundwater quality monitoring		Groundwater monitoring bore as labelled as "MW02s) on map titled "Figure 5: Leachate & Groundwater Management Features" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004".
3	Groundwater quality monitoring		Groundwater monitoring bore as labelled as "MW02s) on map titled "Figure 5: Leachate & Groundwater Management Features" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004".
4	Groundwater quality monitoring		Groundwater monitoring bore as labelled as "MW03) on map titled "Figure 5: Leachate & Groundwater Management Features" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004".

5	Groundwater quality monitoring	Groundwater monitoring bore as labelled as "MW04b) on map titled "Figure 5: Leachate & Groundwater Management Features" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004".
6	Leachate quality monitoring	Leachate sump as labelled as "Leachate Sump") on map titled "Figure 1: Leachate & Groundwater Management Features" contained in the report titled "Alexandria Landfill Site Revised Surface Water & Leachate Management Plan September 2004".

3 Limit Conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Waste

L2.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled “Waste” and meeting the definition, if any, in the column titled “Description” in the table below.
Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled “Activity” in the table below.
Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled “Other Limits” in the table below.
This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	Foundry Sands	As defined in the foundry sand in recovered aggregate exemption 2008	Waste storage Resource recovery	N/A
NA	Soils	Soil that meet the CT1 thresholds for General Solid Waste in Table 1 of the Waste Classification Guidelines as in force from time to time with the exception of the	Resource recovery Waste storage	Arsenic: 40mg/kg Cadmium: 2mg/kg Copper: 200mg/kg

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		maximum threshold values for contaminants specified in the 'Other Limits" column		Mercury: 1.5mg/kg Zinc: 600mg/kg Petroleum Hydrocarbons C6-C9: 150mg/kg Petroleum Hydrocarbons C10-C36: 16 Polycyclic aromatic hydrocarbons: 80mg/kg Polychlorinated biphenyls (individual): 1mg/kg No Acid Sulfate Soil or Potential Acid Sulfate Soil is to be received at the Premises. Soil thresholds will be subject to review from time-to-time
NA	Garden waste	As defined in Schedule 1 of the POEO Act, as in force from time to time	Resource recovery Waste storage	Maximum of 240,000 tonnes of waste may be processed per annum
NA	Wood waste	As defined in Schedule 1 of the POEO Act, as in force from time to time	Resource recovery Waste storage	Maximum of 240,000 tonnes of waste may be processed per annum
NA	Metal waste	As defined in Schedule 1 of the POEO Act, as in force from time to time	Resource recovery Waste storage	Maximum of 240,000 tonnes of waste may be processed per annum
NA	Glass	As defined in Schedule 1 of the POEO Act, as in force from time to time	Resource recovery Waste storage	Maximum of 240,000 tonnes of waste may be processed per annum
NA	Plastic	As defined in Schedule 1 of the POEO Act, as	Resource recovery Waste storage	Maximum of 240,000 tonnes

		in force from time to time		of waste may be processed per annum
NA	Building and demolition waste	As defined in Schedule 1 of the POEO Act, as in force from time to time	Resource recovery Waste storage	Maximum of 240,000 tonnes of waste may be processed per annum
NA	General or Specific exempted waste	Waste that meets all the conditions of a resource recovery exemption under Clause 51A of the Protection of the Environment Operations (Waste) Regulation 2005	As specified in each particular resource recovery exemption	NA
NA	Waste	Any waste received on site that is below licensing thresholds in Schedule 1 of the POEO Act, as in force from time to time	-	NA

L2.2 No disposal or landfilling of waste must occur at the premises.

L2.3 Stockpiles of waste or recovered material (including stockpiled materials already processed on site) must not exceed the following limits at any time:

a) Wood waste for reuse – 2,000 tonnes;
b) Shredded wood waste and garden waste – 2,000 tonnes
c) Metal – 500 tonnes
d) Glass – 500 tonnes
e) Plastic – 500 tonnes
f) Building and Demolition Waste – 180,000 tonnes

L2.4 Stockpiles of processed or unprocessed waste (except for bitumen) with particle size of which is less than 20mm shall only be located within the Pit Area of the Premises as shown on “Plan 1 - General Layout – Proposed Waste Transfer Station” dated 27/10/2005 within development consent No. 11646 of 2004 issued by the Land and Environment Court of New South Wales on 28 September 2006.

L3 Hours of operation

L3.1 Activities covered by this licensee must be carried out between the following hours:

a) for processing of materials and arrival and departure of trucks:
700 hrs to 1800 hrs Mondays to Fridays;
730 hrs to 1600 hrs Saturdays;

b) for inward movement of goods only (no processing or outwards goods movement):
900 hrs to 1500 hrs Sundays;

c) for inwards movements of goods only (no processing or outwards goods movement):
900 hrs to 1500 hrs on public holidays for trucks of not more than two tonnes; and

d) for maintenance and office activities:
700 hrs to 1900 hrs Mondays to Fridays;
730 hrs to 1700 hrs Saturdays; and
900 hrs to 1500 hrs Sundays and public holidays.

L4 Potentially offensive odour

L4.1 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

L5 Other limit conditions

Stockpile Height

L5.1 The height of any stockpile of waste within 50 metres of properties located at 2 Bishop Street, St Peters must not exceed 3 metres.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
a) must be maintained in a proper and efficient condition; and
b) must be operated in a proper and efficient manner.

O3 Dust

O3.1 Dust spray systems must be installed and operating to minimise dust from all stockpiles and processing areas at the facility.

O3.2 Dust sprays and/or dust collection systems must be installed and operating on all crushing, grinding and screening equipment at the facility.

O3.3 The licensee must ensure that all stockpiles are wetted prior to waste being removed from them for processing, and that during processing, they are kept wet and high-pressure water sprays are utilised to prevent the migration of dust.

O3.4 The vehicle routes in use around the premises, except for concrete handstands, are to be kept damp from 700 hrs to 1700hrs Monday to Fridays and 700hrs to 1600hrs Saturdays.

O4 Emergency response

O4.1 The licensee must maintain, and implement as necessary, a current emergency response plan for the premises. The licensee must keep the emergency response plan on the premises at all times. The emergency response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment. If a current emergency response plan does not exist at the date on which this condition is attached to the licence, the licensee must develop an emergency response plan within three months of that date.

Preventing Fires

O4.2 All operations and activities occurring at the premises must be carried out in a manner that will prevent and minimise the risk of fire at the premises.

O4.3 The licensee must extinguish fires at the premises as soon as possible.

O5 Processes and management

Surface Water and Leachate Management Plan

O5.1 The licensee must operate the facility in accordance with the document titled “Alexandria Landfill Site Revised Surface Water and Leachate Management Plan” dated September 2004, prepared by Ian Grey Consulting Pty Limited (Report ID AJ001/Rp003 Rev D).

O5.2 All stormwater and stormwater treatment devices (including drainage systems, sumps and traps) must be regularly maintained.

Processes and Management

O5.3 The licensee must ensure that all waste stored or processed at the premises is assessed and classified in accordance with the DECC Waste Classification Guidelines as in force from time to time.

Environment Protection Licence

O6 Waste management

Closure Plan

O6.1 The licensee must prepare and submit to the EPA within twelve months prior to the intended closure of the facility, a closure plan in accordance with section 76 of the Protection of the Environment Operations Act 1997.

O6.2 The licensee must take immediate action if methane concentrations levels exceed 500 parts per million (ppm) in any wood waste stockpile at the premises, by aerating the stockpiles to lower the methane concentrations to less than 500ppm.

Volumetric Survey

O6.3 The licensee must submit to the EPA's Manager Waste Operations, a volumetric survey of the premises carried out by a registered surveyor:

a) During June in each year and provided to the EPA in the approved form and manner by no later than 31 July in that year; and
b) During December in each year and provided to the EPA in the approved form and manner by no later than 31 January in that year.

Waste Processing, crushing and grinding

O6.4 All stockpiles of waste within 75 metres of the north and north-western boundary of the Premises must be located behind the physical barriers being shipping containers and walls in accordance with specifications outlined in Dial-A-Dump Industries letter dated 26 February 2010 (EPA Reference DOC10/9109).

Management of Stockpiles

O6.5 Waste processing, crushing and grinding activities must only occur below 8.0 metres RL and at the locations shown on "Plan 1 - General Layout – Proposed Waste Transfer Station" dated 27/10/2005 within development consent No. 11646 of 2004 issued by the Land and Environment Court of New South Wales on 28 September 2006.

O7 Other operating conditions

Wheel Wash

O7.1 All vehicles leaving the premises must be first put through an operating wheel wash except those that have not been in the landfilling or the material processing areas.

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5 Monitoring and Recording Conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
a) in a legible form, or in a form that can readily be reduced to a legible form;
b) kept for at least 4 years after the monitoring or event to which they relate took place; and
c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
a) the date(s) on which the sample was taken;
b) the time(s) at which the sample was collected;
c) the point at which the sample was taken; and
d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

POINT 7,8,9,10

Pollutant	Units of measure	Frequency	Sampling Method
PM10	grams per square metre per month	Quarterly	Australian Standard 3580.10.1-2003

M2.3 Water and/ or Land Monitoring Requirements

POINT 1,2,3,4,5

Pollutant	Units of measure	Frequency	Sampling Method
Alkalinity (as calcium carbonate)	milligrams per litre	Quarterly	Grab sample
Aluminium	milligrams per litre	Yearly	Grab sample
Arsenic	milligrams per litre	Yearly	Grab sample
Barium	milligrams per litre	Yearly	Grab sample
Benzene	milligrams per litre	Yearly	Grab sample

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Bicarbonate	milligrams per litre	Quarterly	Grab sample
Cadmium	milligrams per litre	Yearly	Grab sample
Calcium	milligrams per litre	Quarterly	Grab sample
Chloride	milligrams per litre	Quarterly	Grab sample
Chromium (hexavalent)	milligrams per litre	Yearly	Grab sample
Chromium (total)	milligrams per litre	Yearly	Grab sample
Cobalt	milligrams per litre	Yearly	Grab sample
Copper	milligrams per litre	Yearly	Grab sample
Ethyl benzene	milligrams per litre	Yearly	Grab sample
Fluoride	milligrams per litre	Yearly	Grab sample
Lead	milligrams per litre	Yearly	Grab sample
Magnesium	milligrams per litre	Quarterly	Grab sample
Manganese	milligrams per litre	Yearly	Grab sample
Mercury	milligrams per litre	Yearly	Grab sample
Nitrate	milligrams per litre	Yearly	Grab sample
Nitrogen (ammonia)	milligrams per litre	Quarterly	Grab sample
Organochlorine pesticides	milligrams per litre	Yearly	Grab sample
Organophosphate pesticides	milligrams per litre	Yearly	Grab sample
pH	pH	Quarterly	Probe
Polycyclic aromatic hydrocarbons	milligrams per litre	Yearly	Grab sample
Potassium	milligrams per litre	Quarterly	Grab sample
Sodium	milligrams per litre	Quarterly	Grab sample
Standing Water Level	metres	Quarterly	In situ
Sulfate	milligrams per litre	Quarterly	Grab sample
Toluene	milligrams per litre	Yearly	Grab sample
Total dissolved solids	milligrams per litre	Quarterly	Grab sample
Total organic carbon	milligrams per litre	Yearly	Grab sample
Total petroleum hydrocarbons	milligrams per litre	Yearly	Grab sample
Total Phenolics	milligrams per litre	Yearly	Grab sample
Xylene	milligrams per litre	Yearly	Grab sample
Zinc	milligrams per litre	Yearly	Grab sample

POINT 6

Pollutant	Units of measure	Frequency	Sampling Method
Alkalinity (as calcium carbonate)	milligrams per litre	Quarterly	Grab sample
Aluminium	milligrams per litre	Quarterly	Grab sample
Arsenic	milligrams per litre	Quarterly	Grab sample
Barium	milligrams per litre	Quarterly	Grab sample
Benzene	milligrams per litre	Quarterly	Grab sample

Bicarbonate	milligrams per litre	Quarterly	Grab sample
Cadmium	milligrams per litre	Quarterly	Grab sample
Calcium	milligrams per litre	Quarterly	Grab sample
Chloride	milligrams per litre	Quarterly	Grab sample
Chromium (hexavalent)	milligrams per litre	Quarterly	Grab sample
Chromium (total)	milligrams per litre	Quarterly	Grab sample
Cobalt	milligrams per litre	Quarterly	Grab sample
Copper	milligrams per litre	Quarterly	Grab sample
Ethyl benzene	milligrams per litre	Quarterly	Grab sample
Fluoride	milligrams per litre	Quarterly	Grab sample
Lead	milligrams per litre	Quarterly	Grab sample
Magnesium	milligrams per litre	Quarterly	Grab sample
Manganese	milligrams per litre	Quarterly	Grab sample
Mercury	milligrams per litre	Quarterly	Grab sample
Nitrate	milligrams per litre	Quarterly	Grab sample
Nitrogen (ammonia)	milligrams per litre	Quarterly	Grab sample
Organochlorine pesticides	milligrams per litre	Quarterly	Grab sample
Organophosphate pesticides	milligrams per litre	Quarterly	Grab sample
pH	pH	Quarterly	Probe
Polycyclic aromatic hydrocarbons	milligrams per litre	Quarterly	Grab sample
Potassium	milligrams per litre	Quarterly	Grab sample
Sodium	milligrams per litre	Quarterly	Grab sample
Standing Water Level	metres	Quarterly	In situ
Sulfate	milligrams per litre	Quarterly	Grab sample
Toluene	milligrams per litre	Quarterly	Grab sample
Total dissolved solids	milligrams per litre	Quarterly	Grab sample
Total petroleum hydrocarbons	milligrams per litre	Quarterly	Grab sample
Total Phenolics	milligrams per litre	Quarterly	Grab sample
Xylene	milligrams per litre	Quarterly	Grab sample
Zinc	milligrams per litre	Quarterly	Grab sample

M3 Testing methods - concentration limits

M3.1 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved

Methods for the Sampling and Analysis of Air Pollutants in NSW".

M4 Weather monitoring

M4.1

Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Rainfall	mm	Daily		AM-4
Wind Speed @ 2 metres	m/s	Continuous	3 hourly	AM-2 & AM-4
Wind Direction & 2 metres		Continuous	3 hourly	AM-2 & AM-4
Temperature @ 2 metres	degree C	Continuous	3 hourly	AM-4

M4.2 The licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency specified opposite in the other columns.

M5 Recording of pollution complaints

M5.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M5.2 The record must include details of the following:
a) the date and time of the complaint;
b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.

M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M6 Telephone complaints line

M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M6.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

M7 Other monitoring and recording conditions

Wood Waste Stockpile Monitoring

M7.1 The licensee must monitor the concentration of methane within all stockpiled waste and materials which contain wood waste located over landfilled waste at the premises. The monitoring must be undertaken at least every 3 months and 5 readings must be taken at a depth of at least 50cm into each stockpile at a height of no more than 1 metre off the surface of the landfilled waste. The monitoring results, including sampling locations and date of sampling, analysis results and instrument details (including its calibration) must be recorded by the licensee. The instrument to monitor methane must be capable of measuring methane at concentrations as low as 500ppm.

Soil Classification Records

M7.2 Soil Classification Records

The licensee must keep a record of each load of Soil, as referred to under Condition L2.1, that is received at the premises. The record must include, but not necessarily be limited to, the following:
(a) a copy of the waste classification report in accordance with the Waste Classification Guidelines, including the classification and the limits specified in the L2.1 table;
(b) the quantity (in tonnes) of the Soil received;
(c) the date and time that the Soil were received;
(d) the registration number of the vehicle transporting the Soil to the premises;
(e) the source(s) and address from where the Soil were received; and
(f) the name and contact details of the company or individual delivering the Soil to the premises.
The record must be retained at the premises for at least 4 years after the receipt of the load of the soil.
The record must be produced to any authorised officer of the EPA upon request.

6 Reporting Conditions

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
a) a Statement of Compliance; and
b) a Monitoring and Complaints Summary.
At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the

Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:
a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
a) where this licence applies to premises, an event has occurred at the premises; or
b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,

and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
a) the cause, time and duration of the event;
b) the type, volume and concentration of every pollutant discharged as a result of the event;
c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

R4 Other reporting conditions

Methane in wood waste stockpile

R4.1 The licensee must notify the EPA as soon as practicable and in any case within 48 hours after it becomes aware of methane concentrations in any wood waste stockpile exceeding 12,500ppm.

7 General Conditions

G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

Environment Protection Licence

8 Pollution Studies and Reduction Programs

U1 Stockpile Markers

U1.1 By 10 April 2012, the licensee must install a permanent stockpile height marker for all stockpiles located within 50 metres of propertues located at 2 Bishop Street, St Peters that shows the height of 3 metres so that a visual check can be made against the marker to determine the height of the stockpiles.

U2 Improvements to Stormwater System

U2.1 By 17 September 2012 the licensee must install the new stormwater drain and dam system in accordance with the document titled 'Filling Plan' dated May 2012 prepared by Genesis.

Within two weeks of installing the stormwater drain and dam the licensee must submit to the EPA as built design drawings.

9 Special Conditions

E1 Financial assurance

E1.1 A financial assurance, in favour of the Environment Protection Authority (EPA), in the form of an irrevocable and unconditional guarantee from a bank, building society or credit union must be maintained as follows;

a) By 25 June 2007, the licensee must provide to the EPA a financial assurance in the amount of sixty thousand dollars ($60,000);

b) By 1 June 2008, the licensee must provide to the EPA an additional financial assurance in the amount of sixty thousand dollars ($60,000);

c) By 1 June 2009, the licensee must provide to the EPA an additional financial assurance in the amount of sixty thousand dollars ($60,000).

The above assurances must be replenished to the full amount should the EPA have any reason to call up the financial assurance or any part thereof to correct environmental problems which have not been remedied by the occupier upon being given notice to do so.

E2 Survey plan

E2.1 The licensee shall on the commencement date of this licence and by not later than each subsequent 1 February during the currency of this licence provide to the EPA a survey plan.

Note: Definition of survey plan in condition E3.

Environment Protection Licence

E3 Definitions

E3.1 In this licence, the following phases are defined as follows:

E3.2 Approved Survey Plan means a plan showing a survey carried out by a registered surveyor of the land comprising Lot 11 DP 1013168 and Lot 100 DP 845651 and identifying the land to be used for scheduled activities authorised by this licence and also the remainder area of land to be used for the scheduled activities authorised by licence 4627 and the location of the significant physical barrier between those two areas of land, being the plan titled “Alexandria Landfill” (Reference No. 250038) dated January 2009 and lodged with the EPA on 20 February 2009 being the most recent such plan lodged under condition A2.2 and approved as a variation under section 58 of the Act by the EPA.

E3.3 Survey Plan means a plan showing a survey carried out by a registered surveyor of the land comprising Lot 11 DP 1013168 and Lot 100 DP 845651 and identifying the land to be used for scheduled activities authorised by this licence and also the remainder area of land to be used for the scheduled activities authorised by licence No. 4627 and the location of the significant physical barrier between those two areas of land.

Environment Protection Licence

Licence - 12594

Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 12594

flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 mo nths. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.

Environment Protection Licence

Licence - 12594

TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste

Mr Stephen Beaman

Environment Protection Authority

(By Delegation)

Date of this edition: 21-June-2007

End Notes

1	Licence fee period changed by notice 1090787 approved on .
2	Licence varied by notice 1093242, issued on 31-Oct-2008, which came into effect on 31-Oct-2008.
3	Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
4	Licence varied by notice 1099150, issued on 30-Mar-2009, which came into effect on 30-Mar-2009.
5	Licence varied by notice 1110780, issued on 02-Mar-2010, which came into effect on 02-Mar-2010.
6	Licence varied by notice 1123991, issued on 11-Feb-2011, which came into effect on 11-Feb-2011.
7	Licence varied by notice 1504464 issued on 15-Mar-2012
8	Licence varied by notice 1507603 issued on 08-Aug-2012
9	Licence transferred through application 1529358 approved on 23-Mar-2015 , which came into effect on 24-Mar-2015

Healthy Environment, Healt

Home > Environment protection licences > POEO Public Register > Search for licences, applications and notices

Licence summary

Search Again Return to Previous F

Summary Licence No: 12594

View this licence (PDF document 143 kb)

Licence holder:	**BOILING PTY LTD**
Premises:	ALEXANDRIA RECYCLING CENTRE 10-16 Albert Street, ST PETERS, NSW, 2044 **LGA:** MARRICKVILLE **Catchment:** Sydney Coast & Georges River
Administrative fee:	$1,904.00
Licence status:	Issued
Activity type:	Waste storage - other types of waste Recovery of general waste
Licence review:	Complete date 08 Aug 2012 Due date 08 Aug 2017
Pollution incident management plan:	Yet to be confirmed

Notices

Number	Issue date	Notice type
1093242	31 Oct 2008	s.58 Licence Variation
1099150	30 Mar 2009	s.58 Licence Variation
1110780	02 Mar 2010	s.58 Licence Variation
1123991	11 Feb 2011	s.58 Licence Variation
1128662	08 Jun 2011	s.91 Clean Up Notice
1500750	02 Sep 2011	s.91 Clean Up Notice
1502233	02 Nov 2011	s.110 Variation of Clean Up Notice
1504464	15 Mar 2012	s.58 Licence Variation
1505382	05 Apr 2012	Penalty Notice
1507603	08 Aug 2012	s.58 Licence Variation
1520084	03 Jul 2014	s.110 Variation of Clean Up Notice

Pollution studies and reduction programs

Title	Program type	Start date	Complete date	
Improvements to Stormwater System	Water	25 Jul 2012		Condit

Annual Returns

Start date	End date	Date received	Non-compliance	LBL data	
01-Dec-2013	30-Nov-2014				Download Annual Return For
01-Dec-2012	30-Nov-2013	30-Jan-2014		Not available	
01-Dec-2011	30-Nov-2012	30-Jan-2013	yes	Not available	
01-Dec-2010	30-Nov-2011	31-Jan-2012		Not available	
01-Dec-2009	30-Nov-2010	10-Feb-2011		Not available	
01-Dec-2008	30-Nov-2009	29-Jan-2010	No	Not available	
21-Jun-2008	30-Nov-2008	27-Jan-2009	No	Not available	
21-Jun-2007	20-Jun-2008	19-Aug-2008	yes	Not available	

Consent to Discharge Industrial Trade Wastewater

SYDNEY WATER CORPORATION

and

ALEXANDRIA LANDFILL PTY LTD
A.C.N. 098 849 971
Trading as

ALEXANDRIA LANDFILL PTY LTD

A.B.N. 26 098 849 971

ACTIVITY: GARBAGE TIP (GE06)

RISK INDEX: 05

CONSENT NO: 29304

CONNECTION NO: 2

PROPERTY NUMBER: 4059264

This **CONSENT** is made on **day:** **month:** **year:**

Executed for and on behalf of
Sydney Water Corporation

By

.....
(Signature)
Sally Armstrong
Manager, Business Customer Services

In the presence of:

Witness

.....
(Signature)

.....
(Print name of witness)

Executed for and on behalf of
the Customer:

.....
(Signature)

By

IAN MALOUF SOLE DIRECTOR/SECRETARY
.....
(Print name and position of person signing)
who warrants s/he has sufficient authority to execute this consent.

In the presence of:

Witness

.....
(Signature)

JACQUELINE BRAUMAN
.....
(Print name of witness)

This consent must be executed by the Customer prior to execution by Sydney Water and submitted by the Customer to Sydney Water for its consideration. Submission of a consent executed by the Customer under no circumstances obliges Sydney Water to enter into or complete the consent. Submission of an executed consent by the Customer constitutes an application for a consent which Sydney Water may in its reasonable discretion reject, or with the consent of the Customer modify any of the proposed terms thereto.

SCHEDULE 1
(SUBJECT TO PUBLIC DISCLOSURE)

TRADE WASTEWATER WHICH MAY BE DISCHARGED

1. Trade wastewater substances

(a) The Customer may discharge trade wastewater into the Sewer in a manner whereby the substance characteristics of the trade wastewater are of a type and discharged at a rate, level or concentration equal to or less than that described in this schedule.

(b) The Customer must not discharge trade wastewater into the Sewer in a manner whereby the trade wastewater discharged;

(i) contains, possesses or produces a substance characteristic not provided in, or which may be determined as being contrary to that described in this schedule.

(ii) is at or of a rate, level, or concentration not provided in, or which may be determined as being contrary to, that described in this schedule.

SUBSTANCE	LTADM (kg/day)	MDM (kg/day)	Standard (mg/L)
AMMONIA (AS N)	1.50000	25.00000	100.000
SUSPENDED SOLIDS	5.00000	20.00000	600.000
TOTAL DISSOLVED SOLIDS	450.00000	674.00000	10000.000
BARIUM	0.21000	1.00000	5.000
IRON	0.70000	4.00000	50.000

RECONCILIATION PROCEDURES:

LONG TERM AVERAGE DAILY MASS:

The Long Term Average Daily Mass is a twelve month arithmetic average of ALL daily mass discharges as calculated for each composite sample. The Daily Mass discharged is to be calculated for each of the above substances, and checked against the above Long Term Average Daily Mass (kg/day) on the basis of average concentrations of substances discharged (mg/L) over any 24 hour period as determined from composite samples, obtained by either the Customer (in accordance with Schedule 2) or Sydney Water, or a combination of sample results by both.

This average concentration (mg/L) is to be multiplied by the total discharge (kL) as recorded by the Customer's discharge flow meter over the 24 hour period in order to calculate the Daily Mass of substances discharged (kg). Exceeding the Long Term Average Daily Mass does not constitute a Breach, but may incur a Critical Mass Charge as detailed in Schedule 3.

ACCEPTANCE STANDARD:

The Composite Sample Concentration is to be determined for each of the above substances, and checked against the above Acceptance Standard (mg/L) for each sample obtained. Exceeding the Acceptance Standard constitutes a Breach and will also incur an increased Quality Charge as detailed in Schedule 3.

The Discrete Sample Concentration is to be determined for each of the substances identified at Schedule 2, 2 (b) and checked against the above Acceptance Standard (mg/L) for each sample obtained. Exceeding the Acceptance Standard constitutes a Breach.

MAXIMUM DAILY MASS:

The Daily Mass discharged is to be calculated for each of the above substances, and checked against the above Maximum Daily Mass (kg/day) on the basis of average concentrations of substances discharged (mg/L) over any 24 hour period as determined from composite samples, obtained by either the Customer (in accordance with Schedule 2) or Sydney Water, or a combination of sample results by both.

This average concentration (mg/L) is to be multiplied by the total discharge (kL) as recorded by the Customer's discharge flow meter over the 24hour period in order to calculate the Daily Mass of substances discharged (kg). Exceeding the Maximum Daily Mass constitutes a Breach.

2. The trade wastewater discharged must at all times have the following properties:

Temperature	-	Not to exceed 38 degrees Celsius.
Colour	-	Determined on a system specific basis
pH	-	Within the range 7.0 to 10.0.
Fibrous material	-	None which could cause an obstruction to Sydney Water's sewerage system.
Gross solids (other than faecal)	-	A maximum linear dimension of less than 20 mm, a maximum cross section dimension of 6 mm, and a quiescent settling velocity of less than 3 m/h.
Flammability	-	Where flammable and/or explosive substances may be present, the Customer must demonstrate to the satisfaction of Sydney Water that there is no possibility of explosions or fires occurring in the sewerage system. The flammability of the discharge must never exceed 5% of the Lower Explosive Limit (LEL) at 25° Celsius.

3. Rate of discharge of waste to sewer:

(a) Instantaneous maximum rate of gravitated discharge 6.0 litres per second

(b) Maximum daily discharge 620.0 kilolitres

(c) Average daily discharge 121.0 kilolitres

RECONCILIATION PROCEDURE:

The data obtained from applying these procedures is to be checked by the interface of a chart recorder to the Customer's flow metering equipment, or by the installation of flow metering equipment by Sydney Water, for a minimum of 7 days.

SCHEDULE 2
(SUBJECT TO PUBLIC DISCLOSURE)

SAMPLING, ANALYSIS, FLOW RATES AND VOLUME DETERMINATION

1. The Customer must provide and make available for the purpose of sampling and analysis;
   (a) Sampling point located at the pretreatment discharge excluding domestic sewage prior to the point of connection to the Sewer.
   (b) Equipment necessary to allow collection of composite automatic samples on either a flow proportional or a time basis.
2. The Customer is to undertake collection and analysis of samples in accordance with the schedule detailed below:
   (a) Composite samples are to be obtained:
      (i) over one full production day by combining equal volumes taken at 5 kilolitre intervals. The volumes are to be such that at least 5,000 millilitres are obtained over the full day. The reading of the flowmeter meter is to be obtained at the commencement and conclusion of the sampling day.
      (ii) on 12 July 2011 and every 22 days thereafter. If trade wastewater is not discharged on this day, then the sample is to be taken on the next day that trade wastewater is discharged. Trade wastewater includes all non-domestic wastewater discharged to sewer from the premises, including cleaning waste.
   (b) Discrete samples are to be obtained as detailed below, and analysed according to the procedures and methods specified in Sydney Water's published analytical methods, to determine the concentrations or levels of the following substance characteristics:

pH	at the start and finish of each sample day
AMMONIA (AS N)	at the finish of each sample day

   (c) Composite samples are to be analysed according to the procedures and methods specified in Sydney Water's published analytical methods, or methods otherwise agreed to and detailed hereunder, to determine the concentrations or levels of the following substance characteristics

      AMMONIA (AS N)
      SUSPENDED SOLIDS
      TOTAL DISSOLVED SOLIDS
      BARIUM
      IRON

   (d) The Customer, or the laboratory contracted by the customer, is to submit results of analyses to Sydney Water within 21 days from the date the sample was taken. All analysis results are to be submitted on the sample analysis report provided as appendices 1 and 2 to this Consent OR in such format as may be specified from time to time by Sydney Water.
   (e) All data requested on the sample analysis report must be provided.
   (f) Sydney Water must be notified in writing within 7 days of;
      (i) any failure to obtain samples in accordance with the provisions of Schedule 2; or
      (ii) any loss of any analytical data.

      Where data is unavailable, lost or not provided, the Quality Charge and Critical Substance Charge, as detailed in Schedule 3, will be assessed on the basis of the highest Composite Sample concentration recorded in the 12 months prior to the date of the missing sample data.

3. The volume of wastewater discharged must be obtained from the reading of the total flow on the Customer's flowmetering system.

   The rate of waste discharged is to be obtained by the reading of the instantaneous flow rate indicator on

the Customer's flowmetering system, or from any chart recorder interfaced to the Customer's flowmetering system.

The flowmetering system is to be calibrated at least annually at the Customer's expense, by a person or company approved by Sydney Water and a copy of the calibration certificate supplied to Sydney Water within one month of the certificate being received by the Customer.

If the Customer's flowmetering system fails to record data for any period, Sydney Water is to be advised in writing by the Customer within 7 days of any such failure becoming known by the Customer. An estimate of any data not recorded is to be made as follows:

Average of the waste discharged, registered for the four weeks before and/or after the failure to record.

SCHEDULE 3

(SUBJECT TO PUBLIC DISCLOSURE)

PAYMENTS

The charges are effective from 1 July 2011 and will continue until otherwise advised by Sydney Water.

All trade waste fees and charges are subject to CPI adjustments from 1 July each year in accordance with Determination No 1, 2008 made by the Independent Pricing and Regulatory Tribunal (IPART).

1. CHARGES FOR TRADE WASTEWATER DISCHARGE

Sydney Water will conduct a reading of the Customer's discharge meter at approximately 90 day intervals. The volume of trade wastewater discharged for the period since the previous reading will be calculated.

Charges are based on the Daily Mass calculated from composite samples and corresponding meter readings for each sampling day in the billing period, and calculated in accord with (c), (d), (e), and (f) below. The charge for each sampling day is then multiplied by a flow weighting factor to give a flow weighted charge. The total charge for each substance for the billing period is equal to the sum of the flow weighted charges for the billing period.

Total Charge = the sum of the flow weighted charges for the billing period

Flow Weighted Charge = (charge for all sample days) x (flow weighting factor) and:

$$\text{Flow Weighting Factor} = \frac{\text{(total volume discharged during billing period)}}{\text{(sum of volumes discharged during all sample days during billing period)}}$$

In this formula volume discharged refers to the volume of trade wastewater discharged.

(a) Mass Discharged:

For each substance, the Mass Discharged is calculated by multiplying the Composite Sample concentration by the Trade Wastewater discharge for that sample day.

(b) Chargeable Tradewaste Mass:

(i) For the following substances, the Chargeable Tradewaste Mass is equal to the Mass Discharged:

SUBSTANCE
BARIUM
IRON

(ii) For the following substances, the Chargeable Tradewaste Mass is calculated by subtracting the Equivalent Domestic Mass from the Mass Discharged. The Equivalent Domestic Mass is defined as the Domestic Concentration multiplied by the Trade Wastewater discharge.

SUBSTANCE	DOMESTIC CONCENTRATION mg/L
AMMONIA (AS N)	35.000
SUSPENDED SOLIDS	200.000
TOTAL DISSOLVED SOLIDS	450.000

If the resulting Chargeable Tradewaste Mass is zero or negative, then no Quality or Critical Mass charges will apply for that substance for that sample day.

(iii) Where a Critical Mass Charge applies, the Chargeable Tradewaste Mass will be reduced in accord with paragraph (d) (iv), below.

(c) Quality Charge:

(i) For the following substances, the Quality Charge is determined by multiplying the Chargeable Tradewaste Mass by the Rate for that substance:

SUBSTANCE	STANDARD MASS CHARGING RATE $ per kg
AMMONIA (AS N)	2.0730
SUSPENDED SOLIDS	0.8870
TOTAL DISSOLVED SOLIDS	0.0059
BARIUM	13.8970
IRON	1.3840

(ii) For the following substances, the Quality Charge is determined by multiplying the Chargeable Tradewaste Mass by the Rate, where the Rate is a function of the composite sample concentration recorded for that sample day:

SUBSTANCE	STANDARD MASS CHARGING RATE $ per kg
N/A	N/A

(d) Critical Mass Charge:

(i) Where the customer has been notified that a given substance is Critical or Over Capacity and the Mass Discharged is greater than the 1.5 times the Long Term Average Daily Mass (LTADM) for that substance, then the Chargeable Critical Mass is calculated by subtracting 1.5 times LTADM from the Mass Discharged, except where (ii), below, applies.

(ii) Where the customer has been notified that a given substance is Critical or Over Capacity and the Equivalent Domestic Mass is greater than 1.5 times the LTADM the Chargeable Critical Mass is calculated by subtracting the Equivalent Domestic Mass from the Mass Discharged.

(iii) Where the customer has been notified that a given substance is Critical or Over Capacity and paragraph (i) or (ii) above applies, the Chargeable Tradewaste Mass calculated in (b), above, will be reduced by the Chargeable Critical Mass.

(iv) The Critical Mass Charge Rate is a function of the Rate and Mass Discharged and LTADM for that substance:

SUBSTANCE STATUS	CHARGING RATE MULTIPLIER	MASS AFFECTED BY CHARGING RATE MULTIPLIER
Critical	2.00	Mass discharged >1.50 LTADM
Over Capacity	3.00	Mass discharged >1.50 LTADM

(v) The Critical Mass Charge is the product of the Chargeable Critical Mass, the rate for that substance and the charging rate multiplier.

(e) Concentration Breach Charge:

Where the Composite Sample concentration is greater than the Acceptance Standards specified in Schedule 1 (with the exception of sulphate), any charges calculated in (c) or (d) above will be doubled for that sampling day.

(f) Failure to collect required samples:

Where the Customer fails to collect and analyse samples in accord with this consent the above charges will be assessed on the basis of the highest composite concentrations recorded for any billing period within the previous 12 months and the average daily discharge for the current billing period.

2. CHARGES FOR INSPECTIONS

(a) If, in the opinion of Sydney Water, it is necessary for a Customer Service Representative to exercise rights under clause 6.1, the Customer will incur no liability for payment for any such exercise unless Customer Service Representative has already exercised rights under clause 6.1 on 5 occasions within a period of one year.

(b) If it is necessary, in the opinion of Sydney Water, to carry out more than 5 inspections within a period of one year, the additional inspections will be charged. The rate for additional inspections is $78.50 per

hour per Sydney Water employee attending, up to a maximum of two employees, with a minimum charge of $39.55.

(c) Any inspection required following up an alleged breach or a default notice will result in a fee payable even if the number of inspections nominated in paragraph 2 (a) has not been exceeded.

(d) For the purposes of 2 (a) and 2 (b), above, one year is defined as the period from 1 July to 30 June the following year.

3. CHARGES FOR ADMINISTRATION OF TRADEWASTE CONSENT

A consent fee of $591.25 per quarter is payable from 1 July 2011.

4. CHARGES FOR VARIATION OR RENEWAL OF TRADEWASTE CONSENT

Where a Variation is made to the Consent a fee of $343.35 will be payable. There will be no charge for renewal.

5. CHARGES FOR PROCESSING GREASE TRAP WASTE

Charges for processing grease trap waste under the 'Wastesafe' Management System are as follows: (Not Applicable)

6. PAYMENT OF FEES AND CHARGES

An account will be issued for all fees and charges. Any fees or charges payable by the Customer must be paid by the Customer within 30 days of the receipt by the Customer of the account detailing those fees and charges.

SCHEDULE 4

ADDITIONAL REQUIREMENTS

1. EFFLUENT IMPROVEMENT PROGRAM

N/A

2. WASTE MANAGEMENT PLAN

The existing pre-treatment will result in the generation of 0.1 tonne per annum of waste substances in the form of a sludge containing generally solids. The waste substances are, and will continue to be disposed of, in compliance with the requirements of the Department of Environment and Climate Change.

3. OTHER REQUIREMENTS

1)Tipping Bucket Rain Gauge
The tipping bucket rain gauge is to be maintained in a clean and working manner at all times.
The rain gauge is to be set at a 203 mm rainfall catch and after 2 tips the controller will set the pump timer to a 4 hour time delay for discharge of the first flush.
The rain gauge is to be calibrated at least annually at the Customer's expense, by a person or company approved by Sydney Water and a copy of the calibration certificate supplied to Sydney Water within one month of the certificate being received by the Customer.

4. BACKFLOW REQUIREMENTS

a) A Backflow Containment Device must be installed and maintained at the water meter outlet/property boundary in accordance with Sydney Waters Backflow Containment Policy.
b) Individual Backflow and Zone protection is required on any tap located within 5 metres of any Trade Waste Apparatus

SCHEDULE 5

APPARATUS, PLANT AND EQUIPMENT

EXISTING: COLLECTION WELL 30 kL
1 X 80 KL BIOLOGICAL TREATMENT PLANT (BATCH DISCHARGE)
1 X 100 KL biological treatment plant (batch discharge)
1 X RAINFALL SENTINEL MEA 2211
1 X ABB MAGMASTER ELECTROMAGNETIC FLOW METER

PROPOSED: n/a

SCHEDULE 6

SPECIAL CONDITIONS

1. DANGEROUS DISCHARGES

In this Schedule, the term "may pose a danger to the environment, the Sewer or workers at a sewage treatment plant";

(a) means an occurrence whereby matter is discharged to the Sewer which either alone or in conjunction with other matter discharged cannot be adequately treated or may cause corrosion or a blockage, explosion or the production of dangerous gases in the Sewer or may adversely affect the operation of a sewer or sewage treatment plant; and

(b) includes, but not so as to restrict the generality of paragraph (a), matter or substances, which is or are

(i) toxic or corrosive;
(ii) petroleum hydrocarbons;
(iii) heavy metals;
(iv) volatile solvents;
(v) phenolic compounds;
(vi) organic compounds.

2. UNINTENDED DISCHARGES

(a) For purposes of avoiding unintended discharges to the Sewer or the stormwater drainage system, all matter and substances on the Premises must be processed, handled, moved and stored in a proper and efficient manner.

(b) Any substance on the Premises which, if discharged to the Sewer, may pose a danger to the environment, the Sewer or workers at a sewage treatment plant or may harm any sewage treatment process must be handled, moved and stored in areas where leaks, spillages or overflows cannot drain by gravity or by automated or other mechanical means to the Sewer or the stormwater drainage system.

3. NOTIFICATION

In the event of a discharge of matter to the sewer that poses or may pose a danger to the environment, the Sewer or workers at a sewage treatment plant the Customer must immediately notify:

(a) MALABAR STP CONTROL ROOM	TEL: (02) 9931 8319	FAX: (02) 9931 8366
(b) BUSINESS CUSTOMER SERVICES DACEYVILLE OFFICE:	TEL: (02) 9694 6500	FAX: (02) 9662 0419
(c) BUSINESS CUSTOMER SERVICES CITY & EAST	EMERGENCY CONTACT TEL: 0408 256 470	
(d) BUSINESS CUSTOMER SERVICES ALTERNATE CONTACT	EMERGENCY CONTACT TEL: 0418 221 516	

4. PROVISION OF SAFE ACCESS

The Customer shall provide safe access to Sydney Water employees visiting the site. In the event that unsafe conditions are identified the Customer must take reasonable steps to correct unsafe conditions and create safe access.

5. ELECTRONIC REPORTING OF SAMPLE ANALYSIS RESULTS

Sydney Water reserves the right to vary this consent to specify the option of reporting by electronic mail as outlined in Schedule 2, 2 (d).

SCHEDULE 7

1. **Premises for which Consent is granted**

   10-34 ALBERT ST, ST PETERS NSW 2044

2. **Industrial or other commercial activities for which Consent granted**

   GARBAGE TIP (GE06)

3. **Discharge point for which Consent granted**

   BOUNDARY TRAP

4. **The date for purposes of clause 3.1 is 1 July 2011**

5. **The period for purposes of clause 3.2 is 24 months.**

6. **The receiving Treatment Plant is MALABAR Sewage Treatment Plant**

SCHEDULE 8

NOTICES AND COMMUNICATION ADDRESSES

SYDNEY WATER:	CUSTOMER SERVICE REPRESENTATIVE BUSINESS CUSTOMER SERVICES 71 GARDENERS RD, DACEYVILLE 2032	TEL: (02) 9694 6500 FAX: 1300 364 403 A.H: 132 092
CUSTOMER:	GENERAL MANAGER ALEXANDRIA LANDFILL PTY LTD PO BOX 1040 MASCOT NSW 1460	TEL: 9519 9999 FAX: 9516 5559

SCHEDULE 9

AUTHORISED OFFICERS

SYDNEY WATER:	MANAGER BUSINESS CUSTOMER SERVICES 71 GARDENERS RD, DACEYVILLE 2032	TEL: (02) 9694 6500 FAX: 1300 364 403 A.H: 132 092
Postal Address:	PO BOX 399 PARRAMATTA NSW 2124	
Email:	Sally.armstrong@sydneywater.com.au	
CUSTOMER:	GENERAL MANAGER ALEXANDRIA LANDFILL PTY LTD 10-36 ALBERT STREET ST PETERS NSW 2044	TEL: 9519 9999 FAX: 9516 5559
Email:		

SCHEDULE 10

NOMINATED REPRESENTATIVES

SYDNEY WATER:	BUSINESS MANAGER - SALES & SERVICE BUSINESS CUSTOMER SERVICES 71 GARDENERS RD, DACEYVILLE 2032	TEL: (02) 9694 6500 FAX: 1300 364 403 A.H: 132 092
CUSTOMER:	CHRISTOPHER BIGGS ALEXANDRIA LANDFILL PTY LTD 10-36 ALBERT STREET ST PETERS NSW 2044	TEL: 9519 9999 FAX: 9516 5559

APPENDIX 1
SAMPLE ANALYSIS REPORT (COMPOSITE) DISCHARGE METER

Consent Number:	29304
Company Name:	ALEXANDRIA LANDFILL PTY LTD
Company Address:	10-34 ALBERT ST, ST PETERS NSW 2044

Sample Type:

- ☐ 6 (composite, manual time based)
- ☐ 7 (composite, manual flow proportional)
- ☐ 8 (composite, automatic time based)
- ☐ 9 (composite, automatic flow proportional)

Start date: ___/___/___
Finish date: ___/___/___
Start time: ____:____ am/pm
Finish time: ____:____ am/pm

grabs taken in sample period: _____
sample intervals min/kL _____
mL per grab: _____

Initial meter reading: _____kL
Final Meter reading: _____kL
Volume discharged: _____kL

Laboratory:

	Acceptance Standard	**Measured Units**
Substance	**Acceptance Standard (mg/L)**	**Measured Concentration(mg/L)**
AMMONIA (AS N)	100.000	
SUSPENDED SOLIDS	600.000	
TOTAL DISSOLVED SOLIDS	10 000.000	
BARIUM	5.000	
IRON	50.000	

COPY OF ORIGINAL ANALYTICAL LABORATORY REPORT TO BE ATTACHED
NOTE: LABORATORY REPORT MUST CERTIFY NATA REGISTRATION FOR EACH ANALYSIS

Comments: _____

Customer Signature: _____ Date: ___/___/___

Designation: _____

OFFICE USE ONLY

TERRITORY: D7

Sample No: | | | | | |

PLEASE RETURN TO:
businesscustomers.labdata@sydneywater.com.au

APPENDIX 2
SAMPLE ANALYSIS REPORT (DISCRETE SAMPLE)

Consent Number:	29304
Company Name:	ALEXANDRIA LANDFILL PTY LTD
Company Address:	10-34 ALBERT ST, ST PETERS NSW 2044

Sample Type: DISCRETE
Date
Time

Laboratory:

Substance	Acceptance Standard (units or mg/L)	Measured Units or Concentration.
pH at start	7 - 10	
pH at finish	7 - 10	
NH3 at finish	100.000	

COPY OF ORIGINAL ANALYTICAL LABORATORY REPORT TO BE ATTACHED
NOTE: LABORATORY REPORT MUST CERTIFY NATA REGISTRATION FOR EACH ANALYSIS
Comments: _____

Customer Signature: _____ Date: ___/___/___
Designation: _____

OFFICE USE ONLY
TERRITORY: D7
Sample No: | | | | | |

PLEASE RETURN TO
businesscustomers.labdata@sydneywater.com.au