Transport
Roads & Maritime
Services

Correspondence
Not Priviledged

NSW EDO
Level 5
263 Clarence Street
SYDNEY NSW 2000

Attention: Elaine Johnson, Senior Solicitor

9 October 2015

Dear Ms Johnson

Alexandria Landfill Site

I refer to your letter dated 15 September 2015 to Westconnex Delivery Authority (**WDA**) in relation to the Alexandria Landfill Site at 10–16 Albert Street St Peters (**Site**).

I note that your letter asserts that all of the activities currently being undertaken on the Site are development for the purposes of the *Environmental Planning and Assessment Act 1979 (NSW)* (**EP&A Act**) and that none of the activities are authorised by the existing development consents relating to the Site. RMS does not agree with this assertion. My instructions setting out RMS' position are below.

By way of background, WDA acquired the Site as an operating landfill and waste transfer station in December 2014. The Site is the subject of development consents issued in 1987 for a waste landfill depot (1987 development consents) and in 2006 for a waste transfer facility (2006 development consents). Following acquisition, the environment protection licences issued by the EPA for the landfill and waste transfer facility operations were transferred to WDA.

RMS has taken over the operations of WDA from 1 October 2015 and RMS continues to operate the Site under these approvals and licences.

1. **Stabilisation of Slopes**

The landfill and waste transfer facility is located in an old quarry. There are steep slopes on the edge of the landfill area. Some of these slopes have a long history of instability issues arising from erosion and stormwater drainage which pre-date WDA's acquisition of the Site.

In April 2015, following acquisition of the Site by WDA, there was a heavy rainfall event during which part of the slope failed near the boundary of the Site. The slope failure, if left unattended to, had the potential to impact on buildings located adjacent to the Site.

WDA took action and RMS is continuing this to ensure that the slope is stabilised, is safe and does not pose any risk to the adjoining buildings. These works involve emplacing material against the slope and forming an adequate batter to stabilise and make the slope safe.

The slope stabilisation works are authorised by the development consents applying to the Site and, in any event, do not now require development consent under the EP&A Act:

- The 1987 development consent enables the entire Site to be used as a landfill facility. This consent enables material to be emplaced up to the top of the previous quarry and the slope stabilisation works are authorised by this consent.

- The 2006 development consents also enable, and indeed require, the operator of the Site to carry out works to ensure stabilisation of the cliff faces on the Site. Condition 1.4 of the 2006 development consents require the person operating under the development consent to undertake any necessary work to prevent failure of the cliff face. The works contemplated by the 2006 development consent include stabilisation of the quarry face with battered benches consistent with the work being undertaken by RMS.

- Clause 109(1) of the *State Environmental Planning Policy (Infrastructure) 2007* provides that development for the purposes of "soil conservation works" may be carried out by or on behalf of a public authority without consent on any land. "Soil conservation works" means any development necessary to "avoid, manage or mitigate the effects of erosion" and includes "emergency works, including works associated with landslides", "construction works" and "environmental management works". The slope stabilisation works being undertaken on behalf of RMS are for the purposes of stabilising the slope following the April 2015 event and ensuring that the slope and the adjoining buildings are safe. The works fall within clause 109 of the *Infrastructure SEPP* and, in any event, do not require development consent.

RMS is committed to ensuring that the slope instability issues which pre-dated WDA's acquisition of the Site are promptly and properly addressed and is undertaking the necessary action to make the slope safe.

2. **Leachate Treatment Plant**

The leachate from the landfill is collected in a leachate collection system and then is treated in a leachate treatment plant before discharge to the sewer system in accordance with a trade waste agreement with Sydney Water. The leachate treatment plant was installed and operating before WDA acquired the Site.

Following acquisition, WDA identified that the leachate treatment plant required upgrades to ensure the system complied with current standards and was capable of meeting the required performance criteria. RMS is currently undertaking an upgrade of the leachate treatment plant equipment to meet current standards. The upgrade does not require further development consent.

RMS is committed to ensuring that the leachate treatment system is properly and promptly upgraded to improve its environmental performance.

3. **Temporary Waste Stockpiles**

The Site contains numerous stockpiles of waste which were present at the time of WDA's acquisition of the Site.

These stockpiles of waste are temporary and moveable. WDA has been and RMS is sorting through these waste stockpiles, processing some of the waste in these stockpiles, recovering material which can be re-used, removing the material in the classified and sorted stockpiles from the Site and has placed some of the material in the landfill. The activities do not involve any excavation of the land and involve dealing with the stockpiles located on the land on the Site.

The 1987 development consents allow landfill activities and the 2006 development consents relate to the receiving of wastes, temporary stockpiling, processing and sorting, storage and transfer of materials on and off site. The management of these temporary stockpiles located on the Site is being carried out under the development consents.

We note that you refer to condition 1.3 in the 2006 development consents which provide that the use shall cease within 6 months of cessation of the current solid waste landfill operation. In your letter, you assert that because WDA is not receiving new waste onto the Site following the acquisition, the use of the Site as a solid waste landfill operation use has ceased. We do not agree with this interpretation. The cessation of receipt of new waste does not mean that the ongoing landfill operation use has ceased. The 2006 development consents continue to apply.

One of the stockpiles on the Site, stockpile 21, was the subject of the clean-up notice issued by the EPA on 2 September 2011 (and later varied). The clean-up notice was issued to the previous licensee of the Site and was outstanding at the time of acquisition of the Site by WDA.

The clean-up notice required sampling, testing and disposal of all asbestos containing material in stockpile 21. The clean-up notice was not issued to WDA and, at the time of acquisition, the full extent of asbestos containing material in stockpile 21 had not been confirmed.

Following acquisition of the Site, WDA conducted an initial waste classification, and then a further intrusive investigation of the material in stockpile 21. These activities were directed at identifying the extent of asbestos in the stockpile and to enable the development of appropriate plans for the removal and management of materials. The EPA, having regard to the transfer in ownership and the further investigations, is proposing to issue a new clean-up notice to RMS relating to the management and disposal of the material in stockpile 21.

RMS is preparing the required plans for further sampling, removal and management of materials within stockpile 21 for submission to the EPA consistently with the clean-up notice. RMS intends to implement these plans, once approved by the EPA, in accordance with the EPA requirements.

4. Buildings

RMS is proposing to remove various things from the Site which were described in the newsletter to residents as "buildings". These things are:

- Shipping containers. There are numerous shipping containers located on the Site which are intended to be removed from the Site.
- Temporary workers sheds which were brought on to the Site before WDA acquired the site. There are two sheds and these are in the nature of portable building site sheds.
- A small booth.
- A temporary stockpile divider wall.

RMS does not intend to remove the permanent buildings on the Site as these are currently being used for the ongoing operation of the landfill and waste transfer facilities on the Site.

The removal of shipping containers from a property do not constitute development.

The demolition of the items does not require development consent as it is either:

- exempt development under clause 20A of *State Environmental Planning Policy (Infrastructure) 2007* (portable offices and demolition), Division 3 (temporary structures) or Division 1 (demolition) of Part 2 under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*; or
- complying development under Part 7 of this SEPP.

We note that you have raised specific concerns about the safety of the activities presently being conducted on the Site. WDA has and RMS will also continue taking specific measures to prevent and minimise the transfer of materials into the surrounding environment. These measures are set out in the fact sheet and include:

- The watering of stockpiles on the Site.
- The wheel washing of all trucks exiting the Site.
- The covering of all trucks leaving the Site. We understand that residents have observed some trucks leaving the site which have not been properly covered. We have taken additional steps to ensure that all trucks are checked for proper covering before they leave the Site.
- The implementation of an asbestos management plan.
- The monitoring of air emissions within and on the boundary of the Site. WDA has installed an extensive asbestos monitoring network around the perimeter of the Site. This monitoring network has not identified any asbestos emissions from the Site to date.

The remediation and closure of the landfill and waste transfer facility is proposed to be part of the application for the Westconnex New M5 Project. A landfill closure management plan is being prepared as part of the New M5 Project in consultation with the EPA and a site auditor accredited under the *Contaminated Land Management Act 1997*. A landfill closure plan will form part of the environmental impact statement for the New M5 Project. Your client will have the opportunity to consider the EIS as part of the public consultation and approval process, in due course.

Yours sincerely

Sally Bock
Legal Counsel
Environment, Planning and Property

NSW EDO
DEFENDING THE ENVIRONMENT
ADVANCING THE LAW

EDO NSW
ABN 72 002 880 864
Level 5, 263 Clarence Street
Sydney NSW 2000 AUSTRALIA
E: edonsw@edonsw.org.au
W: www.edonsw.org.au
T: + 612 9262 6989
F: + 612 9264 2414

15 September 2015

Christopher Swann
Project Director – M5
WestConnex Delivery Authority
Locked Bag 928
North Sydney NSW 2059

By email and post: info@westconnex.com.au

Dear Christopher

Approvals for clean-up of the Alexandria Landfill site

1. Thank you for your letter of 21 August 2015 in the above matter, and for subsequently providing the consent documents referred to in your letter.

2. We note that the work being carried out by WDA includes the following:

   a) Cleaning up stockpiles (including removal of sand, gravel, construction and demolition waste, general waste, green waste, timber waste, and asbestos)

   b) Stabilising slopes

   c) Removing buildings

3. We have reviewed the following documents provided by WDA and referred to in your letter:

   a. Consent granted by Council of the City of Sydney under the *Environmental Planning and Assessment Act 1979* (**EPA Act**) dated 25 February 1987 for a "solid waste landfill disposal depot" at Austral-Central-Ralford Brick Pits, King Street, Campbell and Canal Roads, St Peters;

   b. Consent granted by the Municipality of Marrickville under the EPA Act dated 30 March 1987 for a "non-putrescible waste landfill depot and to carry out associated engineering works and to erect associated amenities, weighbridge and office buildings" at the St Peters Tip (former Brickpit) Princes Highway, St Peters (Riverside Ward);

   c. Consent (as modified) granted by the Land and Environment Court under the EPA Act dated 28 September 2006, and received by

Marrickville Council on 18 February 2008, for "waste transfer, recycling and resource recovery involving sorting, crushing, shredding, screening, stockpiling and on-selling recyclables and associated plan and vehicle maintenance all in conjunction with the continued use of the premises as a solid waste landfill depot," at 10-16 Albert Street, St Peters (aka 314 Princes Highway, St Peters);

d. Consent (as modified) granted by the City of Sydney under the EPA Act dated 28 September 2006 for a "waste transfer, recycling and resource recovery, involving sorting, crushing, shredding, screening, stockpiling and on-selling recyclables and associated plant and vehicle maintenance all in conjunction with the continued use of the premises as a solid waste landfill depot at 9 Canal Road, St Peters (Lot 2, DP1168612).

4. We have also reviewed the City of Sydney's Section 96 Application Assessment Report for the modification of the consent at (d) above.

5. None of the documents we have reviewed to date provide authorisation for any of the activities being carried out on the site under the *EPA Act*. In our view, all the activities described above constitute "development" within the meaning of the EPA Act.

6. As you are aware, the Alexandria landfill site is located in a highly populated area, among many residences, public recreation areas, and businesses. Our client is very concerned about the safety and legality of the activities currently being conducted on the site.

7. For example, we are instructed that our client has observed stockpiles not being properly watered down and dust coming from piles of rubble being disturbed on the site on the site, removal of earth from below the surface contrary to WDA's public statements, and trucks exiting the site that are not properly covered. Our client's primary concern is that these practices may allow potentially hazardous materials to be transferred directly into the surrounding environment, impacting on the health of the local community.

8. The public is understandably concerned when the materials being disturbed and transported include harmful substances such as asbestos.

9. It is for these reasons that our client urgently requires access to the relevant planning assessments and approvals under which the WDA says that the activities are being regulated.

10. Could you please also explain how WDA says that the works are exempt or complying development under the EPA Act?

The EPA's clean-up notice

11. We note that the Clean-Up Notice issued by the EPA on 2 September 2011 (as varied) relates specifically to the removal of asbestos from the site, and does not cover any other works. The latest variation required all removal of asbestos to be completed by 3 July 2015 (some seven months after WDA took control of the site).

12. Under s91(5) of the *Protection of the Environment (Operations) Act 1997* (**POEO Act**), it is an offence not to comply with a clean-up notice without reasonable excuse. Given the real and proven risks to human health related to asbestos in the environment, our client seeks your explanation as to why WDA has not complied with the clear terms of the clean-up notice, given that WDA has been in control of the site since December last year.

13. Further, an EPA clean-up notice does not exempt WDA from the need to ensure that its activities on the site are authorised under the EPA Act. None of the consent documents provided to us by the WDA discuss removal of asbestos from the site, or any other work relating to asbestos at the site, which is classified as "special waste" under the POEO Act.

Work not authorised by development consents

14. Under s4 of the EPA Act, "development" is described very broadly as follows (our emphasis):

> ***development*** *means:*
>
> *(a) the* ***use of land****, and*
>
> *(b) the subdivision of land, and*
>
> *(c) the erection of a building, and*
>
> *(d) the* ***carrying out of a work****, and*
>
> *(e) the* ***demolition of a building or work****, and*
>
> *(f) any other act, matter or thing referred to in section 26 that is controlled by an environmental planning instrument,*
>
> *but does not include any development of a class or description prescribed by the regulations for the purposes of this definition.*

15. The only type of development excluded from this definition by the *Environmental Planning & Assessment Regulation 2000* (**EPA Regulation**) is demolition of a temporary structure (booths, tents) which is not relevant here.

16. As such, cleaning up stockpiles (removal of waste including asbestos), stabilising slopes and removing buildings are all "development" within the meaning of the EPA Act.

17. Part of the Alexandria Landfill site is zoned IN1, IN2, and B6 under the *Marrickville Local Environmental Plan 2011* (**Marrickville LEP**). The only use permissible without consent under these zones is "home occupations." The remainder of the site is zoned IN1 and SP2 (Classified Road) under the *Sydney Local Environmental Plan 2012* (**Sydney LEP**). There are no uses permissible without consent under either IN1 or SP2 in the Sydney LEP.

18. As such, the WDA requires development consent for cleaning up stockpiles, stabilising slopes and removing buildings, unless that development is classified as exempt or complying development, or development permissible without consent, under a State Environmental Planning Policy (**SEPP**).

19. The only use of land that is authorised by the consents provided by WDA issued by the Land and Environment Court (on 28 September 2006 as modified on 7 November 2012), and Sydney City Council (on 28 September 2006 as modified on 2 April 2013), is as follows:

> *Use of the premises for waste transfer, recycling and resource recovery involving sorting, crushing, shredding, screening, stockpiling and on-selling recyclables and associated plant and vehicle maintenance* ***all in conjunction with the continued use of the premises as a solid waste landfill depot.***

20. In our view, cleaning up stockpiles (removal of waste materials, including asbestos), stabilising slopes and removing buildings do not constitute use of the premises as a "solid waste landfill depot", or any of the associated uses referred to in the consents.

21. Further, Condition 1.3 in both consents (as modified) provides that the approved use shall cease 6 months after the cessation of the solid waste landfill operation. We also note that the City of Sydney s96 Application Assessment Report for the 2 April 2013 modification confirms that "[s]hould the landfill operation cease in the future, then the remediation and future use of the site will be the subject of a further development application (p11)."

22. In your letter, you advised us that WDA has not continued accepting waste at the site since it acquired the site in December 2014. As such, it appears that the use of the site as a landfill operation has ceased. If that is the case, the use of the site as a solid waste landfill depot is no longer authorised by the consents.

Request for further information

23. In light of the above, and particularly given our client's concerns about the health and safety of the residents and community in the immediate vicinity of the Alexandria Landfill site, we seek your urgent response as to exactly how

the WDA says that the development work being carried out at the site is authorised under the EPA Act.

24. If the WDA relies on any environmental assessments or approvals prepared or issued under the EPA Act, we seek copies of such assessments or approvals. Please refer us to the exact conditions of the approvals that you say authorise the work that is currently being carried out. We note that the WDA has not made any such information available on its website with respect to the Alexandria Landfill site.

25. If the WDA relies on exempt or complying development provisions to authorise the work, please refer us to the exact clause of the relevant SEPP you rely on, and what work you say is covered by that clause.

Could you please respond as a matter of priority.

Yours sincerely,
EDO NSW

Elaine Johnson
Senior Solicitor

Our Ref: 1421340

Transport Roads & Maritime Services

APPENDIX 2

PROPOSED SOIL CONSERVATION WORKS WESTCONNEX – ALEXANDRIA LANDFILL

Minor Works Review of Environmental Factors

JULY 2015

Job title:	Proposed Slope Stabilisation Works WestConnex – Alexandria Landfill Minor Works Review of Environmental Factors

Document Title	Minor Works REF
File name	14042 MWREF WestConnex St Peters Rev 2

Revision	Date	Prepared by	Checked by	Approved by
Revision 0	17 July, 2015	Ryan Shepherd Environmental Planner BUrbDev(Urb & Reg Planning)Hons	Dr Rod Bennison Lead Environmental Scientist BSc MEnvStudies GCPTT PhD	Dr Rod Bennison Lead Environmental Scientist BSc MEnvStudies GCPTT PhD
Revision 1	29 July, 2015	Ryan Shepherd Environmental Planner BUrbDev(Urb & Reg Planning)Hons	Dr Rod Bennison Lead Environmental Scientist BSc MEnvStudies GCPTT PhD	Dr Rod Bennison Lead Environmental Scientist BSc MEnvStudies GCPTT PhD
Revision 2	31 July, 2015	Ryan Shepherd Environmental Planner BUrbDev(Urb & Reg Planning)Hons	Dr Rod Bennison Lead Environmental Scientist BSc MEnvStudies GCPTT PhD	Dr Rod Bennison Lead Environmental Scientist BSc MEnvStudies GCPTT PhD

1 Introduction

The purpose of the Minor Works REF is to describe the proposal, to document the likely impacts of the proposal on the environment, to detail mitigation measures to be implemented and to determine whether the project can proceed. For the purposes of these works Roads and Maritime Services is the proponent and determining authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The description of the proposed works and associated environmental impacts have been undertaken in the context of clause 228 of the *Environmental Planning and Assessment Regulation 2000*, the *Threatened Species Conservation Act 1995* (TSC Act), the *Fisheries Management Act 1994* (FM Act) and the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In doing so the REF helps to fulfil the requirements of section 111 of the EP&A Act, that Roads and Maritime Services examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF would be considered when assessing:

- Whether the proposal is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Infrastructure under Part 5.1 of the EP&A Act.
- The significance of any impact on threatened species as defined by the TSC Act and/or FM Act, in section 5A of the EP&A Act and therefore the requirement for a Species Impact Statement.
- The potential for the proposal to significantly impact a matter of national environmental significance or Commonwealth land and the need to make a referral to the Australian Government Department of Sustainability, Environment, Water, Population and Communities for a decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the EPBC Act.

2 The proposal

2.1 Description

Title: Proposed Soil Conservation Works – Alexandria Landfill

File number: N/A

Road name and number: N/A

Closest cross road(s): Princes Highway and Canal Road

Chainage of works: N/A

Local government area: Marrickville LGA; and Sydney City LGA.

Roads and Maritime Services region: Sydney Region

Description of works:

Existing Site

The subject site is located at 300-310 Princes Highway, St Peters NSW (the site) and legally described as Lot 1 on DP88087 and Lot 2 on DP 1168612.

The site was previously used as a quarry for brick making material. Since the quarry ceased operation, it has been filled with various landfill materials. Based on a visual assessment of the material, it is apparent that there has been slope failure of the surface material on the embankment. The fill is composed mainly of silty sand with cobbles and boulders. The slope

section that has failed is located on the northern boundary of the property, located adjacent to 300-310 Princes Highway, St Peters.

In April 2015 a portion of Stockpile 21(b) experienced a localised landslip embankment failure adjacent to the site boundary as a result of extreme weather events. The failure was commenced on 5 May, 2015 and worsened due to additional rainfall events.

The WestConnex Delivery Authority (WDA) is now seeking to stabilise the landslip to ensure further failure is eradicated, and to excavate up to 30,000 tonnes from Mount Bradshaw located adjacent to the Alexandria Landfill along Campbell Lane.

Proposed works

The WDA proposes to undertake soil conservation works to stabilise the landslip in order to prevent damage to property in accordance with State Environmental Planning Policy (Infrastructure) 2007. This requires moving 30,000 tonnes of material from Lot 1 on DP88087 to the adjoining Lot 2 on DP 1168612.

The proposed slope stabilisation works involves the construction of a fill buttress over the existing landslip, using compacted fill sourced from various stockpiles within the site, from the Alexandria Landfill and Mount Bradshaw.

Features of the proposed slope stabilisation works are summarised below:

- Construction of a rock fill buttress in gullies at the base of the landslip;
- Construction of a drainage blanket at the toe of slope;
- Placement of drains at the interface between the existing fill slope and the new buttress, linked to the drainage blanket at the toe of the slope;
- Formation of a compacted fill buttress over the existing slope at 1.5H:1V or flatter;
- Grading the fill buttress to have 3 m wide berms every change in 7 m in vertical height; and
- Having a minimum 2 m wide buttress at the crest of the existing slope or 1m from the existing boundary.

Figure 1 below illustrates the location and extent of the proposed works.

Figure 1 - Site Location and Landslip Location (Not to Scale)

Figure 2 below illustrates the haulage route proposed to transport the fill.

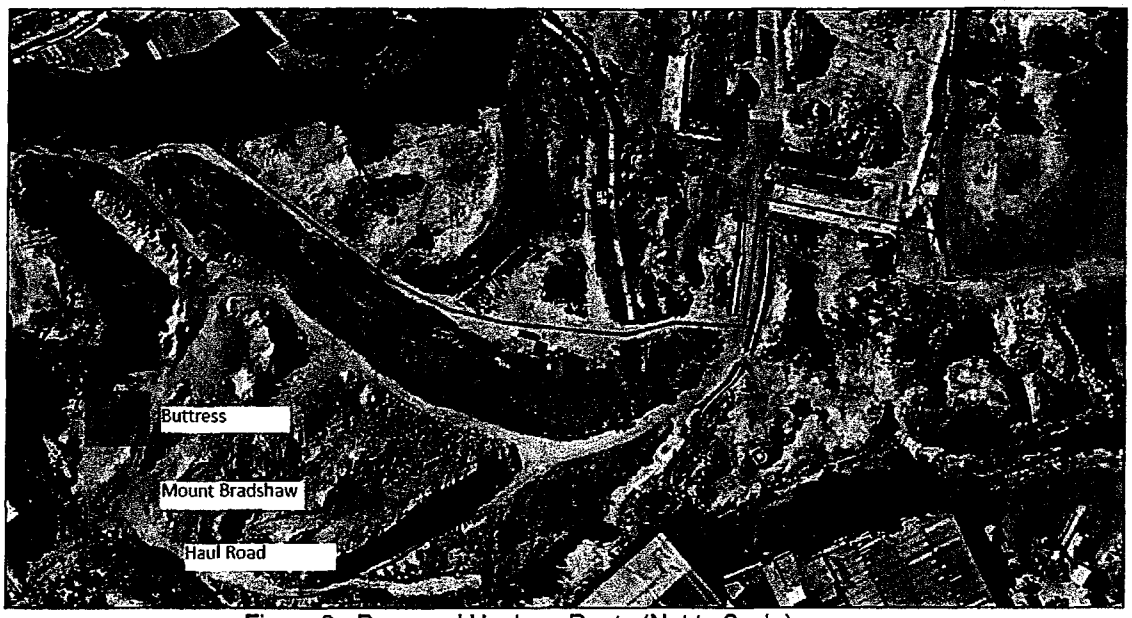

Figure 2 - Proposed Haulage Route (Not to Scale)

The proposed works would require the following equipment and machinery (approximate sizes given):

- D6 dozer;
- 15 tonne roller;
- 36 tonne excavator;
- 3 x 25 tonne dump trucks;
- Water cart (one initially; will assess if another required following commencement)
- 2 x site ute;
- 20 tonne excavator (will be established later in the works following completion of the embankment fill for trimming the batter); and
- 5 tonne excavator (will be established later in the works following completion of the embankment fill for trimming the batter).

The proposed works would be carried out Monday to Friday 7am to 6pm, and Saturday 8am to 1pm.

Objectives of works:

The objectives of the proposed works are to:

- Stabilise an existing landslip; and
- Ensure slope stabilisation within the Alexandria landfill to provide a safe environment for neighbouring sites and workers.

Ancillary facilities:

Ancillary facilities are not expected to be utilised for the proposed works.

Will the proposed works require the use or installation of a compound site? Site offices are already located adjacent to the existing weighbridge.	☑ Yes	☐ No
Will the proposed works require the use or installation of a stockpile site?	☐ Yes	☑ No
Are any other ancillary facilities required (eg temporary plants, parking areas, access tracks)? Parking areas are already established, no temporary plants are needed, access tracks will be built onto Mount Bradshaw and haulage ramps will be built into the landslip remediation batter.	☑ Yes	☐ No

Proposed date of commencement:
It is anticipated that the proposed works would begin from August, 2015.

Estimated duration of construction period:

The construction period is estimated to take approximately 10 weeks, subject to suitable weather and environmental approvals. The project is to be completed by end of November, 2015.

Need and options

Options considered:

The options considered for the proposed works include:

Option 1 – Do Nothing

The 'do nothing' option would be considered unsuitable as it would not provide appropriate safety measures to nearby properties. Additionally, doing nothing would not provide safety for employees related to the works.

Option 2 – Source Fill from External Site

Option 2 would involve importing fill from external sites. This option is not preferred due to additional transport costs, disruption to the community, and environmental impacts. It is also considered that there is suitable material on and adjacent to the landfill that is available to be utilised.

Option 3 – Source Fill from Mount Bradshaw to Alexandria Landfill (Adjoining Site)

Option 3 involves obtaining appropriate material from Mount Bradshaw and transferring it approximately 300 metres to the required location in the existing Alexandria Landfill.

Option 3 is the preferred option as it performed best against the above criteria and the proposal objectives.

2.2 Statutory and planning framework

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)

ISEPP aims to facilitate the effective delivery of infrastructure across the state, including for soil conservation works. Clause 109 of the ISEPP permits development on any land for the

purpose of soil conservation works to be carried out by or on behalf of a public authority without consent.

As the proposed works are appropriately characterised as development for the purposes of soil conservation works, and is to be carried out by or on behalf of Roads and Maritime Services, it can be assessed under Part 5 of the EP&A Act. Development consent from Council is not required.

The proposal is not located on land reserved under the *National Parks and Wildlife Act 1974* and does not affect land or development regulated by *State Environmental Planning Policy No. 14 – Coastal Wetlands, State Environmental Planning Policy No. 26 – Littoral Rainforests* or *State Environmental Planning Policy (Major Projects) 2005.*

Community and agency consultation

ISEPP consultation:

Part 2 of the ISEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. This is detailed below:

Is consultation with council required under clauses 13-15 of the Infrastructure SEPP?		
Are the works likely to have a substantial impact on the stormwater management services which are provided by council?	☐ Yes	☑ No
Are the works likely to generate traffic to an extent that will strain the existing road system in a local government area?	☐ Yes	☑ No
Will the works involve connection to a council owned sewerage system? If so, will this connection have a substantial impact on the capacity of the system?	☐ Yes	☑ No
Will the works involve connection to a council owned water supply system? If so, will this require the use of a substantial volume of water?	☐ Yes	☑ No
Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow?	☐ Yes	☑ No
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	☐ Yes	☑ No
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent?	☐ Yes	☑ No
Is there a local heritage item (that is not also a state heritage item) or a heritage conservation area in the study area for the works? If yes, does a heritage assessment indicate that the potential impacts to the item/area are more than minor or inconsequential?	☐ Yes	☑ No
Is consultation with other agencies required under clause 16 of the Infrastructure SEPP?		
Are the works adjacent to a national park, nature reserve or other area reserved under the *National Parks and Wildlife Act 1974*?	☐ Yes	☑ No

Are the works adjacent to a declared aquatic reserve under the *Fisheries Management Act 1994*?	☐ Yes	☑ No
Are the works adjacent to a declared marine park under the *Marine Parks Act 1997*?	☐ Yes	☑ No
Are the works in the Sydney Harbour Foreshore Area as defined by the *Sydney Harbour Foreshore Authority Act 1998*?	☐ Yes	☑ No
Do the works involve the installation of a fixed or floating structure in or over navigable waters?	☐ Yes	☑ No
Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional facility or group home in bush fire prone land?	☐ Yes	☑ No

Other agency and community consultation:

The Environment Protection Authority (EPA) has been consulted in relation to the proposed soil conservation works.

3 Environmental assessment

This section provides a detailed description of the potential environmental impacts associated with the proposal. All aspects of the environment potentially impacted upon by the proposal are considered. This includes consideration of the factors specified in the guidelines *Is an EIS required?* (DUAP 1999) and *Roads and Related Facilities* (DUAP 1996). The factors specified in clause 228(2) of the *Environmental Planning and Assessment Regulation 2000* and the matters of national environmental significance under the Federal *Environment Protection and Biodiversity Conservation Act* 1995 are also considered in section 5. Site-specific safeguards are provided to ameliorate the identified potential impacts.

3.1 Soil

Description of existing environment and potential impacts:

Are there any known occurrences of salinity or acid sulfate soils in the area? Marrickville Council LEP (2014) mapping indicates that the proposed works site is located in an area identified as Class 2 Acid Sulfate Soil, with the potential to experience acid sulfate soils **below the natural land surface or** during works by which the water table is likely to be lowered. Alexandria Landfill is considered to be a stockpile and is not considered natural land.	☑ Yes	☐ No
Does the project involve the disturbance of large areas (eg >2ha) for earthworks? An area of no more than 5,000 m^2 would be disturbed as a result of the proposed works.	☐ Yes	☑ No
Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors? Mount Bradshaw and parts of the Alexandria Landfill Site include areas of steep gradients. Areas that are considered steep would be avoided by plant and equipment. Erosion and sedimentation controls would be implemented during the proposed works to minimise potential impacts on the surrounding locality.	☑ Yes	☐ No
Are there any sensitive receiving environments that are located in or nearby the likely project footprint or that would likely receive stormwater discharge from the project? **Sensitive receiving environments include (but are not limited to) wetlands, state forests, national parks, nature reserves, rainforests, drinking water catchments).** The closest sensitive receiving environment includes the Wolli Creek Regional Park located approximately 2.7 km south west of the works area. The park would not be affected as a result of the proposed earthworks.	☑ Yes	☐ No
Is there any evidence within or nearby the likely footprint of potential contamination? Stockpile 21 is a known area of contamination within the Alexandria Landfill and is subject to an EPA Clean Up Notice. It is considered that there is likely contaminated soil in the vicinity of the proposed slope stability works. Contaminated would be consistent with landfill activities.	☑ Yes	☐ No

Is the likely project footprint in or nearby highly sloping landform? The proposed works are required to ensure slope stability to protect properties located at 300-310 Princes Highway, St Peters.	☑ Yes	☐ No
Are the works likely to result in more than 2.5ha (area) of exposed soil? No soil will be exposed as it is proposed to cut to 1m above ground level.	☐ Yes	☑ No

Safeguards
Safeguards to be implemented are:

1. Erosion and sediment control measures will be implemented on Mount Bradshaw and all haul roads prior to the commencement of excavation work, and maintained to:
   - Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drainage inlets;
   - Reduce water velocity and capture sediment on site;
   - Minimise the amount of material transported from site to surrounding pavement surfaces; and
   - Divert clean water around the site (in accordance with the Landcom/Department of Housing *Managing Urban Stormwater, Soils and Construction Guidelines* (the Blue Book)).
2. Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request.
3. Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised.
4. Work areas are to be stabilised progressively during the works.
5. Where material excavated from the site is to re-used, that material will be managed by the excavator and dump trucks, with each load spotted at both the loading and tipping points of the operation. Erosion and sediment controls will be in accordance with the Environmental Management Plan (EMP) for the project.
6. The maintenance of established stockpile sites during construction is to be in accordance with the *RTA Stockpile Site Management Procedures* (2001).
7. Potential or actual acid sulfate soils are to be managed in accordance with the *RTA Guideline for the Management of Acid Sulfate Materials* (2005).

3.2 Waterways and water quality

Description of existing environment and potential impacts:

Are the works located within, adjacent to or near a waterway? At its closest point, the proposed works area is located approximately 80 metres north west of Alexandria Canal. It is not considered that there would be any detrimental impact on the waterway as a result of the proposed works.	☐ Yes	☑ No
Is the location known to flood or be prone to water logging? Council mapping indicates that the location of the proposed slope stabilisation works and excavation at Mount Bradshaw are not impacted upon by flooding.	☑ Yes	☐ No
Are the proposed works located within or immediately adjacent to the area managed by Sydney Catchment Authority covered by *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*? **Maps of the Sydney Water Drinking Water Catchment are**	☐ Yes	☑ No

available from: http://www.legislation.nsw.gov.au/mapindex?type=epi&year=2011&no=28		
Will the proposed works be undertaken on a bridge or ferry?	☐ Yes	☑ No
Are the works likely to require the extraction of water from a local water course (not mains)?	☐ Yes	☑ No

Safeguards
Safeguards to be implemented are:

1. There is to be no release of dirty water into drainage lines and/or waterways.
2. Water quality control measures are to be used to prevent any material (for example, concrete, grout, sediment, and so on) entering drain inlets or waterways.
3. All fuels, chemicals and liquids are to be stored in an impervious bunded area a minimum of 50 metres away from:
   - Rivers, creeks or any areas of concentrated flow;
   - Flooded or poorly drained areas; and
   - Slopes above 10%.
4. Measures to control pollutants from stormwater and spills would be investigated and incorporated in the pavement drainage system at locations where it discharges to the receiving drainage lines.
5. Refuelling of plant and equipment is to occur on imperious bunded areas either onsite (located a minimum of 50 metres from drainage lines or waterways), or within the primary compound site.
6. Vehicle wash down is to occur in a designated bunded area.
7. All concrete washout is to occur into an adequately sized bunded area that is lined with an impermeable liner. The concrete washout is to be located as far away from drainage lines as possible on a flat surface.
8. An emergency spill kit is to be kept on site at all times. All staff are to be made aware of the location of the spill kit and be trained in its use.
9. If an incident (for example, a spill) occurs, the *RTA Environmental Incident Classification and Management Procedure* is to be followed and the Roads and Maritime Services Contract Manager notified as soon as practicable.

3.3 Noise and vibration

Description of existing environment and potential impacts:

Are there any residential properties or other noise sensitive areas near the location of the proposed works that may be affected by the works (i.e. church, school, hospital):		
During construction? The proposed works would involve the use of trucks and excavators to move the fill from Mount Bradshaw to the Landslip at Stockpile 21b in the Alexandria Landfill. This would cause some noise impacts to residents in the vicinity of the proposed works area. Residents located approximately 80 metres directly to the north east of Mount Bradshaw may experience minor disturbance during the transfer of the fill material.	☑ Yes	☐ No
During operation? Not applicable	☐ Yes	☑ No

Are the proposed works going to be undertaken only during standard working hours? Standard working hours Monday-Friday: 7:00am to 6.00pm Saturday: 8.00am to 1.00pm Sunday and Public Holidays: no work	☑ Yes	☐ No
Is any explosive blasting required for the proposed works?	☐ Yes	☑ No
Will operation of the works alter the noise environment for sensitive receivers? This might include, but not be limited to, altering the line or level of an existing carriageway, changing traffic flow, increasing traffic speeds by more than 10km/hr or installing audio-tactile line markings.	☐ Yes	☑ No
Will the works result in vibration being experienced by any surrounding properties or infrastructure (during either construction or operation)?	☐ Yes	☑ No

Safeguards
Safeguards to be implemented are:

1. Provide information to neighbours before and during construction through media such as letterbox drops or individual contact. Consultation would be ongoing for nearby residents during works performed outside normal hours. Consultation would be undertaken with commercial premises during the works performed during standard hours.
2. Any work that is performed outside normal hours or on Sundays or public holidays is not permitted.
3. Place as much distance as possible between the plant or equipment and residences and other sensitive land uses.
4. Examine and implement, where feasible and reasonable, alternative work practices and equipment use which would minimise noise levels, such as alternatives to diesel and petrol engines.
5. Regularly inspect and maintain equipment to ensure that it is in good working order. Equipment must not be operated until it is maintained or repaired, where maintenance or repair would address the annoying character of noise identified.
6. Consider alternatives to reversing alarms:
   - Avoid use of reversing alarms by designing site layout to avoid reversing; and
   - Install, where feasible and reasonable; less annoying alternatives to the typical 'beeper' alarms taking into account the requirements of the Workplace Health and Safety legislation. Such alternatives include smart alarms that adjust their volume depending on ambient noise levels, spotters and visual alarms.
7. Ensure workers and contractors are trained (such as toolbox talks) in appropriate work practices (for example, avoid the use of radios and stereos outdoors where neighbours can be affected), use of equipment (for example, minimising extended periods of engine idling) and communication methods (for example, avoid shouting) that minimise noise levels.
8. During operation, where noise impacts are generated, reasonable and feasible mitigation measures should be investigated.

Air quality

Description of existing environment and potential impacts:

Are the proposed works likely to result in large areas (>2ha) of exposed soils? It is proposed to cut to 1m above ground level within the stockpile. Therefore no 'topsoil' would be exposed as a result of the proposed excavation; however some soil within the stockpile may be exposed. The works would not result in more than 2ha of exposed soils.	☐ Yes	☑ No
Will there be any dust sensitive receivers located within the vicinity of the proposed works during the construction period? There is considered to be a large amount of sensitive receivers within the vicinity of the proposed works area. With regards to the proposed removal of fill material from Mount Bradshaw, the closest residential properties are located approximately 80 metres to the north east. Residential properties are also located approximately 100 metres to the north of the slope stability works area. The closest commercial and industrial premises are located directly adjacent to the proposed work areas.	☑ Yes	☐ No
Is there likely to be an emission to air during construction? It is noted that there would be some emissions to air during the process of transferring fill from Mount Bradshaw to the Alexandria Landfill by means of excavation and loading/unloading from trucks. Impacts would be minor if appropriate safeguards are in place. Additionally the impacts would be considered temporary.	☑ Yes	☐ No

Safeguards

Safeguards to be implemented are:

1. Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust.
2. Works are not to be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely.
3. Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transportation.
4. Stockpiles or areas that may generate dust are to be managed to suppress dust emissions in accordance with the *RTA Stockpile Site Management Guideline* 2011.
5. If offensive odours are identified, and/or where putrescible waste is exposed, mitigation measures would be implemented to reduce the potential for odours beyond the property boundary. This would include scheduling works to minimise the period that excavations are left open, use of daily cover, covering of stockpiles or use of odour suppressants.

Non Aboriginal Heritage
Description of existing environment and potential impacts:

Have online heritage database searches been completed? • **RTA section 170 register** • **NSW Heritage database** • **Commonwealth EPBC heritage list** • **Australian Heritage Places Inventory** • **Local Environmental Plan(s) heritage items** Searches of the above heritage registers and databases have been completed.	☑ Yes	☐ No
Are there any items of non-Aboriginal heritage or heritage conservation areas located within the vicinity of the proposed works? The following non-Aboriginal heritage items by Local Government and State Agencies are located within the vicinity of the proposed works: • Cooks River Container Terminal and associated infrastructure located at 20 Canal Road, St Peters; • Electricity substations (No. 200 and No. 549) located on Princes Highway, St Peters; • House – 22-44 Campbell Street, St Peters; • House – 82 Campbell Street, St Peters; • Shea's Creek Bridge Ricketty Street, St Peters; • Alexandria Canal. The proposed works would be contained within the proposed work area where there are no identified items of non-Aboriginal heritage significance that would be impacted upon by the works..	☑ Yes	☐ No
Are there any items of potential non-Aboriginal heritage significance within the vicinity of the works?	☐ Yes	☑ No
Are works likely to occur in or near features that indicate potential archaeological remains?	☐ Yes	☑ No

Safeguards
Safeguards to be implemented are:

1. If unexpected archaeological remains are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in the *RTA Standard management Procedure: Unexpected Archaeological Finds* must be followed. The RMS Environmental Officer must be contacted immediately.
2. If any items defined as relics under the NSW *Heritage Act 1977* are uncovered during the works, all works must cease in the vicinity of the find and the RMS Regional Environmental Officer contacted immediately.
3. If an existing heritage item or item identified on the RMS's s.170 register is on site or in the near vicinity of the works, the item would be protected to prevent any damage or disturbance.
4. The location of known heritage items and areas would be communicated to all site workers prior to works commencing. Fences / boundaries would be set up as appropriate to protect known heritage areas.

Aboriginal Heritage

Description of existing environment and potential impacts:

Would the works involve disturbance in any area that has not been subject to previous ground disturbances?	☐ Yes	☑ No
Have online AHIMS search been completed? A Basic and Extensive Aboriginal Heritage Information Management System (AHIMS) search was conducted on 15 July, 2015. The search covered an area surround a point identified as Lat.Long:-33.9154, 151.1798 with a buffer of 50m. The search identified one Aboriginal site. An Extensive search was conducted on 15 July, 2015 which identified Shea's Creek Dugong (Open Camp Site) at the location of Zone 56 Easting 331839 and Northing 6245378. The site status is listed as destroyed.	☑ Yes	☐ No
Is there potential for the proposed works to impact on any items of Aboriginal heritage?	☐ Yes	☑ No
Would the works involve the removal of mature native trees?	☐ Yes	☑ No
Would the works impact on any features that may indicate any potential archaeological remains?	☐ Yes	☑ No
Are the works consistent with the requirements of the *RTA Procedure for Aboriginal Cultural Heritage Consultation and Investigation*? Prior to the commencement of any works, a Stage 1 RMS Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) risk assessment would be conducted for the proposed works to determine whether the proposed works would potentially impact on Aboriginal cultural heritage. The proposed works are deemed to be routine or minor in nature, and occur within a disturbed zone. An AHIMS extensive search was conducted on 15 July, 2015. The results indicated the presence of a destroyed camp site. As no impacts are anticipated on the Aboriginal heritage item from the proposed works, the need for a Stage 2 (Site survey and further assessment) is unlikely.	☑ Yes	☐ No

Safeguards

Safeguards to be implemented are:

1. If Aboriginal heritage items (including skeletal remains) are uncovered during the works, all works within the vicinity of the find must cease and the RMS Aboriginal Cultural Heritage Advisor and Regional Environmental Officer contacted immediately. Steps in the *RTA Standard Management Procedure: Unexpected Archaeological Finds* must be followed.

Biodiversity

Description of existing environment and potential impacts:

Have relevant database searches been carried out? • DECCW Wildlife Atlas • Commonwealth EPBC Searches of the above listed databases were carried out on 15 July, 2015.	☑ Yes	☐ No
Did the database searches identify any endangered ecological communities, threatened flora and/or threatened or protected fauna within the vicinity of the proposed works? The databases searched identified the following within 10km of the proposed works area: • Nine Listed Threatened Ecological Communities; • 77 listed threatened species; and • 77 listed migratory species. The EPBC Protected Matters Search Tool identified nine threatened ecological communities as occurring or having the potential to occur within 10 kilometres of the proposed works area, including: • Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion; • Eastern Suburbs Banksia Scrub of the Sydney Region; • Coastal Upland Swamps in the Sydney Basin Bioregion • Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion; • *Posidonia australis* seagrass meadows of the Manning-Hawkesbury ecoregion; • Shale Sandstone Transition Forest of the Sydney Basin Bioregion; • Subtropical and Temperate Coastal Saltmarsh; • Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion; and • Western Sydney Dry Rainforest and Moist Woodland on Shale. None of these occur within the vicinity of the proposed works area.	☑ Yes	☐ No
Will the proposed works require the removal of any other vegetation? The proposed works would require the removal of insignificant vegetation and weedy regrowth located on the Alexandria Landfill. The removal of vegetation is not considered to cause a negative impact. The vegetation on the stockpile would be removed progressively to the extent that is required.	☑ Yes	☐ No
Will the proposed works affect any tree hollows or hollow logs? Where vegetation is proposed to be removed, there is no known tree hollows or hollow logs that could be considered as wildlife habitat.	☐ Yes	☑ No
Are there any known areas of critical habitat, SEPP 14 wetland area or SEPP 26 littoral rainforest area within the vicinity of the proposed works?	☐ Yes	☑ No
Will the proposed works provide any additional barriers to the movement of wildlife?	☐ Yes	☑ No
Will the proposed works disturb any natural waterways or aquatic habitat?	☐ Yes	☑ No
Will the proposed works disturb any crevices or other locations (such as on bridges and culverts) for potential bat habitat?	☐ Yes	☑ No

Will there be impact on any vegetation or land that is part of an offset or is protected under a condition of approval from a previous project?	☐ Yes	☑ No

Safeguards
Safeguards to be implemented are:

1. If unexpected threatened fauna or flora is discovered, stop works immediately and follow the *RTA* Unexpected *Threatened Species Find Procedure* in the *RTA Biodiversity Guidelines 2011 – Guide 1 (Pre-clearing process).*
2. Vegetation clearing would be restricted to those areas where it is considered necessary.

3.4 Trees

Description of existing environment and potential impacts:

Do the proposed works involve pruning, trimming or removal of any tree/s? The proposed works area is considered to be highly cleared of vegetation. The vegetation on Mount Bradshaw and the Alexandria Landfill is described as weedy regrowth and is considered to have a low ecological value.	☑ Yes	☐ No
Do the trees form part of a streetscape, an avenue or roadside planting?	☐ Yes	☑ No
Have the trees been planted by a community group, landcare group or by council or is the tree a memorial or part of a memorial group eg. has a plaque?	☐ Yes	☑ No
Do the trees form part of a heritage listing or have other heritage value?	☐ Yes	☑ No

Safeguards
Safeguards to be implemented are:

1. Parking of vehicles and storage of plant/equipment is to occur on existing paved areas. Where this is not possible, vehicles and plant/equipment are to keep away from environmentally sensitive areas and outside the dripline of any nearby trees.
2. Vegetation is only to be removed to the extent shown in **Figure 2** as shaded in yellow.
3. Vegetation would not be removed along the boundaries of the Mount Bradshaw area to ensure the nearby residential dwellings would remain screened from the works area.

Traffic and transport

Description of existing environment and potential impacts:

Are the proposed works likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during construction?	☐ Yes	☑ No
Are the proposed works likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation?	☐ Yes	☑ No
Are the proposed works likely to affect any other transport nodes or transport infrastructure (eg bus stops, bus routes) in the surrounding area? result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation?	☐ Yes	☑ No

Safeguards

Safeguards to be implemented are:

1. Where possible, current traffic movements and property access are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary traffic delays.

3.5 Socio-economic

Description of existing environment and potential impacts:

Are the proposed works likely to impact on local business?	☐ Yes	☑ No
Are the proposed works likely to require any property acquisition?	☐ Yes	☑ No
Are the proposed works likely to alter any access for properties (either temporarily or permanently)?	☐ Yes	☑ No
Are the proposed works likely to alter any on-street parking arrangements (either temporarily or permanently)?	☐ Yes	☑ No
Are the proposed works likely to change pedestrian movements or pedestrian access (either temporarily or permanently)?	☐ Yes	☑ No
Are the proposed works likely to impact on any items or places of social value to the community (either temporarily or permanently)?	☐ Yes	☑ No
Are the proposed works likely to reduce or change visibility of any businesses, farms, tourist attractions or the like (either temporarily or permanently)?	☐ Yes	☑ No

Safeguards

Safeguards to be implemented are:

1. Where possible, current pedestrian access will be maintained during the works. Any disturbance is to be minimised to prevent disruptions to pedestrian movements.
2. In the event where potential impacts to local residents and businesses may occur, a letter will be sent to adjacent stakeholders prior to the construction to advise of potential impacts.

Landscape character and visual amenity

Description of existing environment and potential impacts:

Are the proposed works over or near an important physical or cultural element or landscape? (heritage items and areas, distinctive or historic built form, National Parks, conservation areas, scenic highways etc)? Wolli Creek Regional Park is located approximately 2.7km south west of the proposed works area. It is not considered that the park would be impacted upon by the proposed works.	☐ Yes	☑ No
Would the proposed works obstruct or intrude upon the character or views of a valued landscape or urban area. For example locally significant topography, a rural landscape or a park, a river, lake or the ocean or a historic or distinctive townscape or landmark? The proposed slope stability works would not obstruct or intrude upon the views of the of the existing urban area.	☐ Yes	☑ No
Would the proposal require the removal of mature trees or stands of vegetation, either native or introduced?	☐ Yes	☑ No
Would the proposal result in large areas of shotcrete visible from the road or adjacent properties?	☐ Yes	☑ No
Would the proposal involve new noise walls or visible changes to existing noise walls?	☐ Yes	☑ No
Would the proposal involve the removal or reuse of large areas of road corridor, landscape, either verges or medians?	☐ Yes	☑ No
Would the proposal involve substantial changes to the appearance of a bridge (including piers, girders, abutments and parapets) that are visible from the road or residential areas?	☐ Yes	☑ No
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)?	☐ Yes	☑ No
Would any new structures or features being constructed result in over shadowing to adjoining properties or areas?	☐ Yes	☑ No

Safeguards

Safeguards to be implemented are:

1. Landscaping is to be managed in accordance with RMS *Landscape Guideline*, 2008.
2. Following road works, the ground surface should be rehabilitated to be in keeping with the surrounding area.
3. Any pedestrian fencing should be an 'open' style using high quality materials, preferably finished in a green colour

Waste

Description of existing environment and potential impacts:

Are the proposed works likely to generate >200 tonnes of waste material (contaminated and /or non-contaminated material)? The proposed works would involve transferring up to 30,000 tonnes of material from Mt Bradshaw on to the Alexandria Landfill site. This material has been given a preliminary Waste classification of Excavated Natural Material (ENM).	☐ Yes	☑ No
Are the proposed works likely to require a licence from OEH? The works would be controlled by survey so that only 30,000 tonnes of material would be removed. Therefore an Environment Protection Licence under Schedule 1 of the *Protection of the Environment Operations Act 1997* would not be triggered.	☐ Yes	☑ No

Safeguards
Safeguards to be implemented are:

1. Resource management hierarchy principles are to be followed:

- Avoid unnecessary resource consumption as a priority;
- Avoidance is followed by resource recovery (including re-use of materials, reprocessing and energy recovery); and
- Disposal is undertaken as a last resort.

(Should be done in accordance with the *Waste Avoidance & Resource Recovery Act 2001*)

- Bulk project waste (for example, fill) sent to a site not owned by the Roads and Maritime Services (excluding Office and Environment and Heritage licensed landfills) for land disposal is to have prior formal written approval from the landowner, in accordance with RTA Environmental Direction No. 20 – Legal Off-site disposal of Bulk RTA Project Wastes.
- If coal tar asphalt is identified and is to be removed, it is to be disposed to landfill in accordance with RTA Environmental Direction No.21 – Coal Tar Asphalt Handling and Disposal.
- There is to be no disposal or re-use of construction waste on to other land.
- Waste is not to be burnt on site.
- Waste material is not to be left on site once the works have been completed.
- Working areas are to be maintained, kept free of rubbish, and cleaned up at the end of each working day.
- Material from Mt Bradshaw shall be classified in accrodance with the EPA Waste Classification Guidelines Part 1 Classifying Waste
- Marker layers and surveying the placement of material will be used to prevent cross contamination of ENM and existing material in the area of the landslip

4 Consideration of State and Commonwealth environmental factors

4.1 *Environmental Planning and Assessment Regulation 2000* checklist

In addition to the requirements of the *Is an EIS required?* guideline as detailed in the REF, the following factors listed in clause 228(2) of the *Environmental Planning and Assessment Regulation, 2000* have also been considered to assess the likely impacts of the proposal on the natural and built environment. This consideration is required to comply with sections 111 and 112 of the *Environmental Planning and Assessment Act 1979*.

Environmental Factor	Impacts
(a) Any environmental impact on a community? The proposed works may cause minor short term environmental impacts on the community, such as air quality and noise impacts on residents and community facilities; however, the potential impacts would be minimised with the implementation of the safeguards as detailed in Section 3 of this REF.	Minor short-term impact
(b) Any transformation of a locality? The transfer of 30,000 tonnes of fill material from one adjoining site to the other will transform the landscape for the benefit of providing safe and effective fill batter for the protection of the adjacent property.	Positive long-term benefit
(c) Any environmental impact on the ecosystems of a locality? No impact to the ecosystem of the locality is anticipated. Proposed works are to be confined to the disturbed zone of the proposed works area.	Negligible
(d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? The proposed works would not reduce the aesthetic, recreational, scientific or other environmental quality or value of the locality, as works would be contained within an area that was traditionally a landfill.	Negligible
(e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present generations? The proposed works are unlikely to impact on any locality, place or building of significance or other special value for present or future generations. The potential impacts would be minimised with the implementation of the safeguards and management measures provided in Section 3 of this REF.	Negligible
(f) Any impact on habitat of any protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*)? The proposed works would not have any impact on the habitat of any protected or endangered fauna due to the limited scope of works for the proposed activities and the implementation of the safeguards given in Section 3 of this REF.	Nil
(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? The proposed works would not endanger any species of animal, plant or other form of life, whether living on land, in water or in the air due to the limited scope of works for the proposed activities and the implementation of the safeguards given in Section 3 of this REF.	Nil
(h) Any long-term effects on the environment? The proposed works would be temporary in nature and contained within the privately owned land and land that is owned by Roads and Maritime. As such, there is not anticipated to be any long term effects on the environment with the implementation of the safeguards and management measures provided in Section 3 of this REF.	Nil

(i) Any degradation of the quality of the environment? The proposed works would potentially degrade the quality of the environment in the short term; however, the potential impacts would be minimised with the implementation of the safeguards given in Section 3 of this REF.	Positive long-term impact
(j) Any risk to the safety of the environment? The proposed works would have minimal risk to the safety of the environment due to the limited scope of works for the maintenance activities covered in this REF, and the potential impacts would be minimised with the implementation of the safeguards given in Section 3 in this REF.	Minor short-term impact
(k) Any reduction in the range of beneficial uses of the environment? The proposed works would not result in any reduction in the range of beneficial uses of the environment.	Nil
(l) Any pollution of the environment? The proposed works would potentially cause pollution of the environment; however, the potential impacts would be minimised with the implementation of the safeguards given in Section 3 of this REF.	Minor short-term impact
(m) Any environmental problems associated with the disposal of waste? Any waste generated during the proposed works would be contained and removed for disposal to approved recycling facilities or to licensed landfill in accordance with the safeguards in Section 3 of this REF. No environmental problems are anticipated for the disposal of waste.	Negligible
(n) Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply? The proposed works would not significantly increase demands on resources, which are, or are likely to become, in short supply. The safeguards listed in Section 3 of this REF would be implemented to minimise any impacts.	Negligible
(o) Any cumulative environmental effect with other existing or likely future activities? The proposed activities have the potential to have cumulative environmental effects with other existing or likely future activities; however, the effects would be minimal due to the limited scope of works for the activities covered in this REF, and the potential impacts on the environment would be minimised with the implementation of the safeguards given in Section 3 in this REF.	Minor short term impact

4.2 Matters of national environmental significance checklist

Under the environmental assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999*, the following matters of national environmental significance are required to be considered to assist in determining whether the proposal should be referred to the Australian Government Department of Sustainability, Environment, Water, Population and Communities.

Factor	Impact
a. Any impact on a World Heritage property?	Nil
b. Any impact on a National Heritage place?	Nil
c. Any impact on a wetland of international importance?	Nil
d. Any impact on a listed threatened species or communities?	Nil
e. Any impacts on listed migratory species?	Nil
f. Any impact on a Commonwealth marine area?	Nil
g. Does the proposal involve a nuclear action (including uranium mining)?	Nil
Additionally, any impact (direct or indirect) on Commonwealth land?	Nil

5 Summary of safeguards and environmental management measures

This section provides a summary of the site specific environmental safeguards and management measures identified in described in section 3 and 4 of this REF. These safeguards will be implemented to reduce potential environmental impacts throughout construction and operation. A framework for managing the potential impacts is provided with reference to environmental management plans and relevant Roads and Maritime Services QA specifications. Any potential licence and/or approval requirements required prior to construction are also listed.

Table 5.1: Summary of site-specific safeguards for proposed works.

Soil	1. Erosion and sediment control measures will be implemented on Mount Bradshaw and all haul roads prior to the commencement of excavation work, and maintained to: – Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drainage inlets; – Reduce water velocity and capture sediment on site; – Minimise the amount of material transported from site to surrounding pavement surfaces; and – Divert clean water around the site (in accordance with the Landcom/Department of Housing *Managing Urban Stormwater, Soils and Construction Guidelines* (the Blue Book)). 2. Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request. 3. Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised. 4. Work areas are to be stabilised progressively during the works. 5. Where soil excavated from the site is to re-used, that material should be segregated from waste material to be disposed of at a licenced facility, so that no contamination of clean material occurs. 6. The maintenance of established stockpile sites during construction is to be in accordance with the *RTA Stockpile Site Management Procedures* (2001). 7. Potential or actual acid sulfate soils are to be managed in accordance with the *RTA Guideline for the Management of Acid Sulfate Materials* (2005).
Waterways and water quality	1. There is to be no release of dirty water into drainage lines and/or waterways. 2. Water quality control measures are to be used to prevent any material (for example, concrete, grout, sediment, and so on) entering drain inlets or waterways. 3. All fuels, chemicals and liquids are to be stored in an impervious bunded area a minimum of 50 metres away from: – Rivers, creeks or any areas of concentrated flow; – Flooded or poorly drained areas; and – Slopes above 10%. 4. Measures to control pollutants from stormwater and spills would be investigated and incorporated in the pavement drainage system at locations where it discharges to the receiving drainage lines. 5. Refuelling of plant and equipment is to occur on imperious bunded areas either onsite (located a minimum of 50 metres from drainage

	lines or waterways), or within the primary compound site. 6. Vehicle wash down is to occur in a designated bunded area. 7. All concrete washout is to occur into an adequately sized bunded area that is lined with an impermeable liner. The concrete washout is to be located as far away from drainage lines as possible on a flat surface. 8. An emergency spill kit is to be kept on site at all times. All staff are to be made aware of the location of the spill kit and be trained in its use. 9. If an incident (for example, a spill) occurs, the *RTA Environmental Incident Classification and Management Procedure* is to be followed and the Roads and Maritime Services Contract Manager notified as soon as practicable.
Noise and vibration	1. Provide information to neighbours before and during construction through media such as letterbox drops or individual contact. Consultation would be ongoing for nearby residents during works performed outside normal hours. Consultation would be undertaken with commercial premises during the works performed during standard hours. 2. Any work that is performed outside normal hours or on Sundays or public holidays is not permitted. 3. Place as much distance as possible between the plant or equipment and residences and other sensitive land uses. 4. Examine and implement, where feasible and reasonable, alternative work practices and equipment use which would minimise noise levels, such as alternatives to diesel and petrol engines. 5. Regularly inspect and maintain equipment to ensure that it is in good working order. Equipment must not be operated until it is maintained or repaired, where maintenance or repair would address the annoying character of noise identified. 6. Consider alternatives to reversing alarms: – Avoid use of reversing alarms by designing site layout to avoid reversing; and – Install, where feasible and reasonable; less annoying alternatives to the typical 'beeper' alarms taking into account the requirements of the Workplace Health and Safety legislation. Such alternatives include smart alarms that adjust their volume depending on ambient noise levels, spotters and visual alarms. 7. Ensure workers and contractors are trained (such as toolbox talks) in appropriate work practices (for example, avoid the use of radios and stereos outdoors where neighbours can be affected), use of equipment (for example, minimising extended periods of engine idling) and communication methods (for example, avoid shouting) that minimise noise levels. 8. During operation, where noise impacts are generated, reasonable and feasible mitigation measures should be investigated.
Air quality	1. Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust. 2. Works are not to be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely. 3. Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transportation.

	4. Stockpiles or areas that may generate dust are to be managed to suppress dust emissions in accordance with the *RTA Stockpile Site Management Guideline* 2011. 5. If offensive odours are identified, and/or where putrescible waste is exposed, mitigation measures would be implemented to reduce the potential for odours beyond the property boundary. This would include scheduling works to minimise the period that excavations are left open, use of daily cover, covering of stockpiles or use of odour suppressants.
Non Aboriginal Heritage	1. If unexpected archaeological remains are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in the *RTA Standard management Procedure: Unexpected Archaeological Finds* must be followed. The RMS Environmental Officer must be contacted immediately. 2. If any items defined as relics under the NSW *Heritage Act 1977* are uncovered during the works, all works must cease in the vicinity of the find and the RMS Regional Environmental Officer contacted immediately. 3. If an existing heritage item or item identified on the RMS's s.170 register is on site or in the near vicinity of the works, the item would be protected to prevent any damage or disturbance. 4. The location of known heritage items and areas would be communicated to all site workers prior to works commencing. Fences / boundaries would be set up as appropriate to protect known heritage areas.
Aboriginal Heritage	1. If Aboriginal heritage items (including skeletal remains) are uncovered during the works, all works within the vicinity of the find must cease and the RMS Aboriginal Cultural Heritage Advisor and Regional Environmental Officer contacted immediately. Steps in the *RTA Standard Management Procedure: Unexpected Archaeological Finds* must be followed.
Biodiversity	1. If unexpected threatened fauna or flora is discovered, stop works immediately and follow the *RTA Unexpected Threatened Species Find Procedure in the RTA Biodiversity Guidelines 2011 – Guide 1 (Pre-clearing process).* 2. Vegetation clearing would be restricted to those areas where it is considered necessary.
Trees	1. Parking of vehicles and storage of plant/equipment is to occur on existing paved areas. Where this is not possible, vehicles and plant/equipment are to keep away from environmentally sensitive areas and outside the dripline of any nearby trees. 2. Vegetation clearing would be restricted to those areas where it is considered necessary. 3. Vegetation would not be removed along the boundaries of the Mount Bradshaw area to ensure the nearby residential dwellings would remain screened from the works area.
Traffic and transport	1. Where possible, current traffic movements and property access are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary traffic delays.

Socio-economic	1. Where possible, current pedestrian access will be maintained during the works. Any disturbance is to be minimised to prevent disruptions to pedestrian movements. 2. In the event where potential impacts to local residents and businesses may occur, a letter will be sent to adjacent stakeholders prior to the construction to advise of potential impacts.
Landscape character and visual amenity	1. Landscaping is to be managed in accordance with *RMS Landscape Guideline* 2008. 2. Following road works, the ground surface should be rehabilitated to be in keeping with the surrounding area. 3. Any pedestrian fencing should be an 'open' style using high quality materials, preferably finished in a green colour
Waste	1. Resource management hierarchy principles are to be followed: – Avoid unnecessary resource consumption as a priority; – Avoidance is followed by resource recovery (including re-use of materials, reprocessing and energy recovery); and – Disposal is undertaken as a last resort. ould be done in accordance with the *Waste Avoidance & Resource Recovery Act 2001*) – Bulk project waste (for example, fill) sent to a site not owned by the Roads and Maritime Services (excluding Office and Environment and Heritage licensed landfills) for land disposal is to have prior formal written approval from the landowner, in accordance with RTA Environmental Direction No. 20 – Legal Off-site disposal of Bulk RTA Project Wastes. – If coal tar asphalt is identified and is to be removed, it is to be disposed to landfill in accordance with RTA Environmental Direction No.21 – Coal Tar Asphalt Handling and Disposal. – There is to be no disposal or re-use of construction waste on to other land. – Waste is not to be burnt on site. – Waste material is not to be left on site once the works have been completed. – Working areas are to be maintained, kept free of rubbish, and cleaned up at the end of each working day.

5.1 Licensing and approvals

List of licences and / or approvals required for the proposed works:

Table 1: Summary of licensing and approval required.

Requirement	Timing
Notification to the relevant local council must be made in accordance with the *Noxious Weeds Act 1993* if a notifiable weed is detected on land.	Within three days of becoming aware that a notifiable weed is on land.

6 Certification, review and decision

6.1 Certification

This minor works review of environmental factors provides a true and fair review of the proposal in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposal.

Prepared by:

Ryan Shepherd
Environmental Planner
On behalf of EP Risk Management Pty Ltd
Date: 31/07/2015

Minor Works REF reviewed by:

Dr Rod Bennison
Lead Environmental Scientist
On behalf of EP Risk Management Pty Ltd
Date: 31/07/2015

Environment staff review

The Minor Works REF has been reviewed and considered against the requirements of sections 111 and 112 of the *Environmental Planning and Assessment Act 1979*.

In considering the proposal this assessment has examined and taken into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity as addressed in the Minor Works REF and associated information. This assessment is considered to be in accordance with the factors required to be considered under clause 228 of the *Environmental Planning and Assessment Regulation 2000*.

The proposal described in the Minor Works REF will have some environmental impacts which can be ameliorated satisfactorily. Having regard to the safeguard and management measures proposed, this assessment has considered that these impacts are unlikely to be significant and therefore an approval for the proposal does not need to be sought under Part 5.1 of the *Environmental Planning and Assessment Act 1979*.

The assessment has considered the potential impacts of the activity on critical habitat and on threatened species, populations or ecological communities or their habitats for both terrestrial and aquatic species as defined by the *Threatened Species Conservation Act 1995* and the *Fisheries Management Act 1994*.

The proposal described in the Minor Works REF will not affect declared critical habitat. The activity described in the Minor Works REF will not significantly affect threatened species, populations or ecological communities or their habitats. Therefore a species impact statement is not required.

The assessment has also addressed the potential impacts on the activity on matters of national environmental significance and any impacts on Commonwealth land and concluded that there will be no significant impacts. Therefore there is no need for a referral to be made to the Australian Government Department of the Environment, Water, Heritage and the Arts (DEWHA) for a decision by the Commonwealth Minister for the Environment, Heritage and the Arts on whether assessment and approval is required under the *Environment Protection and Biodiversity Conservation Act 1999*.

The REF is considered to meet all relevant requirements.

1.1 Environment staff recommendation

It is recommended that the proposal to undertake Soil Conservation Works at Alexandria Landfill as described in this Minor Works REF proceed subject to the implementation of all safeguards identified in the Minor Works REF and compliance with all other relevant statutory approvals, licences, permits and authorisations. The Minor Works REF has examined and taken into account to the fullest extent possible all matters likely to affect the environment by reason of the activity and established that the activity is not likely to significantly affect the environment. The REF has concluded that there will be no significant impacts on matters of national environmental significance or any impacts on Commonwealth land.

The REF determination will remain current for five years at which time it shall lapse if works have not been physically commenced. The pre-construction checklist must be completed prior to the commencement of any works.

Recommended by:

John Ieroklis
Environmental Manager – WestConnex Stage 2

Noted by:

Ken Reid
Stage 2 Project Manager – Main Tunnels

This page to be deleted from the REF

1.2 Determination

In accordance with the above recommendation and sections 111 and 112 of the *Environmental Planning and Assessment Act 1979*, I determine that Roads and Maritime Services may carry out the proposal.

Ken Reynolds
Project Director Delivery – Stage 2
WestConnex Delivery Authority

Mark Andrew
General Manager - Motorways
Roads and Maritime Services

6/8/15

AECOM

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000
PO Box Q410
QVB Post Office NSW 1230
Australia
www.aecom.com

+61 2 8934 0000 tel
+61 2 8934 0001 fax
ABN 20 093 846 925

15 June 2015

Westconnex Delivery Authority
Locked Bay 928
North Sydney
NSW 2059

Slope Stability Assessment and Concept Design - Westconnex - St Peters Interchange (SPI)

1.0 Introduction

Following a meeting with WestConnex Delivery Authority (WDA) on 5 June 2015, AECOM was commissioned by WDA to carry out a slope stability assessment for a slope that has suffered instability at Princes Highway St Peters. The assessment was carried out in accordance with our proposal dated 27 May 2015. This technical memorandum summarises the slope stability assessment assumptions, methodology, and results.

2.0 Design reference documents

The following information has been review by AECOM:

- Survey information provided by Sinclair Knight Mertz (SKM), January 2015
- Engineering drawings provided by T.C. Punnett and Associates consulting engineering, "Sydney Park Business Centre Corner of Bishop Street and Princes Highway for Walker Developments Pty, Ltd", dated 1987 (Appendix A).
- Geotechnical Report "WestConnex Stage 2: M5 Geotechnical Investigation – Report of completed Work", dated 27 March 2015.

3.0 Site description

The slope section that has suffered instability is located on the northern boundary of the property, adjacent to an industrial/commercial estate located at 300-310 Princes Highway, St Peters. The approximate location of the slope is shown in Figure 1.

The site was previously used as a quarry for brick making material and has been used as a landfill. Based on current survey information from the WestConnex GIS portal, surface levels range from 21m AHD to -11m AHD. Based on historical information, excavations for the brick pit were up to -30 m AHD. Since the quarry ceased operation, it has been filled with various landfill materials. Based on a visual assessment of the material within the slope failure and the surface material on the embankment, the fill is mainly silty sand with cobble and boulders.

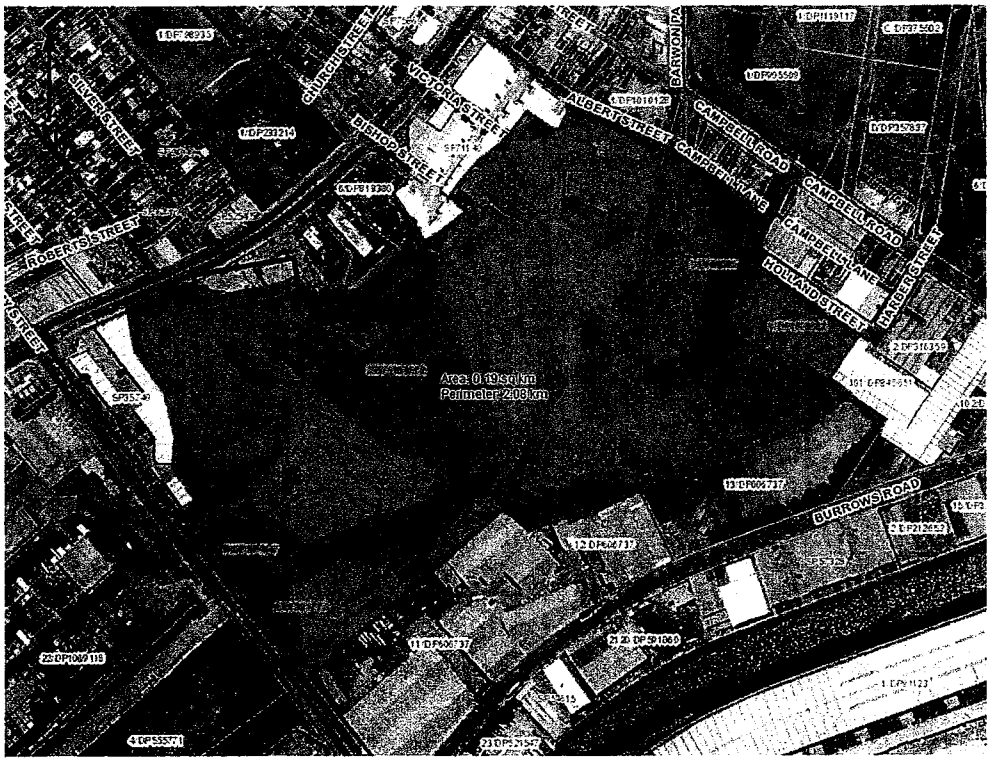

Figure 1 Site Location and landslip location (Not to Scale)

4.0 Assumptions and input data

4.1 Assumptions

The following assumptions have been adopted to carry out slope stability analysis:

- The quarry face lies 3m behind the crest of the existing fill slope
- The slope of the quarry face has an angle of 80° to the horizontal
- No surcharge was considered on the top of the embankment**
- Earthquake loading has not been considered
- Local slip failures within engineered fill to be placed are not considered to be critical to overall slope performance

**Based on the supplied engineering drawing, the existing structure is understood to be a suspended slab which is supported on piles. Additionally the area at the crest of the slope is not considered accessible to vehicles. Consequently, surcharge loading at the crest of the slope have not been adopted under temporary loading conditions.

4.2 Design Parameters

Material strength parameters adopted to carry out slope stability analyses are summarised in Table 1 below.

Table 1 Adopted material parameters for slope stability assessment

Existing Embankment material[1]	19	38	1
Engineered Fill[2]	20	32	2
Fill Gravel/Sand[3]	19	32	0
Residual Soil – Silty Clay Stiff[3]	18	28	2
Shale - Class V[3]	21	30	10
Shale - Class III[3]	24	35	100
Shale - Class II[3]	24	35	225

[1] Adopted based on the results of the back calculation analysis (Appendix B)
[2] Adopted based on the assumption that the imported material consists of Crushed Sandstone or Shale
[3] Adopted based on data from borehole BH157

4.3 Ground water

The groundwater inflow into the quarry is complex due to the local geology of the site and proximity to Alexandra Canal. The slope stability analyses have been carried out for the following groundwater conditions:

- Fully drained
- Fully saturated
- Partially drained conditions assuming that the fill buttress is fully drained.

4.4 Design criteria for slope stability analysis

- Minimum calculated Factor of Safety 1.3 for short-term stability
- Minimum calculated Factor of Safety 1.0 for the stability of the existing slope using back analysis

Preliminary stability analyses have been carried out using the SLOPE/W program, which uses a limit equilibrium approach. The Morgenstern-Price method was adopted to assess the Factor of Safety of circular slip surfaces.

5.0 Design Methodology

The following design methodology was adopted to assess the stability of the existing slope:

- Survey information was used to assess the existing slope (see Figure 2 in Appendix A).
- A back calculation analysis was carried out to estimate strength parameters for the existing fill to give a Factor of Safety of 1.0 under drained conditions.
- The stability of the existing fill was reassessed with the placement of an engineered fill buttress with slopes of 1.5H:1V and 2H:1V.

A sketch of the proposed buttress option is presented in Appendix A (Figure 3).

6.0 Analysis Results

The results of the stability analyses are summarised in Table 3. Graphical outputs of the results are presented in the Appendix B.

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Table 3 Results of the Preliminary Slope Stability Analysis

[illegible]	Ground Water Condition	Factor of Safety
1.5H:1V Berm	Fully drained	1.4
	Fully Saturated	0.6
	Partially drained[1]	1.4
2H:1V Berm	Fully drained	1.7
	Fully Saturated	0.8
	Partially drained[1]	1.7

[1] It is assumed that the existing fill is fully saturated and the fill buttress is fully drained

7.0 Comments on Results

The results of the preliminary analysis indicate that both of the proposed stabilisation options achieve a calculated Factor of Safety greater than1.3 when water is kept out of the fill buttress. However, the Factor of Safety falls to below 1.3 under fully saturated conditions, indicating the stability of the slope is sensitive to groundwater levels.

8.0 Recommendations

The proposed concept design options meet the target Factor of Safety provided the fill buttress remains unsaturated with a batter slope of 1.5H:1V or flatter. To maintain the buttress in an unsaturated state, drains should be installed in the slope at regular intervals.

Peter Plummer
Geotechnical Engineer
peter.plummer@aecom.com

Mobile: +61 401 566 222
Direct Dial: +61 2 8934 0000

John Ashley
Industry Director - Ground Engineering & Tunnelling
john.ashley@aecom.com

Mobile: +61 412 187 687
Direct Dial: +61 2 8934 0043
Direct Fax: +61 2 8934 0001

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APPENDIX A

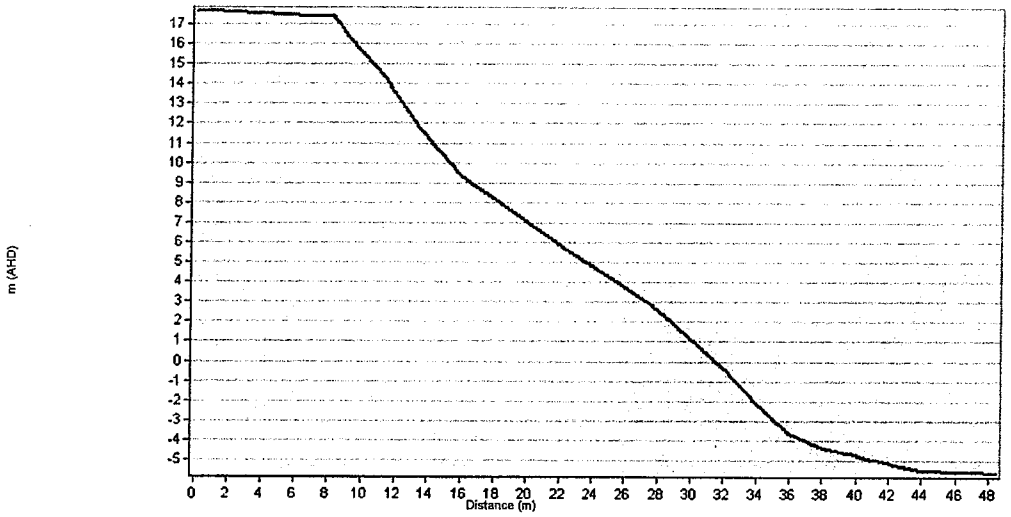


Figure 2 Cross Section of slope failure prior to slope failure

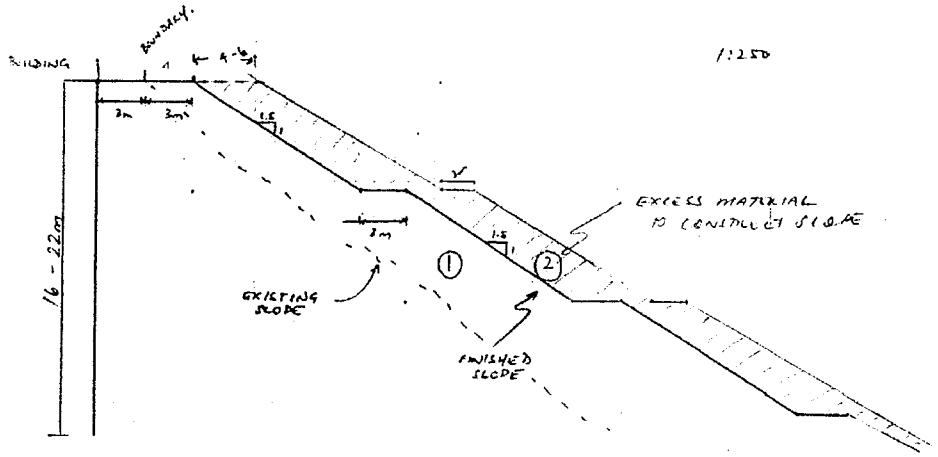
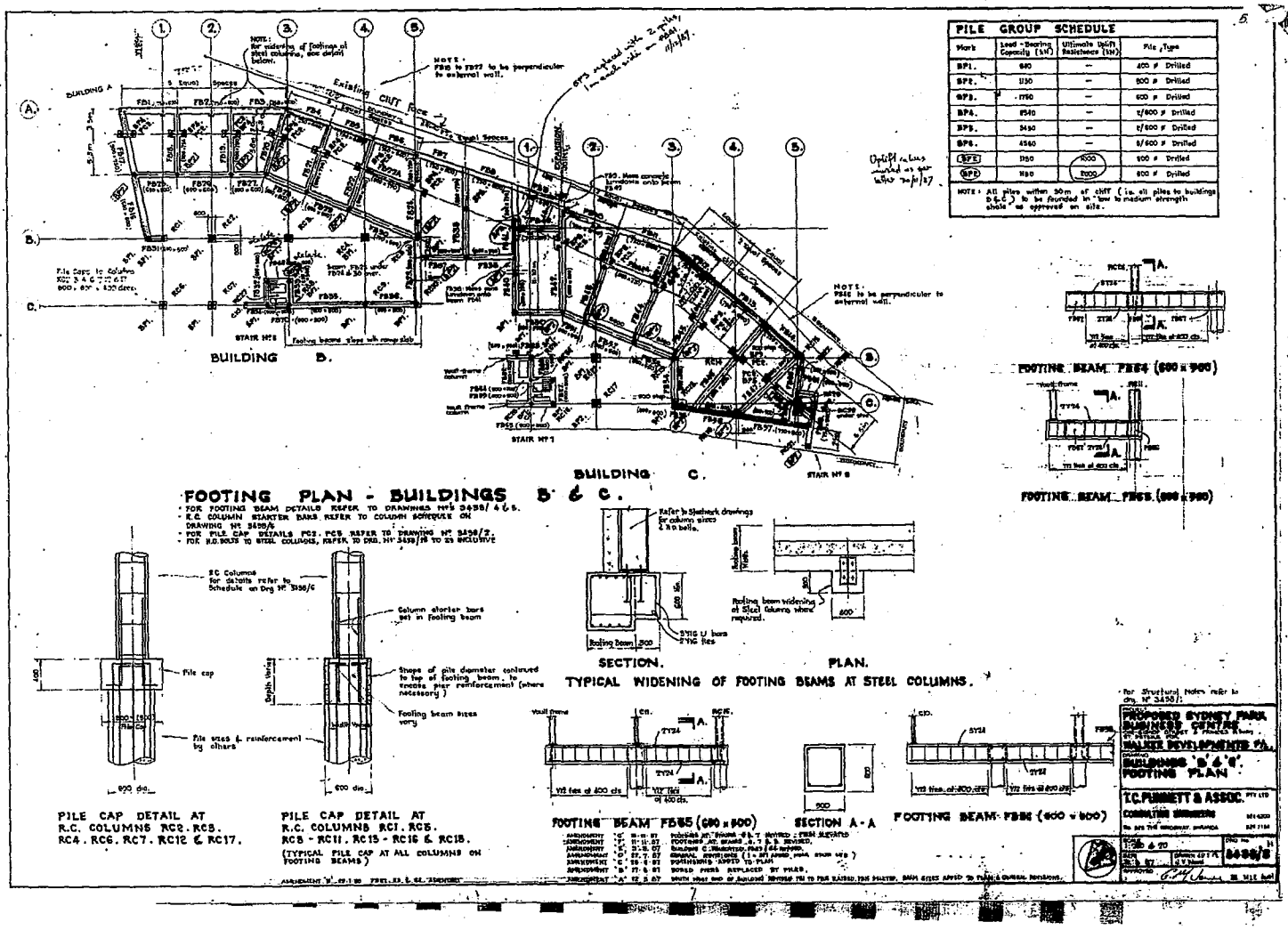
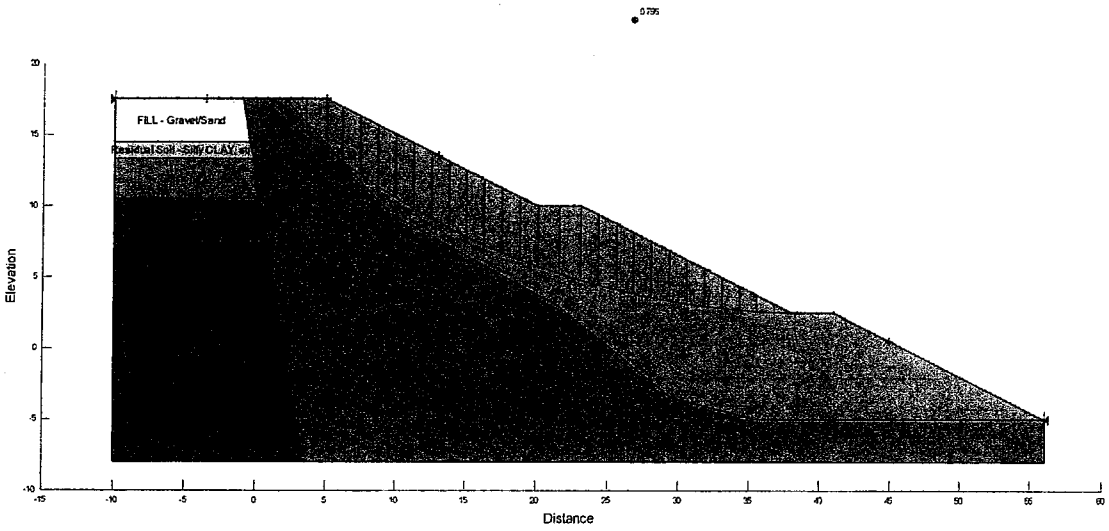
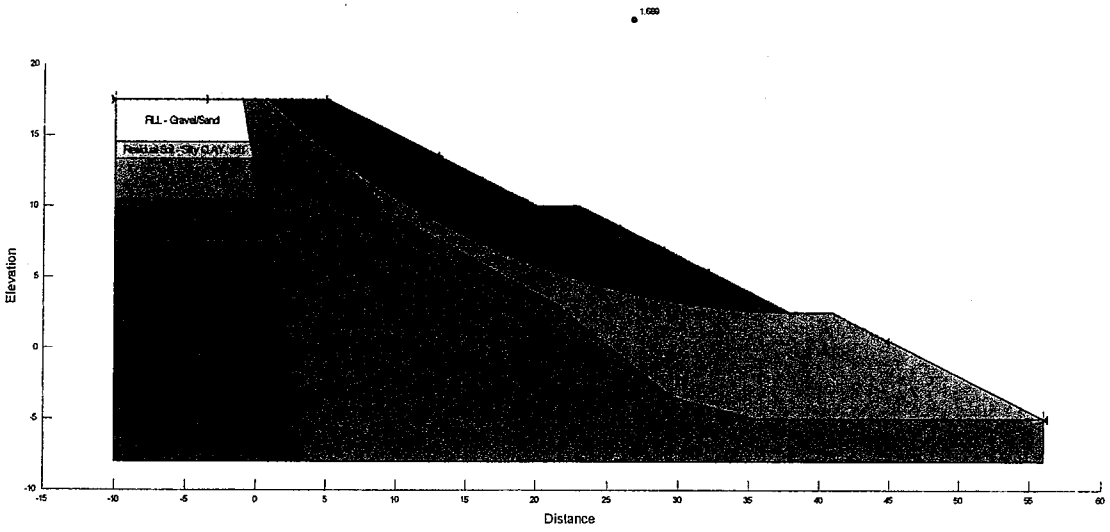


Figure 3 Fill buttress with slope of 1.5H:1.0V





Engineered Fill- Saturated (2H:1V)



Engineered Fill- Partially Drained (2H:1V)

Briefing for Project Director - Delivery

Transport WestConnex Delivery Authority

To: Ken Reynolds

From: Dimitry Belov

Title: Alexandria Landfill Leachate Treatment Plant Options and recommendations for Trade Waste Agreement Conditions with Sydney Water.

Purpose:
To identify options and seek approval for upgrades and/or modifications to the ALF leachate treatment plant.

To recommend new Trade Waste Agreement conditions.

Background:
Site investigations have proven that the existing leachate plant no longer complies with the existing trade waste agreement (TWA). The existing design is inadequate to deal with the daily leachate generation volume of approximately 100kL/day with an ammonia concentration estimated to be in the order of 400mg/L. The ammonia concentration specified in the existing TWA is <100mg/L.

During the month of April, a significant rain event occurred during which the stormwater pumps could not keep up with de-watering requirements. This resulted in the landfill pit filling up with stormwater, which was then cross contaminated with leachate (contaminated body of water). Subsequent testing of the contaminated body of water showed ammonia levels at a concentration >0.9mg/L (the permissible max concentration) resulting in the stormwater pump being isolated to prevent discharge to the stormwater system.

The volume of the contaminated body of water (BoW) was estimated to be approximately 6ML. As this BoW was contaminated with ammonia the only course of action was to discharge to sewer. The existing TWA is based on a maximum daily discharge of 620kL/day.

The body of water has been discharged to sewer by modifying the stormwater pipes on site to reticulate the water to the leachate plant (rather than stormwater). As the ammonia concentration was approximately 30mg/L which is well below the upper limit of 100mg/L, the leachate treatment plant was by-passed with the BoW going straight to sewer at 620kL/day. To ensure compliance, regular field tests and several lab tests were undertaken to sample the sewer discharge. To date sampling has shown a range of 17mg/L to 70mg/L concentration of ammonia.

Further site investigations have shown that two Botany Sands Aquifer sump pumps were no longer working and were adding volume to the BoW. One sump pump (Botany Sands

Pump 2 - BS2) has since been replaced, with the second to be replaced shortly. This will alleviate some of the inputs to the BoW.

Currently the TWA is the limiting factor in dewatering the site, and WDA has received one EPA complaint about the odour generated by the leachate BoW. This is being managed by dosing the BoW with deodoriser product as well as fixed deodoriser sprays at the boundary. To date, no further complaints have been received.

A Discussion paper by WAMC is attached as Appendix 1.

Leachate Treatment System Upgrade Requirements:

As the existing leachate treatment plant is in a significant state of disrepair and questionable design capacity, it will need to be upgraded in order to achieve compliance with Sydney Water TWA standards.

It is important to note that Sydney Water has agreed in principal to allow WDA/WAMC to upgrade/modify the leachate system over a 6 month period (May 2015 – October 2015). This requires WDA/WAMC to prepare an Effluent Improvement Program (EIP) in May 2015.

Following the wet weather event, WAMC has requested an extension to the deadline and Sydney Water has agreed (mid May 2015).

During the 6 month period (May to October 2015) the leachate treatment plant upgrade/modification works will occur in two stages:

1) May to July 2015
    a. Completion of site investigation works as well as leachate characterisation analysis to determine Leachate system design requirements
    b. WDA/WAMC will be required to comply with the TWA most of the time, with some minor exceedances from time to time (ammonia discharge concentration 120-150mg/L. NOTE: Concentrations greater than 150mg/L are not acceptable and are considered a safety issue for Sydney Water workers within the SWC sewer system.
2) August to December 2015
    a. Carry out leachate treatment modifications based on investigations and be fully compliant with TWA (ammonia concentration < 100mg/L).

Leachate Treatment System Upgrade options:

Option 1a:

1) Re-use existing concrete tank
2) Re-commission existing steel tank with new liner
3) Install 6 new aerators and seed with biomass from Eastern Creek Leachate Treatment Plant (LTP)

It is estimated that this will cost approximately $100k and take 2 to 3 months. During this time leachate may need to be blended with up to 400kL of Groundwater/Stormwater in order to meet the TWA conditions. This will result in approximately 500kL/day of trade waste (assuming no additional loading of stormwater). Once completed, the LTP will most likely only achieve a total volume of 120kL/day at a concentration of 150mg/L ammonia, requiring some blending to be fully compliant.

Option 1b:

1) Re-use existing concrete tank
2) Demolish steel tank and replace with a larger and taller concrete tank
3) Install 6 new aerators, control system/telemetry and seed with biomass from Eastern Creek LTP.

It is estimated that this option will cost approximately $250k and take 3 to 4 months. During this time any leachate generated will need to be blended at approximately 400kL of Groundwater in order to meet the TWA conditions. This will result in approximately 500kL/day of trade waste (assuming no additional loading of stormwater). Once completed, the LTP will be able to treat 100kL/day of leachate and achieve TWA compliance without blending. (based on historic data)

Option 2:

1) Decommission and remove existing LTP
2) Design and build a new LTP based on a 3 year design life (lower capital cost than a new LTP designed for 20 year life).

This plant would be designed to handle 100kL of leachate with an ammonia concentration of 400mg/L. It would be built in the existing location, within a footprint of approximately 12mx20m. The indicative cost of this system would be $750k and a likely construction period of 6 to 7 months.

"Do Nothing" Option:

This is not an option that is considered suitable for WDA/WAMC to proceed with for more than the short term. It involves blending raw untreated leachate with botany sands groundwater to achieve compliance with the TWA. This option will only be utilised until option 1a, 1b or 2 are completed.

Groundwater ingress

The approved Water and Leachate Management Plan, developed on behalf of DADI, estimates that the rate of ingress is 100kL/day. To date, investigations on BS2 have shown an approximate continual ingress (dry weather) of approximately 86.5kL/day. This is continual inflow to a receiving sump with no additional effects on ground water.

Further investigations into the inflow of groundwater, especially Botany Sands 1 (BS1) is required to understand effects on the local ground water system and capacity for dilution of Leachate.

Trade Waste Agreement:

In order to maintain the current 620kL/day trade waste volume, Sydney Water has advised that the Risk Index will need to be increased. In order to maintain the existing Risk Index, the TWA volume would need to be reduced to 453kL/day. This is not achievable in the short term due to the BoW and ammonia concentrations without a functioning LTP (will require 500kL/day to comply with ammonia concentration levels, without reducing the BoW or coping with wet weather/stormwater events).

WAMC/WDA has been investigating options with Sydney Water to determine the best course of action to:

1) Dewater the site
2) Manage site stormwater and leachate in the future
3) Understand ammonia concentrations and water volumes for both leachate and stormwater.

Sydney Water has assessed the sewer main capacity that the LTP currently discharges to. They have advised that they can offer a maximum daily discharge of 1ML/day with a maximum instantaneous flow of 15L/s.

Recommendation:
It is recommended to:

1) Proceed with Option 1b for the leachate Treatment Plant Upgrade
2) Accept Sydney Water's proposal to discharge 1ML/Day @ max 15L/s for the TWA until such time as a new long term LTP is designed, installed and commissioned by the Main Tunnel Works Contractor, at which time a new TWA can be negotiated.
3) The impact of the drawdown on groundwater will be monitored and should there be a deleterious effect on the water balance, the extraction of groundwater for dilution purposes would be reduced.
4) Further investigations will be undertaken on groundwater and impacts of extraction.
5) Option 1b is likely to be consistent with the approved Water and Leachate Management Plan. This will be confirmed prior to commencement of groundwater blending utilising BS1.

.....

PROPOSED BY DIMITRY BELOV
Site Investigations Officer, Stage 2
WestConnex Delivery Authority
Phone No. 0419 475 433
DATE 15/5/15

.....

ENDORSED BY KEN REID
Construction Manager
WestConnex Delivery Authority
DATE

.....

NOTED BY FIONA CHRISTIANSEN
Planning Manager
WestConnex Delivery Authority
DATE 18/5/15

Project Director's comments:

Approved / Not Approved / Noted

COO & CEO

Briefing for Minister or Director General
not

Briefing for Project Director - Delivery

Transport WestConnex Delivery Authority

To: Ken Reynolds

From: Dimitry Belov

Title: Alexandria Landfill Leachate Treatment Plant Upgrade.

Purpose:
To engage JPG Engineering to design, install and commission an upgraded Leachate Treatment Plant (LTP) based on selected option 1b.

Background:

Previous Briefing Note (A9195826 v2.0) provided four options for dealing with the existing LTP at Alexandria Landfill. Option 1b was recommended and approved to proceed with a high level estimate of $250k.

Option 1b is described again below.

Option 1b:

1) Re-use existing concrete tank
2) Demolish steel tank and replace with a larger and taller concrete tank
3) Install 6 new aerators, control system/telemetry and seed with biomass from Eastern Creek LTP.

It is estimated that this option will cost approximately $250k and take 3 to 4 months. Once completed, the LTP will be able to treat 100kL/day of leachate and achieve TWA compliance without blending.

Current Situation:

Following approval, WAMC and JPG with assistance from RADI Electrical audited the electrical and controls system of the existing LTP. This proved that the existing electrical and controls system was not capable of being re-used safely.

JPG carried out a concept design/scoping exercise, which included electrical and control system upgrades. Attached as Appendix 2 is their proposed Process review, concept design and Cost estimate. The estimate for the upgrade including electrical and control system is $306,390 excl GST.

WAMC have carried out an investigation into the market for Leachate Treatment Plant Upgrades. Attached as Appendix 1 is WAMC's recommendation to WDA for the procurement of the LTP upgrade works. WAMC's recommendation is for WDA to directly engage JPG engineering to carry out the Capital Upgrade Works for Alexandria Landfill.

Recommendation:
It is recommended to:

1) Proceed with WAMC's recommendation to engage JPG Engineering to complete the LTP Upgrade Works.
2) Engage JPG Engineering for an amount of $330,000 excl GST. This includes a contingency amount of $23,410 excl GST.

Dimitry Belov (WDA) will be responsible for the delivery of the LTP Upgrade.

WAMC will be responsible for the management, design review, construction and installation of JPG Engineering for the LTP Upgrade Works.

.....

PROPOSED BY DIMITRY BELOV
ALF Project Manager
WestConnex Delivery Authority
DATE 18/6/15

.....18/06/15

ENDORSED BY CHANDRA MOHAN
Technical Manager, Landfills
Waste Assets Management Corporation
DATE

.....18/6/15

ENDORSED BY KEN REID
Construction Manager
WestConnex Delivery Authority
DATE

per 19/6/15

NOTED BY JOY DUNCAN
Advisor – Environmental Planning
WestConnex Delivery Authority
DATE

Project Director's comments:

Approved / Not Approved / Noted

Briefing for Minister or Director General

Lex 6707

IAMANDI Nanette

From:	WILSON Rachel
Sent:	Wednesday, 4 November 2015 2:51 PM
To:	BATCHELOR Michael; REYNOLDS Ken
Cc:	HAY James M; REDDEN Larissa; BOCK Sally E
Subject:	Signed: Letter to Marrickville Council - Alexandria Landfill - CE15/1555/A1
Attachments:	Marrickville Council letter - Alexandra landfill - signed.pdf

Good afternoon everyone

The letter to Marrickville Council regarding Alexandria Landfill was signed by James Hay this morning and mailed this afternoon. A copy is attached for your information.

Kind regards
Rachel

Rachel Wilson
Manager, Government Information Services
(Journey Management / Asset Maintenance)
T 02 8588 5985 M 0477 725 881
www.rms.nsw.gov.au

Roads and Maritime Services
Level 16 101 Miller Street North Sydney NSW
Locked Bag 928 North Sydney 2059

Transport
Roads & Maritime
Services

4 November 2015

The General Manager
Marrickville Council
2-14 Fisher Street
Petersham NSW 2049

Attention: Tim Moore, Director Planning and Environmental Services

Dear Mr Moore

Alexandria Landfill Site

Thank you for your letter to WestConnex Delivery Authority (WDA) on 29 September 2015.

You may be aware that WDA was dissolved on 1 October 2015. This occurred pursuant to Transport Administration (General) Amendment (WestConnex Delivery Authority) Regulation 2015.

WDA's assets, rights and liabilities become assets, rights and liabilities of Roads and Maritime Services (see Transport Administration Act 1988 s.55C(7)).

Accordingly, the Alexandria Landfill site (**Site**) is now owned by Roads and Maritime. Roads and Maritime has also now taken over the management of the Site.

Roads and Maritime is therefore also responding to Council's 29 September 2015 letter to WDA. I am responding to these issues on behalf of Roads and Maritime.

Council's 29 September 2015 letter includes the terms of a resolution passed by Council on 15 September 2015 relating to the WestConnex project. The letter asks for a response to resolutions 4 and 6.

Resolution 4

Resolution 4 relates to alternative heavy vehicle access. Heavy vehicle access is regulated by the appropriate development consents for the Site. Roads and Maritime and Project officers would be happy to meet with Council officers to understand the Council's concerns regarding the access arrangements for the current works on the Site.

Proposed access points and routes for the New M5 construction works on the Site will be set out in the environmental impact statement (EIS) for the New M5 project. The EIS will be publicly exhibited as part of the assessment process for the project before the end of the year. Any person may make a submission within the exhibition period, and the Department of Planning and Environment will consider any such submissions made. Roads and Maritime would encourage Council to provide input into the EIS process, and would also be pleased to meet with the Council and Council officers to discuss the New M5 project within the Council's area.

Level 9, 101 Miller Street, North Sydney NSW 2060 |
Locked Bag 928, North Sydney NSW 2059 |
www.rms.nsw.gov.au | 13 22 1

Resolution 6

Resolution 6 relates to Council's consideration of issuing a stop work order. There are some inaccuracies in some facts contained in the resolution. Nevertheless, it appears from the terms of the resolution that the key issue relates to development consent and development control matters. The Site is the subject of development consents issued in 1987 for a waste landfill depot (1987 development consents) and in 2006 for a waste transfer facility (2006 development consents). Roads and Maritime continues to operate the Site under these consents.

The works currently underway or proposed in the near future can be broadly categorised as follows:

1. Slope stabilisation work

   The landfill and waste transfer facility is located in an old quarry. There are steep slopes on the edge of the landfill area. Some of these slopes have a long history of instability issues arising from erosion and stormwater drainage.

   In April 2015, following acquisition of the Site by the NSW Government, there was a heavy rainfall event during which part of the slope failed near the boundary of the Site. The slope failure, if left unattended to, had the potential to impact on buildings located adjacent to the Site.

   Roads and Maritime is taking action to ensure that the slope is stabilised, is safe and does not pose any risk to the adjoining buildings. These works involve emplacing material against the slope and forming an adequate batter to stabilise and make the slope safe.

2. Stockpiles

   The Site contains numerous stockpiles of waste which were present at the time of acquisition of the Site.

   These stockpiles of waste are temporary and moveable. Activities underway include sorting through these waste stockpiles, processing some of the waste in these stockpiles, recovering material which can be re-used, removing the material in the classified and sorted stockpiles from the Site and placing some of the material in the landfill. The activities do not involve any excavation of the land.

   Further, one of the stockpiles on the Site, stockpile 21, was the subject of a clean-up notice issued by the EPA on 2 September 2011 (and later varied). The clean up notice related to asbestos containing materials in the stockpile. The clean-up notice was issued to the previous licensee of the Site and was outstanding at the time of acquisition of the Site by the NSW Government.

   The EPA is proposing to issue a new clean-up notice to Roads and Maritime requiring actions relating to the management and disposal of the material in stockpile 21. It is important that the actions proposed and underway in relation to this stockpile continue so that Roads and Maritime is able to comply with the new notice and achieve appropriate clean up of this stockpile.

3. Buildings

   Roads and Maritime is proposing to remove various things from the Site which were described in a recent newsletter to residents as "buildings". These things are shipping containers, temporary portable workers sheds which were brought on to the Site before the NSW Government acquired the site, a small booth and a temporary stockpile divider wall.

   The above works are authorised by the development consents referred to above or they do not require further development consent because they are either not development, they are permissible without consent, or they fall within categories of exempt or complying development.

As Council is aware, this Site has a long history. The former owner or occupier of the Site had been undertaking waste facility activities on the Site for many years. As part of this, a significant quantity of waste and materials had been brought onto the Site. Roads and maritime considers that its appropriate for the above works to be done to improve the environmental condition of the property, make the Site safe, and comply with the EPA clean up notice. Completion of these works will result in improved environmental outcomes for the local community.

Roads and Maritime is taking specific measures to prevent and minimise the transfer of materials into the surrounding environment during the works. A majority of the trucks removing materials from the Site are not carrying potentially hazardous materials. Wheel washing is in place for all trucks leaving the Site and procedures for covering of all trucks. We are happy to discuss the environmental controls for the works in more detail if this would assist.

We appreciate that Council has expressed a view in respect to the overall WestConnex project, and that there will be opportunities for those views to be provided through the EIS assessment process.

However, as indicated above, having the Alexandria Landfill site properly managed by the NSW Government and professionally cleaned up by Roads and Maritime with the appropriate direction and oversight of the EPA provides a strong benefit to local residents. It is appropriate for Council to treat its views over WestConnex as a separate issue to Roads and Maritime' effective management and clean up of a site that has been the subject of community concern for many years.

We ask that Council take no further action in relation to any possible stop work order until Roads and Maritime has had the opportunity to meet with Council officers to allow Council's concerns to be fully considered by Roads and Maritime.

If you would like to discuss this matter further please contact Mr James Hay, Network General Manager Motorways at Roads and Maritime on (02) 8588 5996.

Yours sincerely

James Hay