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Department of Finance
09-Nov-2017
Doc No. 60443690_R004_SAR S261

Site Audit Report

Section 261 Cox Peninsula, Northern Territory



Site Audit Report

Section 261 Cox Peninsula, Northern Territory

Client: Department of Finance

ABN: 61 970 632 495

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This site audit report was prepared for the Department of Finance and provides the Auditor's review of documentation provided by the Department of Finance and Jacobs Group (Australia) Pty Ltd. Based on information provided by the Department of Finance, this audit is considered to be a voluntary site audit under the North Territory (NT) *Waste Management and Pollution Control Act* (WMPCA) (2016) and non-statutory site audit under the New South Wales (NSW) Contaminated Land Management (CLM) Act (1997). It is based on a review of the condition of the site at the time of the completion of investigation in the Jacobs Group (Australia) Pty Ltd reports. This audit report has been prepared in consideration of the relevant guidelines used for contamination management in NT and NSW at the time that the audit was performed. The Auditor notes that subsurface conditions can vary over short distances and it is possible that small areas of contaminated soil may have not been detected between the sampling points. However, in the opinion of the Auditor, these should not present an unacceptable risk to present or future occupants of the site based on the information provided for review.

Quality Information

Document Site Audit Report

Ref 60443690_R004_SAR S261

Date 09-Nov-2017

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
0	9 November 2017	For Issue	Paul Steinwede NSW EPA Accredited Contaminated Site Auditor No. 0303	

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Site Audit Statement

This statement provides a summary of the findings of a site audit of Section 261, Hundred of Bray, Cox Peninsula, Northern Territory in accordance with Section 47 of the *Waste Management and Pollution Control Act* (NT).

Name of Auditor	Paul Steinwede AECOM Australia Pty Ltd (AECOM) Level 21, 420 George Street Sydney NSW 2000, Australia D +61 (0)2 8934 0772 M +61 (0)419 232 476 paul.steinwede@aecom.com
Date Audit Requested	23 September 2015
Owners of the Site	Commonwealth of Australia
Person Requesting the Audit	Ross Stevens Department of Finance
Municipality	Cox Peninsula
Local Government Authority	Wagait Shire Council
Site Identification	Section 261, Hundred of Bray Cox Peninsula, Northern Territory, 0822
Size of Area	39.7 hectares
Current Zoning	Commonwealth
Proposed Land Use	Public Open Space

The audit has had regard to, amongst other things:

- The *Waste Management and Pollution Control Act* (NT)
- The *National Environment Protection (Assessment of Site Contamination) Measure*
- Guidance provided by the New South Wales Site Auditor Scheme.

Information Sources

Consultancy which conducted the site investigation(s) and/or remediation: Jacobs Group (Australia) Pty Ltd. (Jacobs).

Title of Reports Reviewed:

- Jacobs (2016), *Cox Peninsula Remediation Project, Supplementary Site Investigation - Section 261,* December 2016 (Ref. IW102400-0000-NP-RPT-0003|1). This will hereafter be referred to as the “S261 SSI Report”.
- Jacobs (2017a), *Cox Peninsula Remediation Project, Remediation Action Plan – Section 261*, February 2017 (Ref. IW102400-0000-NP-RPT-0008|1). This will hereafter be referred to as the “S261 RAP”.
- Jacobs (2017b), *Cox Peninsula Remediation Project, Environmental Care Procedures – Section 261,* 14 September 2017 (Ref. IW102400-000-NP-RPT-0024|3). This will hereafter be referred to as the “ECP”.

- Jacobs (2017c), *Cox Peninsula Remediation Project, Environmental Care Procedures Information Sheet – Section 261*, September 2017.
- Jacobs (2017d), *Cox Peninsula Remediation Project, Validation Report – Section 261, 25 October* 2017 (Ref IW102400-0000-NP-RPT-0016|3). This will hereafter be referred to as the "Validation Report".

Other information reviewed (including previous site audit reports and statements relating to the Site):

- AEC Environmental (2011), *Contamination, Remediation and Waste Management – Data Review, Risk Assessment and Remediation Options Appraisal – Cox Peninsula (Section 32, 34 & 41)* (No. 81466/1 prepared for RPL Consulting).
- AECOM (2014), *Environmental Audit - Provision of Interim Site Auditor Advice, Review of SKM Supplementary Site Investigation Reports for Sections 32, 34 and 41, Cox Peninsula, Northern Territory,* 11 November 2014 (Ref. 60311206_L001_Review of SKM S32, S34 and S41 Reports 11 Nov 2014). This letter provided the Auditor's comments on the Draft S32 SSI report.
- AECOM (2016a), *Site Auditor Interim Advice - Review of Jacobs Supplementary Investigation Report - Section 261, Cox Peninsula Remediation Project, Northern Territory for Department of Finance*, 2 September 2016 (Ref. 60443690_L021_S261SSI_2 Sept 2016).
- AECOM (2016b), *Site Auditor Interim Advice - Review of Jacobs Remediation Action Plan - Section 261, Cox Peninsula Remediation Project, Northern Territory for the Department of Finance,* 2 September 2016 (Ref. 60443690_L022_S261 RAP_2 Sept 2016).
- AECOM (2017a), *Site Auditor Interim Advice - Review of Jacobs Supplementary Investigation Report - Section 261, Cox Peninsula Remediation Project, Northern Territory for the Department of Finance,* 9 December 2016 (Ref. 60443690_L025_S261 SSI_24 March 2017).
- AECOM (2017b), *Site Auditor Interim Advice - Review of Jacobs Validation Report and Environmental Control Procedures - Section 261, Cox Peninsula Remediation Project, Northern Territory for the Department of Finance,* 5 September 2017 (Ref. 60443690_L031_5 September 2017).
- AECOM (2017c), *Site Auditor Interim Advice - Review of Jacobs Supplementary Site Investigation, Remediation Action Plan Validation Report and Environmental Care Management Procedures - Section 261, Cox Peninsula Remediation Project, NT for Department of Finance*, 26September 2017 (Ref. 60443690_L032_S261 SSI RAP VR and ECP_27 September 2017).
- AECOM (2017d), *Site Auditor Interim Advice - Review of Jacobs Supplementary Site Investigation, Validation Report - Section 261, Cox Peninsula Remediation Project, NT for Department of Finance*, 7 November 2017 (Ref. 60443690_L033_S261 VR _7 November 2017).
- Jacobs (2013), *Remediation Options Assessment Cox Peninsula Detailed Business Case*, November 2013 (Ref. VW07225 ROAR V4 0_DRAFT_201113).
- Parsons Brinckerhoff (PB) (2011a), *Site History Investigation Report – Section 32 Cox Peninsula, NT*, 10 August 2011 (Ref: 10-0501-03-2171029A).
- PB (2011b), *Remediation Action Plan (Version 1) – Portion of Section 32 Hundred of Bray, Cox Peninsula, NT* (Ref No. 11–1006–00–2171029A to United Group Process Solutions Pty Ltd).
- Ross Petsas Luksza (RPL) (2012), *Contamination, Remediation and Waste Management – Initial Business Case (First Stage) – Cox Peninsula, NT - Sections 32, 34 & 41* .
- SKM (2014), *Cox Peninsula Supplementary Site Investigation - Section 32*, January 2014 (Ref. *VW07225* version V2 Draft). The Section 32 SSI was updated by the S261 SSI (Jacobs, 2016).

Site Audit Report

Title: *Site Audit Report, Section 261 Cox Peninsula, Northern Territory*

Report no.: 60443690_R004_S261SAR_9 November 2017 Date: 9 November 2017

Auditor's Findings

I certify that, in my opinion, the site is SUITABLE for Public Open Space

Overall Comments

During the Site Audit, the Auditor noted the following key points, in relation to the S261 SSI Report, RAP, Validation Report and ECP (Jacobs 2016, 2017a to d):

- The methods employed in the assessment and validation work as reported in the S261 SSI Report, RAP, Validation Report and ECP by and large complied with the relevant NSW EPA guidelines. Where deviations occurred, the Auditor is generally satisfied that these did not adversely impact on the outcome of the work conducted, and hence the proposed land use of S261 for Public Open Space.
- The Auditor considers the documents generally followed an appropriate analytical methodology and, when taken as a whole, were sufficient for assessment and remediation or management of soil and groundwater at S261.
- The Auditor understands that Finance, together with Jacobs and Nation Partners, have conducted extensive consultation with relevant stakeholders including the local community and Traditional owners prior to and during the investigation and remediation works.
- The Auditor considers that given the intended end use for Public Open Space, the adopted investigation criteria provided an appropriate level of protection to human health and ecological receptors.
- The Auditor considers that given the intended end use as a Public Open Space, and the close proximity of the site to a number of sensitive ecological communities, the adopted environmental investigation criteria provides an appropriate level of protection to ecological receptors.
- The Auditor is satisfied that validation works were robust enough to establish remediation was undertaken to the extent practicable.
- The Auditor is satisfied that Jacobs provided a suitable assessment of the risks to human health and /or environmental receptors associated with concentrations of residual pesticide contamination, as well as hydrocarbon contamination and asbestos in soil. The Auditor is also satisfied that visible ACM identified at the ground surface in localise areas on Section 261 was removed by suitably qualified personnel.
- The Auditor is satisfied that the waste materials removed from the site (including, but not limited to asbestos, concrete, cables and conduit) were disposed of at appropriate destinations, including:
  - Shoal Bay landfill (asbestos waste and general rubbish)
  - Sims Metal Management (recyclers) (underground cables and other recyclable materials)
  - S265 compound (concrete) for either re-use or disposal in the containment cell.
- The Auditor also notes that the sites surrounding S261, i.e. S262 and S263/S264, are subject to a separate review and are not part of this SAS. In addition, the containment cell located on S265, where some of the waste materials and soils from the remediation activities on S261 where relocated is also subject to a separate review and does not form part of this SAS.
- The Auditor is satisfied that the ECP (Jacobs, 2017c) sets out procedures to effectively manage potential occurrences of ACM and /or unexpected finds in the future.

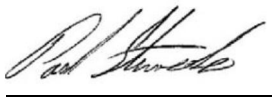
- In relation to enforceability of the ECP, Finance and the NT EPA have provided confirmation of the mechanism for the enforcement of the ECP by the issue of a Pollution Abatement Notice (PAN) by the NT EPA in accordance with the *Waste Management and Pollution Control Act* (2016). The PAN will not be issued to the Commonwealth, however will be issued on the hand over to the Northern Territory Government. It is understood that the Northern Land Council (NLC) will assume responsibility for S261 following transfer of the land under the Kenbi Land Claim. The Auditor notes that the PAN had not been issued at the time of preparation of this SAS.

Therefore, the Auditor concludes that the detected contamination at S261 has been either suitably remediated or will be suitably managed such that it will pose no unacceptable risk and considers that S261 has been rendered suitable for the proposed Public Open Space land use and is in a suitable condition to facilitate the resolution of the Kenbi Indigenous Land Claim 37.

Auditor's Declaration

This statement provides a summary of the findings of a site audit of Section 261, Cox Peninsula, Northern Territory in accordance with Section 47 of the *Waste Management and Pollution Control Act* (NT).

Further details regarding the condition of the site may be found in the environmental audit report (60443690_R004_S261_SAR_9Nov2017).

Signed:  Dated: 9 November 2017

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Contaminated Site Auditor (Accreditation No. 0303) appointed pursuant with the NSW Site Auditor Scheme (*Contaminated Land Management* [*CLM] Act*, 1997) and recognised in the Northern Territory under Section 68 of the NT *Waste Management and Pollution Control Act,* 2016.

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Executive Summary

This Site Audit Report (SAR) relates to the independent review of documents concerning Section 261 of the Cox Peninsula Remediation Project ("the Cox Peninsula Site"), Northern Territory. The Cox Peninsula Site forms part of the larger Cox Peninsula which is located approximately 10 km west of Darwin on the western side of Darwin Harbour.

The Cox Peninsula Site forms part of the Kenbi Land Claim No 37 and it is proposed that in future the land will be transferred to the Northern Territory Government (NTG) and ultimately the Traditional Owners, the Larrakia people, for future use.

The Cox Peninsula Site is divided into several Sections, which includes Section 261 (S261), the former Australian Communications and Media Authority (ACMA) sites.

Paul Steinwede of AECOM Australia Pty Ltd (AECOM), in his role as a Northern Territory Environment Protection Authority (NT EPA) Accredited Contaminated Site Auditor, has been engaged by the Department of Finance (Finance) to review documentation relating to the investigation and remediation works being undertaken for the Cox Peninsula Site.

The Environmental Consultant for the Project, Jacobs Group (Australia) Pty Limited (Jacobs), was commissioned by Finance to complete a supplementary site investigation (SSI) and undertake remediation and validation works for S261. The remediation and validation works included removal of contaminated soils, surface waste (including Asbestos Containing Materials (ACM)) and surface and sub-surface infrastructure encountered at the property. Existing infrastructure (i.e. roads) that could support the nominated future site use of S261 were retained.

Jacobs also prepared an Environmental Care Procedures (ECP) and an ECP Summary to provide a general framework for ongoing management of the property in the event of unexpected finds to ensure the continued protection of site users and the environment for S261. The ECP included provisions for review of the document including review following site inspections at the beginning of the 2017 dry season to assess the ongoing requirements for management.

The purpose of this Audit was to assess that the environmental investigations and remediation and validation works conducted for S261 have demonstrated that no significant risk is posed to human health or the environment. The goal is to support the future transfer of S261 to the NTG and ultimately the Larrakia people, the Traditional Owners of the area. It is noted that the transfer of S261 will be part of a staged transfer of the Cox Peninsula Site which will be undertaken as the various Sections are remediated and validated.

The methods employed in the investigation, remediation and validation work as reported in the S261 SSI Report, S261 Remediation Action Plan (RAP) and the S261 Validation Report (Jacobs, 2016, 2017a and 2017d) by and large complied with the relevant NT EPA and NSW EPA guidelines. Where deviations occurred, the Auditor is generally satisfied that these did not adversely impact on the outcome of the work conducted, and hence the proposed land use of S261 for Public Open Space.

The Auditor is satisfied that validation works were robust enough to establish remediation and validation was undertaken to the extent practicable. The Auditor is satisfied that the ECP (Jacobs, 2017b) sets out procedures to effectively manage potential occurrences of ACM and/or unexpected finds in the future.

In relation to enforceability of the ECP, Finance and the NT EPA have provided confirmation of the mechanism for the enforcement of the ECP by the issue of a Pollution Abatement Notice (PAN) by the NT EPA in accordance with the *Waste Management and Pollution Control Act* (2016). Although, it is noted that the PAN will not be issued until S261 has been handed over to the NTG.

The Auditor notes that investigations, remediation and validation of other Sections, as part of the Cox Peninsula Remediation Project, are subject to a separate review.

Based on review of the information provided the Auditor concludes that the detected contamination at S261 has been either suitably remediated or will be suitably managed such that it will pose no unacceptable risk and considers that S261 has been remediated suitable for the proposed Public Open Space land use.

1.0 Introduction

1.1 Background

This Site Audit Report (SAR) relates to the independent review of environmental (contaminated land) documents concerning Section 261 (S261) of the Cox Peninsula Remediation Project ("the Cox Peninsula Site"), Northern Territory. The Cox Peninsula Site is located on the western side of Darwin Harbour approximately 10 km from Darwin city via ferry or 130 km via road.

The Cox Peninsula Site forms part of the Kenbi Land Claim No 37 and it is proposed that in future the land will be transferred to the Traditional Owners.

The Cox Peninsula Site is divided into the following Sections:

- Section 41 (S41) – Charles Point Lighthouse precinct.
- Section 261 (S261) – the former Australian Communications and Media Authority (ACMA) sites, the subject of this SAR.
- Section 262 (S262) – the area surrounding the former ACMA sites and the Wagait Shire Tip.
- Section 263 (S263) – the western portion of the Wagait Shire Tip.
- Section 264 (S264) – the eastern portion of the Wagait Shire Tip.
- Section 265 (S265) – the area encompassing the former Radio Australia transmission site.
- Section 266 (S266) – native bushland adjacent to the former Radio Australia transmission site.

The location of Cox Peninsula Site and the various Sections, including S261, are presented on Figure 1 (from Jacobs, 2017d; included in **Appendix A** of this SAR).

The purpose of this Audit is to assess that the environmental investigations and remedial works conducted for S261 have demonstrated that no significant risk is posed to human health or the environment. The goal is to support the future transfer of S261 to the Northern Territory Government (NTG) and ultimately the Larrakia people, the Traditional Owners of the area. It is noted that the transfer of S261 will be part of a staged transfer of the Cox Peninsula Site which will be undertaken as the various Sections are remediated and validated.

It is understood that the future use of S261 will predominately be for open space use.

Previous heritage assessments undertaken across S261 and S262 identified Aboriginal heritage values associated with three Aboriginal Precincts (Merribimam, Martbirl and Majili Precincts). Although none of the Aboriginal Precincts actually occurred within S261 work areas, the Majili Precinct was considered because of its close proximity (i.e. associated with revegetation and weed management activities). The Aboriginal heritage values associated with S261 and S262, as described above are presented in Figure 7ii (from Jacobs, 2016, included in **Appendix A** of this SAR).

This Site Audit was prepared at the request of Ross Stevens of the Department of Finance (Finance). The review was conducted by Mr Paul Steinwede, employed by AECOM Australia Pty Ltd (AECOM), a Northern Territory Environment Protection Authority (NT EPA) approved person in accordance with Part 6 of the NT's *Waste Management and Pollution Control Act* (*WMPC Act,* 2016). In accordance with S68 of the *WMPC Act* (2016), Paul Steinwede is considered a Qualified Person as he is a NSW Environment Protection Authority (EPA) Accredited Site Auditor (Accreditation No. 0303) under the NSW Site Auditor Scheme (*Contaminated Land Management [CLM] Act*, 1997) and follows Guidelines for the NSW Site Auditor Scheme (2nd edition) (NSW DEC, 2006) and subsequent guidance notes.

This Site Auditor has reviewed the site investigations, remediation and validation works conducted by Jacobs Group (Australia) Pty Limited (Jacobs) and the implementation of Environmental Care Procedures (ECP) to ensure S261 is suitable for transfer of the property and for Public Open Space use. The Auditor has reviewed the documents in accordance with the requirements of the NT EPA and NSW EPA guidelines. For the purposes of this Site Audit Report reference to meeting NSW EPA requirements also includes meeting NT EPA contaminated site guidance.

1.2 Documents Considered

The following documents were considered as part of this Site Audit:

- AEC Environmental (2011), *Contamination, Remediation and Waste Management – Data Review, Risk Assessment and Remediation Options Appraisal – Cox Peninsula (Section 32, 34 & 41)* (No. 81466/1 prepared for RPL Consulting).
- Jacobs (2013), *Remediation Options Assessment Cox Peninsula Detailed Business Case*, November 2013 (Ref. VW07225 ROAR V4 0_DRAFT_201113). This will hereafter be referred to as the "ROA". A copy of this document was presented in the S261 RAP (see below).
- Jacobs (2016), *Cox Peninsula Remediation Project, Supplementary Site Investigation - Section 261,* December 2016 (Ref. IW102400-0000-NP-RPT-0003|1). This will hereafter be referred to as the "S261 SSI Report".
- Jacobs (2017a), *Cox Peninsula Remediation Project, Remediation Action Plan – Section 261*, February 2017 (Ref. IW102400-0000-NP-RPT-0008|1). This will hereafter be referred to as the "S261 RAP".
- Jacobs (2017b), *Cox Peninsula Remediation Project, Environmental Care Procedures – Section 261,* 14 September 2017 (Ref. IW102400-000-NP-RPT-0024|3). This will hereafter be referred to as the "ECP".
- Jacobs (2017c), *Cox Peninsula Remediation Project, Environmental Care Procedures Information Sheet – Section 261*, September 2017.
- Jacobs (2017d), *Cox Peninsula Remediation Project, Validation Report – Section 261,* 25 October 2017 (Ref. IW102400-0000-NP-RPT-0016|3). This will hereafter be referred to as the "Validation Report".
- Parsons Brinckerhoff (PB) (2011a), *Site History Investigation Report – Section 32 Cox Peninsula, NT*, 10 August 2011 (Ref: 10-0501-03-2171029A).
- PB (2011b), *Remediation Action Plan (Version 1) – Portion of Section 32 Hundred of Bray, Cox Peninsula, NT* (Ref No. 11–1006–00–2171029A to United Group Process Solutions Pty Ltd).
- Ross Petsas Luksza (RPL), (2012). *Contamination, Remediation and Waste Management – Initial Business Case (First Stage) – Cox Peninsula, NT - Sections 32, 34 & 41*.
- Sinclair Knight Mertz (SKM) (2014), *Cox Peninsula Supplementary Site Investigation - Section 32*, January 2014 (Ref. *VW07225* version V2 Draft). The Section 32 SSI was updated by the S261 SSI (Jacobs, 2016).

1.3 Previous Site Audit Advice

The following Interim Site Audit advice relating to S261 has been completed to date (and is included in **Appendix B** of this SAR):

- AECOM (2014), *Environmental Audit - Provision of Interim Site Auditor Advice, Review of SKM Supplementary Site Investigation Reports for Sections 32, 34 and 41, Cox Peninsula, Northern Territory,* 11 November 2014 (Ref. 60311206_L001_Review of SKM S32, S34 and S41 Reports 11 Nov 2014). This letter provided the Auditor's comments on the Draft S32 SSI report.
- AECOM (2016a), *Site Auditor Interim Advice - Review of Jacobs Supplementary Investigation Report - Section 261, Cox Peninsula Remediation Project, Northern Territory for Department of Finance*. 2 September 2016 (Ref. 60443690_L021_S261SSI_2 Sept 2016).
- AECOM (2016b), *Site Auditor Interim Advice - Review of Jacobs Remediation Action Plan - Section 261, Cox Peninsula Remediation Project, Northern Territory for the Department of Finance,* 2 September 2016 (Ref. 60443690_L022_S261RAP_2 Sept 2016).
- AECOM (2017a), *Site Auditor Interim Advice - Review of Jacobs Supplementary Investigation Report - Section 261, Cox Peninsula Remediation Project, Northern Territory for the Department of Finance,* 9 December 2016 (Ref. 60443690_L025_S261 SSI_24 March 2017).
- AECOM (2017b), *Site Auditor Interim Advice - Review of Jacobs Validation Report and Environmental Control Procedures - Section 261, Cox Peninsula Remediation Project, Northern Territory for the Department of Finance,* 5 September 2017 (Ref. 60443690_L031_VR and ECP_5 September 2017).
- AECOM (2017c), *Site Auditor Interim Advice - Review of Jacobs Supplementary Site Investigation, Remediation Action Plan, Validation Report and Environmental Care Management Procedures - Section 261, Cox Peninsula Remediation Project, NT for Department of Finance*, 27 September 2017 (Ref. 60443690_L032_S261 SSI RAP VR and ECP_26 September 2017).
- AECOM (2017d), *Site Auditor Interim Advice - Review of Jacobs Validation Report - Section 261, Cox Peninsula Remediation Project, NT for Department of Finance*, 7 November 2017 (Ref. 60443690_L033_S261 VR_7 November 2017).

2.0 The Site Audit Process

2.1 Legislative Background

The *WMPC Act* (2016) and regulation are the primary pieces of legislation in the Northern Territory for the assessment of contaminated sites and are administered by the NT EPA. Where contaminated sites pose or threaten to pose a serious or material environmental harm or human health harm, the NT EPA requires an assessment to be conducted in accordance with the *National Environment Protection Council (Northern Territory) Act 2004* which endorses the use of the *National Environmental Protection (Assessment of Site Contamination) Measure 1999* (as amended 2013) (ASC NEPM 2013) framework.

The NT EPA requires "*the assessment of site contamination will require a Statement of Environmental Audit from an independent, accredited Auditor experienced in assessing land contamination as to the fitness of a site, in terms of risk to human health or the environment, for current or proposed uses and may include conditions specific to a proposed land use.*"

The Auditor for the Cox Peninsula Project is a NT EPA approved person accredited under the New South Wales Site Auditor Scheme. As such, the Auditor must comply with the jurisdictional requirements from where the primary accreditation is held, being the *CLM Act* (1997).

The *CLM Act (*1997) defines a Site Audit as an independent review:

(a) that relates to management (whether under this Act or otherwise) of the actual or possible contamination of land, and

(b) that is conducted for the purpose of determining any one or more of the following matters:

  (i) the nature and extent of any contamination of the land,

  (ii) the nature and extent of any management of actual or possible contamination of the land,

  (iii) whether the land is suitable for any specified use or range of uses,

  (iv) what management remains necessary before the land is suitable for any specified use or range of uses,

  (v) the suitability and appropriateness of a plan of management, long-term management plan or a voluntary management proposal.

The Site Audit process is undertaken by an Auditor, accredited by NSW EPA under the *CLM Act* (1997) and comprises an independent review of reports prepared by an environmental consultant.

In accordance with the *Northern Territory Contaminated Land Guideline* (NT EPA, 2017), this audit is considered to be a voluntary site audit under the NT *WMPCA* (2016) and non-statutory site audit under the NSW *CLM Act* (1997).

2.2 General Stages of a Site Audit

The Site Audit process generally includes review of assessment and investigation reports prepared by an environmental consultant pertaining to the environmental condition of the land and the suitability of the land for a given land use. The Site Audit may also include the review of a Remedial Action Plan (RAP) which, if conducted, may render the land suitable for a given land use(s). Until the RAP has been adequately implemented, the Auditor cannot certify the suitability of the land. The Site Audit may also review the Validation Plan, which is prepared by an environmental consultant to document the requirements for successful completion of the requirements of a RAP. At the conclusion of any remedial works, the Site Audit process also includes review of the Validation Report, which documents the successful completion of the works outlined in the RAP and, where applicable, the Validation Plan.

Site Audit Reports may also be completed throughout the site audit to document review of reports at project milestones. The Audit process is completed by preparation of a Site Audit Report (SAR), which reviews the report prepared by the consultant.

The investigation of the environmental condition of the land and any required management is carried out by the environmental consultant by reference to guidelines endorsed by the NT EPA and NSW EPA under Section 105 of the *CLM Act* (1997). If the report(s) prepared by the consultant are in substantial conformance with the guidelines, the Auditor is entitled to accept the results and conclusions stated therein and complete the Site Audit Report. The Auditor is entitled to form other opinions based on the results and conclusions stated in the report(s) by the consultant.

The Auditor does not normally carry out independent sampling or chemical analyses of soil, fill, groundwater or other media on the subject site, but rely on the testing and reporting that has been carried out by the consultant if it has been demonstrated to be of adequate reliability by reference to quality indicators listed in the endorsed guidelines.

It is expressly recognised that, even when a qualified environmental consulting firm has substantially followed guidelines endorsed by NT EPA and NSW EPA, unidentified contamination or sub-surface structures may remain present. The processes of investigation, remediation and validation are statistically based and no liability is accepted by the Auditor for unidentified contamination or sub-surface structures subsequently found to be present on a site, which has been subjected to investigation, remediation and validation processes that are in substantial conformance to guidelines endorsed by NT EPA and NSW EPA. In addition, this Site Audit has not addressed geotechnical or engineering suitability of the site, for which specialist advice is required to be obtained outside the Site Audit process.

2.3 Purpose of the Site Audit

The purpose of this Site Audit was to:

- Review the environmental assessment, environmental management and validation activities (including reporting) conducted by Jacobs at S261.
- Document compliance with the requirements of relevant guidelines endorsed by NT EPA and NSW EPA.
- Provide an opinion on the suitability of S261 for divestment by Finance and ultimate use as Public Open Space.

2.4 Inspection of the Site

The Auditor and/or Auditor's Assistants have conducted inspections of S261 and the wider Cox Peninsula Site on various occasions throughout the investigation and remediation works as summarised in **Table 1**.

S261 included three main investigation/remediation areas known as Area A – 'former' ACMA Main Compound, Area C – 'former' ACMA High Frequency Direction Finding (HFDF) Compound and Tip Site E1 as presented on Figure 2 (from Jacobs, 2017d; included in **Appendix A** of this SAR).

Table 1 Section 261 Site Visits

Date	Audit Personnel and Site Representatives	Purpose	Key Observations
12 November 2013	Alana Court (AECOM) Matthew Nation (SKM) Peter Jonath (Finance)	Site inspection	• Evidence of surface waste across areas of S261 and S262, including drums and other metal scraps. • Floodplains located on the western side of Cox Peninsula Road in S262. High concentration of magnetic termite mounds was noted.

Date	Audit Personnel and Site Representatives	Purpose	Key Observations
10 and 11 February 2014	Paul Steinwede (Auditor) Peter Jonath (Finance) Matthew Nation (Nation Partners) Tom Hoole (Five D)	Site inspection	• Noted surface waste across the S261 and S262 including piles of cable and pipe. • Noted nearby township area and other surrounding environment. • Inspection of Wagait Shire Tip.
27 November 2014	Debbie Midwinter and Alana Court (AECOM) Adrian Kirk (Finance) Matthew Nation (Nation Partners) Ross Edwards (Jacobs)	Risk Mitigation Works	• Escorted around all areas of Cox Peninsula sites, including the new temporary material staging area (TMSA) in S265 installed as part of the Risk Mitigation Works.
27 April 2016	Alana Court (AECOM) William Rodger (Jacobs)	Inspection of remediation works	The following was noted for S261: • Underground cables and services to antenna footings and redundant underground services were being removed with backhoe. Removal of cables involved tracking all cables and services across the site and removing. Some cables could be pulled from one point, rather than being dug up in the ground. Noted that majority of underground services had not contained asbestos, although a small quantity did. • Occupational Hygienist was on site. Air monitoring was being carried out at same time as removing services. • ACM was being bagged, placed in a nearby skip bin, and covered. • Concrete footings were being taken to S265 for disposal in the containment cell. It was noted that tests were being undertaken to assess the suitability of crushing for the use as a fill material for the containment cell. • Clearance and removal of surface waste materials and stockpiles had been completed, including asbestos from remote tip sites identified at S261. It was reported that the materials were placed in S265 as a temporary measure prior to placement in the containment cell or off-site disposal. Tip sites from which waste material was removed included tip site E-1.

Date	Audit Personnel and Site Representatives	Purpose	Key Observations
14 July 2016	Alana Court and Jessica Puntoriero (AECOM) William Rodgers (Jacobs)	Inspection remediation areas at S261, S262, and S265, including containment cell	• Removal of redundant infrastructure was being carried out across S261 and S262. • Original tower at the ACMA Compound on S261 had an Osprey nest on the top. • S261 demolition of AMCA compound underway. • Containment cell being constructed at S265.
22 September 2016	Debbie Midwinter (AECOM) William Rodgers (Jacobs)	Inspection of investigation and remediation works	• ACMA Compound area had been decommissioned and buildings, infrastructure and footings removed. • Remediation activities in S261 included: - Final clearance, tidy up and grade out of the former ACMA compound by backhoe. Part of former roadway and some concrete fragments were still to be removed. - Large concrete footings from the former antennae were located on the ground surface. - Pesticide impacted soil had been excavated and validated and reinstated with clean material. Jacobs indicated that pesticide impact was deeper than expected. - In the NE of the former ACMA compound some asbestos conduits and pits had been removed. - Two diesel underground storage tanks (USTs) had been degassed, product/water removed and USTs removed and disposed off site. The USTs had been under a concrete slab. Fuel lines were also removed and validated. - One stockpile of ACM (fragments) impacted soil was located in the SW corner of the compound. - Osprey nest has been removed and was on the site covered in black plastic awaiting relocation. • Former HFDF facility had been cleared including the network cables, a fibro building and concrete slab removed. Results indicated no pesticides present. • Former Tip Site E-1 located to the west of the ACMA compound had been cleared and validated.

Date	Audit Personnel and Site Representatives	Purpose	Key Observations
			• The area surrounding S261 had ~ 6 km of underground cables and services removed, with some still stored within the former ACMA compound ready for disposal. Jacobs indicated that no polychlorinated biphenyls (PCBs) had been detected in cables, but some ACM. Jacobs indicated the area had been validated in accordance with the RAP.
26 October 2016	Ross Stevens, Lauren MacInnes, Emma Tod, Blair Morris (Finance) Paul Steinwede, Alana Court, Debbie Midwinter (AECOM) William Rodgers (Jacobs) Chris Duesterberg (Nation Partners) Stakeholders	Reference Group Meeting 3 - site visit from bus	ACMA demolition activities completed at S261. • S261 still required emu pick across the surface to remove some wastes (i.e. concrete, plastic etc.).
3 November 2016	Alana Court (AECOM) William Rodgers (Jacobs)	Site inspection	• Focus of inspection on S265 remediation works. • Watched RWC and licensed asbestos personnel remediating areas with known asbestos contamination on S265, noted that the RWC was wearing appropriate PPE, air monitoring equipment.
9 November 2016	Alana Court (AECOM) William Rodgers (Jacobs)	Site inspection	• S265 - containment cell construction of final capping.
10 May 2017	Ross Stevens, Lauren MacInnes, Emma Tod (Finance) Alana Court, Debbie Midwinter (AECOM) William Rodgers, Ross Edwards (Jacobs) Chris Duesterberg (Nation Partners) Stakeholders	Final Reference Group Meeting	• Inspection of remediated areas. • All areas on S261 had been remediated in accordance with RAP. • New infrastructure had been erected for the Osprey nest.

3.0 Site Information

3.1 Site Identification and Description

The following information in **Table 2** was identified for S261 in the SSI Report, RAP and Validation Report (Jacobs, 2016, 2017a and 2017d).

Table 2 Site Identification Information

Item	Description
Site Address	Part of Section 32, Hundred of Bray, Cox Peninsula, Northern Territory (Section 261 for purposes of this report)
Legal Description	Section 32, Volume 763 Folio 203. A copy of the Certificate of Title is presented in **Appendix C** of this SAR.
Site Owner	The current owner of S261 is Commonwealth of Australia. The future owner is proposed to be the NTG and ultimately the Larrakia people following settlement of the Land Claim associated with S261 (proposed for mid-late 2017 as part of land claim settlement).
Site Occupier	S261 does not currently have any permanent site users. Security and land management services are performed by the Kenbi Rangers on behalf of the Commonwealth of Australia. The future occupier will be the Larrakia people.
Local Government Authority	S261 is listed as Commonwealth Land. The Wagait Shire Council is the closest Local Government Authority.
Zoning	Commonwealth Land (no planning scheme controls)
Current Land Use	Commonwealth Land
Heritage (Aboriginal and European)	• No Aboriginal heritage values were recorded on S261, however, the following were noted to be in close proximity: - Majili Precinct (Majili landscape) – open wetlands and swamp abutting coastal paper bark, elevated sandbar with stands of tree, used for resource, mangrove resources. - Majili Precinct (south-central coastline) middens, yellow ochre/clay sources and NLC32 dreaming place. • No European Heritage is recorded for S261.
Proposed Land Use	Public Open Space
Site Elevation (m AHD)	Approximately 21 mAHD
Site Area (Total)	39.7 hectares (ha)
Coordinates	The coordinates of S261 were presented in the survey plan in Appendix F of the S261 Validation Report (Jacobs, 2017d), a copy of which is presented in **Appendix C** of this SAR.
Site Location Plan and Site Layout	Site location plans were presented as Figure 1 of the S261 SSI Report, RAP and Validation Report (Jacobs, 2016, 2017a and 2017d) which also showed the location of the other Sections associated with the Cox Peninsula Site. S261 is enclosed within the eastern portion of S262 and comprises a rectangular plot of land with an access track from Cox Peninsula Road. S261 is located to the east of Cox Peninsula Road and to the south east of S265 and S41 and south of Charles Point Road.

Item	Description
	Figure 2 of the S261 Validation Report (Jacobs, 2017d) presented the layout of S261 and how it relates to the other Sections, including those located nearby (i.e. S262 and S263/S264). Figure 2 of the S261 ECP also showed S261 and included the location of the disturbed/remediated area. Figure 1 and 2 of the Validation Report (Jacobs, 2017d) and Figure 2 of the ECP (Jacobs, 2017b) are presented in **Appendix A** of this SAR.
Environmental Setting (refer to Section 3.3 for further details)	S261 is relatively flat and mostly disturbed from the occupation by the ACMA until mid-2016. The area surrounding S261 (i.e. S262) consists of native bushland. This area is relatively low lying and prone to flooding during the wet season, with ephemeral wetlands forming in some areas. The eastern portion of S262 is bordered along the coastline by dense mangrove forests.

The Auditor considers that Jacobs (2016, 2017a and 2017d) reported the site description and details in general accordance with NT and NSW EPA guidelines. The Auditor/Audit Team have undertaken several site visits throughout the intrusive and validation works and considers that the information presented adequately defines the subject site, i.e. S261.

3.2 Surrounding Land Use

Information relating to the surrounding land use was presented in the text (Section 2.3) and figures of the S261 SSI Report (Jacobs, 2016) and is summarised in **Table 3**. The S261 RAP, ECP and Validation Report (Jacobs, 2017a, 2017b and 2017d) also provided information on the surrounding land use.

Table 3 Surrounding Land Use

Direction	Description
North	Open bushland and the settlement of Wagait Beach located 3 km north-east of the Site.
East	The eastern portion of S262 and open bushland (subject to separate Audit and SAR). The eastern extent of S262 is bordered along the coastline by dense mangrove forests and the mouth of Woods Inlet, which discharges to Darwin Harbour south of Mandorah Jetty.
South	S262, undeveloped open bushland, mangrove forests and Woods Inlet. The settlement of Belyuen is located 8 km south along the Cox Peninsula Road.
West	Cox Peninsula Road and the western portion of S262 which is described as undeveloped open bushland which also includes seasonal floodplains and wetlands supporting magnetic termites. The floodplains in the north west portion of S262 are the Merribimam Precinct, an Aboriginal dreaming place.

The Auditor considers that Jacobs (2016, 2017a, 2017b and 2017d) provided sufficient information in the text and/or figures of the reports to identify the surrounding land uses.

The S261 SSI Report provided a figure (Figure 7ii) which presented the topography and environmental receptors in the vicinity of S261. Figure 7ii is included in **Appendix A** of this SAR.

3.3 Environmental Setting

3.3.1 Topography and Drainage

The S261 SSI Report (Jacobs, 2016) described S261 as relatively flat, however the topography of surrounding S262 enables the formation of ephemeral wetlands during the wet season to the west of Cox Peninsula Road.

The elevation at the centre of S261 was approximately 21 mAHD. The surrounding area of S262 ranges from 15 to 30 mAHD. The Jacobs reports, Figure 7ii of the S261 SSI Report (Jacobs, 2016) presented the 1 m and 5 m contours.

S261 did not have any permanent surface water features. A number of flood ways that accommodate surface water flows during high rainfall periods are located across the area, but dry out quickly following cessation of rain.

The surface water on the site generally drains away from S261 to either the low lying areas to the west of Cox Peninsula Road or east towards the mangroves (Woods Inlet) and Darwin Harbour.

3.3.2 Geology, Hydrogeology and Meteorology

The S261 SSI Report (Jacobs, 2016) presented a summary of the geology of S261, with reference to the 1:100 000 geological map sheet for Darwin (NT Government, 1983) as well as investigations undertaken by PB for Section 32 (PB, 2011a).

The S261 SSI Report described the surface geology as likely to consist of the Proterozoic South Alligator Group overlain by the Bathurst Island Formation (Darwin Member) overlain by unconsolidated tertiary soils with localised area of fill material.

The S261 RAP (Jacobs, 2017a) described the key geological features in S261 as follows:

- Coffee rock (laterite) comprises the local geology encountered to a depth of approximately 7m to 9 m below ground level (bgl) overlain by sands, clays and silts.
- Regional surface geology is characterised primarily by the Bathurst Island Formations comprising radiolarian claystone, sandy claystone, clayey sandstone, quartz-sandstone, ferruginous sandstone, glauconitic sandstone and basal conglomerate.
- Underlying this is the South Alligator Group comprising ferruginous siltstone, siltstone and shale, pyritic carbonaceous shale, minor chert-banded siltstone and carbonate rocks.
- The above Cretaceous sediments overlie Early Proterozoic Welltree Metamorphics consisting primarily of medium to coarse-grained undifferentiated schist and gneiss and minor quartzite.

The S261 SSI Report indicated that during the intrusive investigations undertaken by Jacobs (**Section 4.2)** natural soil compromising sand and silt with minor fine ironstone gravels and limited organic content was encountered to depths of less than 1 m and was underlain by weathered laterite (coffee rock).

The S261 SSI Report described Cox Peninsula as underlain by a fractured and weathered rock aquifer (based on the 1:2,000,000 Groundwater of Northern Territory map [Tickell S.J, 2013]) with a typical yield of 0.5 to 2.5 litres per second (L/sec), although this may be as high as 5 L/sec in some places.

The S261 SSI Report indicated that groundwater flow would be towards the edge of the peninsula in the absence of notable features on the site.

The S261 SSI Report also described a hydrological investigation undertaken on the Cox Peninsula between August 1979 and September 1982 and provided the following summary:

- Shallow aquifers widely distributed on the Cox Peninsula, except for the central and western parts, occurring at unconformity between the Lower Proterozoic and Lower Cainozoic sediments. They have a depth between 10 m and 46 m and relatively low yields (0.5 to 1.5 L/sec). Seasonal fluctuations in water level in the shallow aquifers range from 3.4 m to 6.4 m.
- A deeper aquifer is apparently associated with a fault system, was intersected at a depth of 58 m and had a higher yield of 5 L/sec. This comprised of confined aquifer and water level rose when the aquifer was struck to 55.7 m.

- Groundwater recharge is likely to be low as most of the area is waterlogged (even during the dry season).
- Groundwater discharge is mostly via seepages (along the periphery of the peninsula), evapotranspiration, withdrawal from bores and groundwater underflow.

The S261 SSI Report noted that existing (registered) groundwater abstraction bores on S261 have been installed at depth in the weathered bedrock (mica schist over granite, considered a better yield due to fracture flow) in excess of 50 mbgl. These bores aimed to intersect the more productive aquifer. It was noted that even at these depths a number of these bores were not considered to be particularly productive. These two bores are located near the main ACMA compound with pump infrastructure non-operational.

Groundwater gauging was undertaken in the groundwater network across all Sections of the Cox Peninsula Remediation Project in July and September 2013 (dry season) and repeated in February 2014 and April 2015 (wet season). Significant seasonal fluctuation in groundwater levels were observed between dry season and wet season. There were seven monitoring wells monitored specific to S261 (refer to S261 RAP figures Figure 8, Figure 9i and Figure 9ii included in **Appendix A** of this SAR). The groundwater level measurements gauged during the 2013 dry season and the 2014 and 2015 wet seasons indicated a relatively consistent level across S261 and evidence of only a slight gradient. Groundwater depths ranged from 13.36 mAHD to 13.54 mAHD during 2013 dry season sampling event and 18.90 mAHD to 18.93 mAHD and 15.91 mAHD to 15.94 mAHD during the 2014 and 2015 wet season, respectively. Groundwater appeared to trend in a general easterly direction towards Darwin Harbour.

3.3.3 Sensitive Local Environments

The S261 RAP (Jacobs, 2017a) stated that a number of sensitive local environments have been identified within and surrounding S261, as documented in a Flora and Fauna Assessment Report prepared by Environmental Resources Management (ERM) (referenced as *Flora and Fauna Assessment Report* [ERM, 2011]) and subsequent studies undertaken by Jacobs in 2014 and 2015 (referenced as Jacobs, 2015).

ERM completed a flora and fauna assessment across S261 and the former S32 (now S261, S262, S263 and S264) and prepared an Environment Protection and Biodiversity Conservation (EPBC) Act Referral which identified that the Cox Peninsula Project would not have a significant impact on matters of national environmental significance (MNES) such as listed threatened species.

The S261 RAP identified a number of significant habitats within the vicinity of S261 which included:

- Large tracts of native undisturbed vegetation across large parts of S261, including west of Cox Peninsula Road and to the north east and south east of S262.
- Coastal Melaleuca forest within the surrounding S262 area.
- Seasonal floodplains and wetlands supporting extensive magnetic termites on S262.
- Armstrong's Cycad (*Cycas armstrongii*) (Cycads), listed under the *Territory Parks and Wildlife Conservation* (TPWC) Act, was a dominant feature of the Eucalypt forest mid storey.

Figure 7i and Figure 7ii of S261 SSI Report (Jacobs, 2016) presented the location of the sensitive local environments and have been provided in **Appendix A** of this SAR.

The Auditor considers that Jacobs (2016 and 2017a) adequately identified and reported the environmental setting, including topography, drainage, geology and hydrogeology of S261 in accordance with NSW EPA guidelines.

The Auditor also considers that the exploratory borehole logs provided in the S261 SSI Report and RAP (Jacobs, 2016 and 2017a) provided suitable information on the lithology encountered during the investigations and were sufficient for the purposes of a contamination assessment.

The Auditor notes that no information was presented on the potential presence of acid sulfate soils. The Auditor's review of the NT *Acid Sulfate Soils of the Darwin Region (*Hill *et al.* 2008), indicated that there is a high potential for the presence of acid sulfate soils (ASS) within areas of the Cox Peninsula, which appear to be associated with the areas of mangroves. However, the area of S261 is not identified as an area with potential ASS.

The Auditor notes that the S261 SSI Report (Jacobs, 2016) provided topographic contours (Figure 7ii) which indicated that the elevation of S261 was approximately 21 m AHD.

The Auditor notes that no information was presented on meteorology for S261 or the greater Cox Peninsula Site. The Auditor has undertaken a review of data from the Bureau of Metrology (BOM) website for Darwin Airport station (number 014015) which indicated that the area experiences a mean minimum temperature in July with an average of 19.3 °C and an average maximum temperature in November of 33.3°C. The annual average rainfall for the area is 1727.5 mm, with the wettest month being January (mean of 423.7 mm) and the driest month July (mean of 1.2 mm) (information accessed from **www.bom.gov.au** on 24 August 2016).

3.4 History of the Site

3.4.1 Overview

The S261 SSI Report (Jacobs, 2016) provided a summary of the history of S261 and the larger Cox Peninsula Site. The history of the peninsula included supporting local maritime activities through to military occupation and support to World War II (WWII) operations.

The following summarises the key activities within S261 and S262:

- The Federal Government established a receiver station (located on S261) and transmission booster station (located on S265) in 1965 to increase the capacity and capability of Radio Australia. This included installation of two 66 Kv power cables across Darwin Harbour to supply the facility. This time also coincided with the construction of the Cox Peninsula Road in its current alignment.
- Cyclone Tracy interrupted operations in 1974 resulting in significant damage to both facilities and subsequently ceased operation.
- In the early 1980s the Federal Government rebuilt S265 transmission booster station, but not the receiver station.
- Little change occurred on S261/S262 between the 1980s and 1990s until the late 1990s when demolition contractors were engaged to remove above ground infrastructure at the Radio Australia receiver station (S261) which included:
  - Removal of asbestos corrugated roofing material, vinyl floor tiles with asbestos backing and tilux (asbestos containing sheeting) from wet areas (i.e. shower block). It is believed this material was encapsulated before being disposed at Shoal Bay Landfill.
  - Removal of above ground diesel tanks formerly on S261.
  - Removal of air conditioning units.

  It is noted that the buildings were removed as part of the demolition; however the concrete slabs were left in place allegedly due to the historical sub-slab treatment with dieldrin. The above information relating to the demolition of the Radio Australia receiver station was provided by a former demolition contractor from Elfenbein and Associates who was contracted to complete the demolition (referenced as PB, 2011c).
- Since the demolition of the buildings in the late 1990s, ACMA leased part of S261 for use as a monitoring and HFDF facility, occupying the main compound as well as a further larger cleared area 500 m to the east. A temporary equipment hut was also established in the main compound with a number of grid based antenna.
- The community landfill facility (approximately 2 ha) in the north of S261 was operated by Wagait Shire Council (S263/S264) for approximately 25 years, closing in November 2015.

- Around the northern edges of the formerly cleared area there were a number of informal remote tip sites that were used to deposit waste during the operation of the former receiver station. A tip site was identified adjacent to Area A within S261 (within 40 m of the boundary of the Site) and is referred to as Area E-1.

3.4.2 Heritage Assessment

The S261 RAP (Jacobs, 2017a) indicated that a heritage assessment undertaken by ERM (referenced as 2011a) identified one Aboriginal Precinct within the surrounding area of S261 that may have been impacted by the remediation works. The Aboriginal Precinct was described as follows:

- Majili Precinct (Majili landscape) – open wetlands and swamp abutting coastal paper bark, elevated sandbar with stands of tree, used for resource, mangrove resources.
- Majili Precinct (south-central coastline) middens, yellow ochre/clay sources and NLC32 dreaming place.

The location of these items was presented on Figure 7ii of the S261 SSI Report (Jacobs, 2016) and Figure 7 of the S261 RAP (Jacobs, 2017a). A copy of Figure 7ii from the S261 SSI Report is presented in **Appendix A** of this SAR.

The RAP stated that no historic heritage values were identified on S261 (referenced as based on ERM, 2011a; Jacobs, 2015c).

3.4.3 Potential Sources of Contamination and Contaminants of Concern

Based on the history and findings of investigations (**Section 4.0**) potential sources of contamination were identified at S261 as part of the S261 SSI (Jacobs, 2016). A summary of the potential contamination sources and the identified primary and secondary contaminants of concern are presented in **Table 4**.

Table 4 S261 Potential Sources of Contamination and Contaminants of Concern

Areas of Potential Concern	Description (Table 2.1 and 2.2 from Jacobs, 2016)	Primary Contaminant of Concern	Secondary Contaminant of Concern
On-site potential contamination sources			
Area A – AMCA monitoring site and former Radio Australia receiver station compound	• Potential use of pesticides below building slabs for the control of termites. • Potential asbestos within the transportable building. • Asbestos present in a small stockpile and also scattered across parts of the compound. • Potential use of asbestos in underground service conduits as well as within pits, as well as potential for PCB and pesticide impregnated wraps for use in sheathing underground cables. • Hydrocarbon contamination from USTs still in situ, aboveground storage tanks (ASTs) formerly located in the compound and the historic storage of creosote. • Potential use of PCBs associated with the transformer at S261. • Potential use of solvents, oils, lubricants, acids and alkalis as part of workshop activities. • Contamination by microbiological contaminants and nutrients resulting from the use of a septic system at the Site (incorporating absorption lines). • Potential use of herbicides around the compound to manage unwanted vegetation.	Heavy metals, TRH, BTEX, PCBs, pesticides (OCPs), asbestos, other hazardous materials[1].	PAH, phenols, VOCs, SVOCs, herbicides, ammonia and nutrients.
Area C – 'former' HFDF facility	• Asbestos within the temporary building within the compound. • Potential use of asbestos in underground service conduits and telecommunication pits, as well as potential use of PCB and pesticide impregnated wraps for use in sheathing underground cables. • Potential use of herbicides around the compound to manage unwanted vegetation. • Use of pesticides below building footings for the control of termites.	Pesticides (OCPs), asbestos, other hazardous materials[1].	Herbicides.

Areas of Potential Concern	Description (Table 2.1 and 2.2 from Jacobs, 2016)	Primary Contaminant of Concern	Secondary Contaminant of Concern
Area E – Former Radio Australia cleared area (on-site portion)	• Use of herbicides to manage unwanted vegetation. • Potential use of asbestos in underground service conduits and telecommunication pits, as well as potential use of PCB and pesticide impregnated wraps for use in sheathing underground cables. • Potential use of pesticides below concrete antenna footings and other miscellaneous footings. • Miscellaneous contaminants associated with various stockpiles identified in this area of the Site - asbestos, metals, pesticides and herbicides are the most likely contaminants of concern.	PCBs, pesticides (OCPs), asbestos, other hazardous materials[1].	Heavy metals, TRH, BTEX, PAH, phenols, VOCs, SVOCs, herbicides.
Area E-1 – Cleared area tip site	• Historic dumping of general waste items identified within Area E, including ACM.	Asbestos.	Heavy metals, TRH, BTEX, PAH, phenols, PCBs, VOCs, SVOCs, herbicides, pesticides (OCPs).
Area F – Eastern cleared area	• Potential use of herbicides to manage unwanted vegetation. • Miscellaneous contaminants associated with various stockpiles identified in this area of the Site - asbestos, metals, pesticides and herbicides are the most likely contaminants of concern.	Nil	Heavy metals, TRH, BTEX, PAH, phenols, PCBs, VOCs, SVOCs, herbicides, pesticides (OCPs), asbestos.
Off-site potential contamination sources			
Area B – Northern Tip Site	• Historic dumping of general waste items resulting in impacts by various contaminants of concern including (but not limited to) asbestos, PCBs, metals, pesticides and TRHs.	Heavy metals, TRH, BTEX, PCBs, pesticides (OCPs), asbestos.	PAH, phenols, VOCs, SVOCs, herbicides, other hazardous materials[1], ammonia, nutrients.
Area D (S263/S264) – Wagait Shire Tip	• Various contaminants of concern associated with the largely uncontrolled dumping of municipal waste at the Site. • Landfill gas due to the presence of buried municipal solid waste. • Controlled burning of landfill waste within pits producing air pollution.	Heavy metals, TRH, BTEX, PAHs, phenols, PCBs, VOCs, SVOCs, asbestos, other hazardous materials[1], ammonia, nutrients, microbiological, soil gas.	Herbicide, pesticides (OCPs).

Areas of Potential Concern	Description (Table 2.1 and 2.2 from Jacobs, 2016)	Primary Contaminant of Concern	Secondary Contaminant of Concern
Area E – Former Radio Australia cleared area	• Historic dumping of general waste items at tip site E-1 which has been identified within Area E, resulting in impacts by various contaminants of concern. • Use of herbicides to manage unwanted vegetation. • Potential use of asbestos in underground service conduits and telecommunication pits. • Potential use of PCB and pesticide impregnated wraps for use in sheathing underground cables. • Potential use of pesticides below concrete antenna footings. • Miscellaneous contaminants associated with various stockpiles identified in this area of the Site - asbestos, metals, pesticides and herbicides are the most likely contaminants of concern.	Heavy metals, TRH, BTEX, PCBs, pesticides (OCPs), asbestos, other hazardous materials[1].	PAH, phenols, VOCs, SVOCs, herbicides, ammonia, nutrients.
Area F – Eastern cleared area	• Potential use of herbicides to manage unwanted vegetation. • Miscellaneous contaminants associated with various stockpiles identified in this area of the Site - asbestos, metals, pesticides and herbicides are the most likely contaminants of concern.	Nil	Heavy metals, TRH, BTEX, PAH, phenols, PCBs, VOCs, SVOCs, herbicides, pesticides (OCPs), asbestos.
Area G – Southern cleared areas	• Historic dumping of general waste items identified within Area G, resulting in impacts by various contaminants of concern including (but not limited to) asbestos, PCBs, metals, pesticides and TRH. • Potential use of herbicides to manage unwanted vegetation	Nil	Heavy metals, TRH, BTEX, PAH, phenols, PCBs, VOCs, SVOCs, herbicides, pesticides (OCPs), asbestos.
Broader undisturbed extent of S262	• Encompassing the remainder of the Site excluding the above areas, the broader undisturbed site has been subject to isolated fly tipping of surficial wastes. • Miscellaneous contaminants associated with various stockpiles identified in other areas of the Site - asbestos, metals, pesticides and herbicides are the most likely contaminants of concern.	Nil	Heavy metals, TRH, BTEX, PAH, phenols, PCBs, VOCs, SVOCs, herbicides, pesticides (OCPs), asbestos.

Notes:
BTEX – benzene, toluene, ethylbenzene and xylene, TRH – total reactive hydrocarbons (usually referred as total recoverable hydrocarbons), PAHs – polycyclic aromatic hydrocarbons, PCBs – polychlorinated biphenyls, VOCs – volatile organic compounds, SVOCs – semi volatile organic compounds, OCP – Organochlorine pesticides,
[1] described as including PCB and OCP impregnated wraps used to sheath underground cables; excludes PCBs in soils.

The Auditor considers that Jacobs (2016) generally presented the history of S261 in accordance with NSW EPA guidance.

The Auditor considers that the information presented provided sufficient basis to identify the potential sources of contamination and the associated contaminants of concern.

3.5 Community Consultation

The S261 RAP provided an overview of the stakeholder consultation that was undertaken as part of the detailed business case (DBC) for the Cox Peninsula Site. The RAP provided a summary of the stakeholders who had been identified as directly impacted or potentially impacted by the Cox Peninsula Remediation Project, as summarised in **Table 5** below.

Table 5 Stakeholders

Stakeholder	Responsibilities
Australian Communications and Media Authority (ACMA)	Care and operation of the communications infrastructure located at S261
Australian Maritime Safety Agency (AMSA)	Care and operation of the Charles Point Lighthouse in S41
Bureau of Meteorology (BoM)	Care and maintenance of the weather station at S41
NT Government	Involvement in planning and approvals associated with the works
NT Resources, NT EPA	Environmental Regulation, licencing and approvals associated with the works
Traditional Owners (Larrakia People, Beluyen community)	Aboriginal people for whose benefit the land was recommended for grant under the Kenbi Land Claim
Wagait Shire Council	Local Council nearest to S261
Wagait Shire Township	Local Community nearest to 261

The S261 RAP identified that during remediation works there was the need for ongoing engagement and involvement of key stakeholders. A Stakeholder engagement plan was implemented during the remediation works.

The Auditor understands that Finance, together with Jacobs and Nation Partners, conducted extensive consultation with relevant stakeholders including the local community and Traditional Owners prior to, during and following the investigation and remediation works.

4.0 Summary of Investigations

4.1 Previous Investigations

Several intrusive investigations have been undertaken within S261 and the surrounding area as summarised in the S261 SSI Report (Jacobs, 2016).

4.1.1 PB Investigations

The S261 SSI Report provided the following information relating to the previous investigations undertaken by PB.

Site History Investigation Report (PB, 2011a)

This is the earliest available report that relates to potential site contamination and was completed in August 2011 (PB, 2011a). The report involved a review of historical records from a number of different sources in order to establish the history of uses at S261.

The review of historical aerial imagery by PB identified a number of areas of potential concern and allocated unique identifiers. These were adopted by Jacobs as part of these investigations.

The areas included:

- Area A (S261) –ACMA monitoring site and Radio Australia receiver site compound
- Area B (S262) – Northern remote tip site area, located approximately 600 m north of the main ACMA compound and formerly used to deposit miscellaneous waste items during the operation of the Site by Radio Australia
- Area C (S261) – ACMA HFDF compound located 500 m east of the main ACMA compound
- Area D (S263 and S264) – Wagait Shire community landfill
- Area E (S261 and S262) – Original extent of the Radio Australia cleared area around the former antenna. Within this area, further smaller tip sites were identified as Area E-1 in S261 and Area E-2 and E-3 in S262
- Area F (S261 & S262) – Eastern cleared area. This was a narrow cleared corridor (around 230 m across) to the east of Area E that was cleared to provide a clear line of site from the main compound to Darwin, across the harbour
- Area G (S262) – Further cleared area in the south of S262. Within this area a small potential tip site was identified as Area G-1.

Following the identification of the potential areas of interest, PB undertook a detailed site inspection of the identified tip sites and areas of interest. An underground utility survey was also completed in Area A which resulted in a mud map that was referred to in the Jacob's S261 SSI Report.

A Hazardous Materials Register and Management Plan for infrastructure was also completed and considered asbestos, PCBs, lead based paint, synthetic mineral fibres (SMFs), ozone depleting substances and radioactive devices and is referred to as Appendix D in the S261 SSI Report (Jacobs, 2016).

Draft Remediation Action Plan (PB, 2011b)

The S261 SSI Report indicated that PB prepared a Remediation Action Plan (RAP) for a portion of Section 32 which comprised 801 ha of land to the east of Cox Peninsula Road (now known as S261 and S262). The remaining 835 ha of largely uninhabited bushland to the west of Cox Peninsula Road was excluded, as well as the Wagait Shire Tip (Area D within S263/S264).

The RAP was based on the findings from the Site History Investigation Report (PB, 2011a). A staged approach was presented for further site assessment and remediation with detailed procedures and methodologies for undertaking these works included in the RAP. The proposed site assessment and remediation included:

- Removal of remnant infrastructure and waste items from S261 and S262 (specifically the identified remote tip sites at Area E-1 (S261) and Area B, E-2, E-3 and G-1 within S262) accompanied by targeted soil sampling.
- Removal of remnant ACM, with excavation and appropriate management of impacted soils where necessary.
- Removal of underground infrastructure (fuel tanks and septic systems, including pipework) from Area A (S261) along with excavation of contaminated soils and associated validation.
- Investigation of remnant underground cabling that may contain PCBs or OCPs followed by exhumation and appropriate disposal off site.
- Geophysical survey and trenching of the five tip sites identified across the site followed by waste removal and validation where required.
- Targeted and grid-based soil sampling across the areas of interest.
- Targeted groundwater monitoring.
- Soil and / or groundwater remediation (if required).
- Reinstatement of any excavated areas.
- Management of remnant infrastructure and waste.
- Final validation of areas used for waste and / or soil stockpiling, followed by additional soil.

PB conducted a detailed field survey within S261 and the eastern portion of S262 and during September and October 2011 which included:

- Walking a series of parallel transects, 20 m apart, across Areas C, E and F within S262 as well as S261 using a global positioning system (GPS) enabled device to record the locations of remnant infrastructure and waste materials.
- Walking all accessible tracks and roads at S262, including a 20 m buffer zone on either side using a GPS to record the locations of remnant infrastructure and waste materials.
- Inspection of Area A within S261 to enable updating of the compound site plan.
- Survey of the identified tip sites, namely Area E1 in S261 and Area B, E-2, E-3 and G1 within S262.
- Collection of potential ACM samples for analysis.

The S261 SSI Report presented the PB remnant infrastructure and waste inventory prepared in Appendix E, along with figures showing the locations and an updated feature plan for at Area A within S261.

The PB RAP (2011b) also presented a Sampling and Analysis Plan (SAP) for undertaking additional soil and groundwater investigations at S261. This included details of proposed sampling locations, sampling methods and field screening techniques, well construction details, surveying requirements as well as quality assurance and quality control (QA/QC) protocols that would be adopted. The further investigations nominated in the SAP were not undertaken.

4.1.2 Previous Investigation Review (AEC Environmental, 2011)

AEC Environmental was engaged by RPL Consulting undertake a review of previous investigations across the Cox Peninsula Remediation Project including S261 (AEC Environmental, 2011). This comprised a review of previous investigation reports for S41 and S261 to S266 (formerly S32 and S34) to support the preparation of the initial business case and provided high level remedial options.

4.1.3 Initial Business Case (First Stage) (RPL, 2012)

The Initial Business Case (IBC) for the Cox Peninsula Remediation Project was presented to Finance in January 2012. It recommended potential options for consideration as per the options identified by AEC Environmental (2011).

The Auditor considers that the S261 SSI Report (Jacobs, 2016) provided a suitable summary of the previous investigations undertaken within S261, with appropriate reference to the documents that provided additional details.

4.2 Jacobs Investigations

Jacobs conducted an additional sampling program to address identified data gaps to assist in the preparation of the DBC for the Cox Peninsula Remediation Project. The investigation design was based on the outcome of the Data Quality Objectives (DQO) setting process which separated the investigation design into three soils (including surface and sub-surface soils), groundwater and hazardous materials and general waste.

This included the following investigations for the S261 SSI (Jacobs, 2016):

- Collection and analysis of surface and sub-surface soils from targeted locations across S261, focusing on the primary areas of environmental concern that were identified.
- Drilling and installation of targeted groundwater monitoring wells around remote tip sites within S262 as well as areas of interest at S261 and S263/S264. A single background well was also installed at the southern extent of S262 representing S261, S262 and S263/S264.
- Completion of three rounds of groundwater sampling (one dry season round and two wet season rounds) with analysis for relevant contaminants of concern.
- Preparation of an updated inventory of waste and infrastructure at S261, including selective additional sampling where deemed necessary.
- Collection of material samples for asbestos analysis from underground service pits within the vicinity of Area C on S261.
- Trenching around identified antenna footings to confirm their vertical and lateral extent, including selective soil sampling for potential contaminants of concern.

The Auditor considers that the S261 SSI Report (Jacobs, 2016) provided a suitable summary of the Jacobs investigations undertaken within S261, and nearby S262.

4.3 Investigation Criteria

The S261 SSI Report (Jacobs, 2016) indicated that, in the absence of Northern Territory-specific guidance relating to the quality objectives for land, groundwater, surface water and air, reference was made to guidance made or endorsed by the NSW EPA under the provisions of the NSW *CLM Act* (1997).

The S261 SSI Report indicated that investigation criteria were sourced from the following:

- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC & ARMCANZ, 2000).
- *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013* (ASC NEPM, 2013).
- *Australian Drinking Water Guidelines* (NHMRC, 2011).

It is noted that previous investigations had referred to Victorian guidance, which included reference to the NEPM (1999) which has since been updated (ASC NEPM, 2013).

The soil and groundwater investigation criteria are discussed in the following sections of this SAR. The investigation criteria were presented in tabulated format in the S261 SSI Report (Appendix A and tables).

4.3.1 Soil Investigation Criteria

The investigation criteria for soil for S261 were stated to be selected based on the proposed Public Open Space end use with consideration of the following values to be protected:

- Maintenance of natural and modified ecosystems.
- Human health.
- Buildings and structures (Asbestos).
- Aesthetics.

Ecosystem Protection

Appendix A of the S261 SSI Report identified that ecological investigation levels (EILs) and ecological screening levels (ESLs), as defined in the ASC NEPM (2013), were adopted for the assessment of soil contamination in the investigation to assess the suitability of the site for the maintenance of ecosystems, by comparison with soil concentrations found at each sample location. The following was noted:

- EILs were adopted for selected metals and organic substances and were applicable for assessing risk to terrestrial ecosystems. EILs are dependent on the soil physicochemical properties and land use scenarios and only apply to the top 2 m of soil. Site specific EILS were developed, where relevant, as presented in the S261 SSI Report. The inputs to the calculations (which reportedly used the spreadsheet developed by CSIRO for NEPC) and the rationale for selection were clearly presented in the S261 SSI Report.
- ESLs were adopted for selected petroleum hydrocarbon compounds and fractions and were also applied for assessing the risk to terrestrial ecosystems. ESLs broadly apply to coarse and fine grained soils and various land use scenarios and only apply to the top 2 m of soil.

The ASC NEPM (2013) makes provision for the derivation of site specific EILs for a number of analytes based on the physiochemical soil properties reported at S261 including soil pH, cation exchange capacity (CEC), total organic carbon (TOC) and clay content for chromium (III), copper, nickel and zinc.

Human Health

The S261 SSI Report identified that health investigation levels (HILs) and health screening levels (HSLs), as defined in the ASC NEPM (2013), were adopted and provided a Tier 1 risk assessment for the potential risks to human health from chronic exposure to contaminants.

The analytical results for soil samples from S261 were screened against the HIL-C (Public Open Space), which consists of parks, playgrounds, playing fields, secondary school and footpaths. In the absence of HSL-C criteria, soil results were screened against HSL-A/B (residential) criteria which were dependant on both the sample depth and soil type. Jacobs noted that the HSL-A/B were considered more conservative based on the future land use of Public open space (Jacobs, 2016).

Asbestos

The S261 SSI Report referred to guidance provided in Section 4 of Schedule B (1) and Section 11 of Schedule B (2) of the ASC NEPM (2013) for the assessment of asbestos in soil. This included HSLs for bonded ACM and friable asbestos and the requirement of no visible asbestos in the surface for all forms of asbestos.

Aesthetics

The S261 SSI Report referred to Section 3.6 of Schedule B (1) of the ASC NEPM (2013) for guidance in relation to the presence of non-hazardous materials such as refuse or filling caused by human activities. The S261 SSI Report stated that features and observations on the site during the investigations would determine if there is a consideration of aesthetics. Consideration in the S261 SSI Report was presented to show that the final condition of the site must not pose a reasonable concern to the future land users even though the risks posed by potential contamination at the site are considered negligible.

Soil Waste Classification

The S261 SSI Report referred to the NSW EPA Publication *Waste Classification Guidelines – Part 1: Classifying waste* (NSW EPA, 2014) for waste classification. The waste categories as defined in Clause 49 of Schedule 1 of the *Protection of the Environment Operations Act 1997* included:

- Special waste
- Liquid waste
- Hazardous waste
- Restricted solid waste
- General solid waste (putrescible)
- General solid waste (non-putrescible).

Asbestos waste was classified as a "Special Waste" while soils were classified as one of three possible classifications (in order of increasing contaminant concentrations):

- General solid waste (non-putrescible)
- Restricted solid waste
- Hazardous waste.

Appendix A of the S261 SSI Report provided further discussion in relation to the regulatory framework and guidelines for waste soil classification.

4.3.2 Groundwater Investigation Criteria

The investigation criteria for groundwater for S261 were stated to be selected based on the proposed Public Open Space end use with consideration of the following:

- Ecosystem protection.
- Agricultural water (irrigation and stock water).
- Recreation and aesthetics.
- Drinking water.

The S261 SSI Report stated that the values to be protected under the various guidelines were determined based on total dissolved solids (TDS). The S261 SSI Report referred to the TDS values measured for the groundwater in wells MW17 and MW03 in the dry season and MW17 and MW16 in the wet season.

The S261 SSI Report stated that based on the TDS and identified values, the following assessment criteria were adopted:

- Ecosystem protection (fresh and marine water with 99% species protection) (ANZECC & ARMCANZ, 2000).
- Drinking water (NHMRC, 2011).
- Stock watering (ANZECC & ARMCANZ, 2000).
- Long and short term irrigation (ANZECC & ARMCANZ, 2000).
- Recreational use (NHMRC, 2008).
- Buildings and structures (Standards Australia, 2009).

The following provides an overview of the groundwater investigation criteria.

Ecosystem Protection

The S261 SSI Report discussed the maintenance of marine ecosystems associated with the mangroves and Darwin Harbour and assumed protection of highly modified ecosystems with application of the 99% species protection trigger values.

The S261 SSI Report also considered freshwater ecosystems associated with ephemeral floodplains and creeks that extend through S261, and the broader S262, and also considered the 99% species protection trigger levels.

The S261 SSI Report also indicated that site specific criteria were also adopted for human health and ecological health where the limits of reporting (LOR) were above the adopted criteria. The S261 SSI Report also considered background data from two groundwater monitoring wells (GW10 and MW04), one located within S262 and the other in S265, in assessing ecological criteria.

Drinking Water

The S261 SSI Report stated that the site history indicated that groundwater had been used as a potable water supply. On this basis, the investigation criteria were based on the Australian Drinking Water Guidelines (NHMRC, 2011). The Drinking Water Guidelines were amended to reflect the laboratory limit of report, where appropriate.

Agricultural Water (Stock watering, long and short term irrigation)

As noted above, the S261 SSI Report considered the ANZECC & ARMCANZ (2000) guidelines for livestock drinking water and for short and long term irrigation values.

Recreation and Aesthetics

The S261 SSI Report reported that the guidelines for managing risk in recreational waters (GMRRW) (NHMRC, 2008) were adopted to assess potential impacts on recreational users of Darwin Harbour. The S261 SSI stated that the recreational water quality criteria adopted for the investigation were 10 times the stipulated drinking water guidelines. This was on the basis of the GMRRW criteria being based on the Australian Drinking Water Guidelines whereby ingestion of water during recreational activities is assumed to be 10% of drinking water consumption.

The Auditor considers that Jacobs (2016) provided a suitable assessment of the adopted investigation criteria.

The Auditor considers that given the intended end use for Public Open Space, the adopted investigation criteria provided an appropriate level of protection to human health receptors.

The Auditor considers that given the intended end use as a Public Open Space, and the close proximity of the site to a number of sensitive ecological communities, the adopted environmental investigation criteria provides an appropriate level of protection to ecological receptors.

The Auditor notes that the S261 RAP stated that the potential human health impacts from contaminated groundwater were limited to abstraction from shallow groundwater for the purposes of drinking and/or irrigation purposes. It was considered unlikely that the shallow groundwater would be abstracted for this purpose due to poor yield and low pH.

4.4 Investigation Results

4.4.1 Ground Conditions

The ground conditions across S261 were described in S261 SSI Report (Jacobs, 2016). The ground conditions encountered were described as follows:

- Subsurface fill material was confined to a few localised areas on S261, predominantly around the 'former' infrastructure such as that found within Area A.
- Deposited fill was noted across the various tip sites in the form of multiple small stockpiles of miscellaneous waste items intermingled with re-worked natural sandy and silty soils. The natural soils appeared to have originated from S261 as part of historic decommissioning and waste disposal activities and were considered unlikely that any of the fill material identified at the site had originated from off-site sources.
- Targeted soil bores in the various tip sites did not indicate the presence of any sub-surface fill material.
- Shallow natural soils of less than 1 m thickness were encountered across the majority of S261/S262 and comprised sands and silts with minor fine ironstone gravels and limited organic content. These soils were underlain by weathered laterite (coffee rock).
- Layers of calcareous rock (typically less than 2 m thick) were occasionally noted within the laterite profile, typically at depths greater than 5 mbgl.
- Narrow bands of ironstone (typically less than 0.3 m thick) were also occasionally encountered.

4.4.2 Waste and Infrastructure Inventory

As described in the S261 SSI Report, PB identified areas of potential concern in relation to waste and infrastructure within S261 and Jacobs conducted a review of the area to verify the findings and to identify any further areas of impact.

Jacobs reported that surficial waste items and miscellaneous stockpiles were identified on S261 within the localised area of Area E. Numerous stockpiles were also identified around the edge of the formerly cleared S262. Further investigations of these stockpiles by Jacobs indicated that they likely originated from the clearing activities of Area F. Only a minor degree of small waste items (i.e. concrete blocks) was identified within the stockpiles.

Remnant infrastructure also remained intact across S261, comprising antenna footings across Area E, as well as the associated underground utilities connecting the various antenna arrays with the former facilities in Area A. A total of four small antenna arrays and two large arrays were identified at S261/S262. The two large arrays were located to the south-east of Area A within S261. In addition to these arrays, a number of miscellaneous footings were identified across the cleared extent of Area E.

Jacobs undertook trenching around these structures to confirm the vertical and lateral extent of these items for the purposes of volume estimation. Samples were also collected around representative footings from each different category of structure identified in order to confirm whether any chemical application had previously been undertaken to control termites. The soil analytical results indicated that there was no evidence of such treatment in these areas.

Based on the findings of the site inspections Jacobs updated the waste inventory for S261 and presented this in the S261 SSI Report (Appendix O of the S261 SSI Report).

4.4.3 Hazardous Building Materials

The S261 SSI Report described that the investigations undertaken by PB had identified the widespread presence of surficial ACM and underground cables partially sheathed in a protective wrap containing PCBs and OCPs.

The presence of surficial ACM was commonly encountered at the various tip sites, most notably Areas E-1 and the area immediately surrounding Area A, as well as tips sites located across the broader S262. At these locations, asbestos cement sheet fragments were visually identified in various stockpiles and distributed across the ground surface as part of Jacob's (2016) investigations. Asbestos conduits were also frequently observed across the tip site which supported the theory that

these conduits were widely used to protect underground services across S261 and S262. The length of time these materials remained on site meant the ACM fragments often appeared degraded and in poor condition.

Jacobs collected "chip" (assumed to refer to fragments) samples from a representative number of pits and submitted for laboratory analysis. Three main types of underground service pits were identified, two of which were considered likely to contain asbestos, while the third (and the largest of the pits) was formed solely of concrete.

Eight material samples and six soil samples were obtained from S261 for asbestos analysis. A total of 500 g of sample was collected for each soil analysis. All material samples collected from service pits, asbestos conduits and fragments collected from Area E and Tip Site E-1 at S261 tested positive for asbestos. The soil sample results detected asbestos fibres in one of the eight soil samples submitted to the laboratory for analysis. The positive results came from a small stockpile located at Tip Site E-1.

4.4.4 Soil Results

Jacobs conducted extensive soil sampling across S261 targeting areas of concern in the dry season (2013). The findings of the investigation were presented in the S261 SSI Report and summarised in the S261 RAP. The key findings were:

- Exceedance of adopted EIL (40 mg/kg) for arsenic in one soil sample, with a concentration of 43 mg/kg.
- Exceedances of adopted HIL-C (10 mg/kg) for aldrin + dieldrin in four soil samples with a maximum concentration of 25.5 mg/kg.

4.4.5 Groundwater Results

Jacobs conducted three rounds of groundwater monitoring during the 2013 dry season and the wet seasons in 2014 and 2015. The findings presented in the S261 SSI and RAP (2016 and 2017a) indicated the following:

- Low pH values were measured in the field during both the dry season and wet season with pH range of 3.58 to 5.47 (including the background bore MW04 where a pH range of 3.58 – 4.40 was reported).
- A number of exceedances of the adopted assessment criteria for the protection of human and ecological health along with other identified groundwater values were reported within S261, as well as in monitoring wells within neighbouring S262 and S263/S264.
- The majority of groundwater samples collected at S261 reported elevated levels of nitrate (as N), with a total of 16 results in exceedance of adopted EIL over the monitoring periods. Jacobs (2017a) noted that general nitrate concentrations across S261 and S262, include background bore MW04 and two duplicates from MW19, suggested naturally elevated nitrate in groundwater.
- Exceedances of the adopted ecological criteria were reported for:
    - Aluminium – reported concentrations of <50 to 130 µg/L (dry season) and <50 to 1,700 µg/L (wet season), which exceeded assessment criteria (the freshwater criteria being 64 µg/L) with three and five exceedances in the dry and wet seasons respectively.
    - Boron – reported concentrations of <50 to 1,300 µg/L (dry season). Only one exceedance of the assessment criteria for freshwater and irrigation screening criterion was reported during the dry season.
    - Copper – reported concentrations of 1 to 2 µg/L (both dry and wet seasons) with a total of one and three exceedances over the dry and wet seasons respectively of the freshwater criterion (1 µg/L).
    - Iron – reported concentrations of <50 to 1,700 µg/L (dry season) and <10 to 400 µg/L (wet season) with a total of three exceedances of irrigation screening criterion for both dry and wet season, and three exceedances over the wet seasons of the freshwater criterion (1 µg/L).

- Manganese – reported concentrations of <5 to 360 µg/L (dry season) and at the laboratory LOR (wet season) of <5 µg/L. Only one exceedance of the assessment criteria for freshwater and irrigation screening criterion during the dry season.
- Molybdenum – reported concentrations of <5 to 11 µg/L (dry season) and at the laboratory LOR of <5 µg/L (wet season). Only one exceedance of the assessment criteria for freshwater and irrigation screening criterion during the dry season.
- Selenium – reported concentrations of <50 to 1,300 µg/L (dry season) and at the laboratory LOR of <50 µg/L (wet season). A single exceedance was reported at the Site of selenium for the ADWG criterion and freshwater criterion.
- Ammonia (as N) – reported concentrations of <5 to 460 µg/L (dry season) and <5 to 820 µg/L (wet season) with an exceedance of the human health (dry season) and one exceedance recreational waters (wet season) and four exceedances over the wet season of the freshwater criterion of 230 µg/L and marine criterion of 500 µg/L.
- Low pH values during both the dry season and wet season with pH range of 4.4 – 5.47 and pH range of 3.58 – 6.47 respectively. These pH units are outside the range nominated for the industrial use (6.0 to 8.3 pH) of groundwater and for aesthetic use (6.5 to 8.5 pH). The aggressivity of the groundwater (in relation to buildings and structures) was generally categorised as moderately aggressive for concrete structures above and below the groundwater table.

The S261 RAP provided a summary and discussion of the groundwater results which concluded that the heavy metal exceedances of the adopted groundwater criteria were considered to be representative of local geological conditions and attributable to the acidic-mildly acidic groundwater. This was based on the results for the background well MW04.

In addition, the S261 RAP discussed the potential for human health impacts from contaminated groundwater due to abstraction of groundwater from the shallow aquifer for the purposes of drinking and or recreational purposes.

The S261 RAP stated that it was considered unlikely that the shallow groundwater would be used for abstraction due to poor yield and low pH. The S261 RAP further stated that the presence of the deeper more productive aquifer confined by the Bathurst Formation is a preferable water resource for abstraction and that the confining nature of the Bathurst Formation would likely negate potential impacts from the overlying contamination in the shallower aquifer.

After an independent review of the information presented in the S261 SSI Report (Jacobs, 2016) and S261 RAP (Jacobs, 2017a), the Auditor was satisfied that Jacobs provided a suitable summary of the intrusive investigation results that was generally consistent with NSW EPA reporting requirements.

4.5 Summary of Findings and Conceptual Site Model

The S261 RAP (Jacobs, 2017a) provided a summary of the investigation findings and provided a conceptual site model (CSM) which assessed the sources, pathways and receptors for the identified contamination and hazardous materials.

The S261 RAP summarised the identified contaminants of concern for the various media as follows:

- Soil - the following contaminants were identified at concentrations above the adopted assessment criteria:
  - OCPs (aldrin+ dieldrin) beneath building slabs
  - Asbestos within conduits associated with underground services.
- Aesthetics - the following aesthetic issues were identified:
  - Concrete footings associated with the former radio antenna as well as general rubbish and waste materials presenting an aesthetic impact not compatible with future land use. It was noted that although the above items were identified for remediation, they were not considered further as part of the CSM as no contamination was identified.

- Groundwater - the following chemicals/physiochemical properties of concern were identified above adopted assessment criteria:
  - Selenium
  - Aluminium
  - Copper
  - Nitrate (as N)
  - pH (aesthetic).
- Air:
  - Based on identified ACM the potential for airborne fibres and dust was considered. The S261 RAP stated that the potential for fibre mobilisation was contingent on the degradation of ACM and if it was exposed at the surface to wind.
  - Potential for landfill gas created by reactions of certain chemicals present in waste due from the Wagait Landfill (S263/ S264) was not considered a risk due to S261 being located 1.5 km south-east from S261.

The outcomes of the CSM identified the following complete exposure pathways to contamination:

- Exposure of human and environmental receptors through dermal contact with contaminants in surficial soils.
- Potential inhalation of asbestos fibres that have become airborne from contaminated soils or degraded ACM (such as remnant infrastructure or cement sheet fragments) at the surface.

After an independent review of the contamination investigations undertaken for S261 (both desktop and intrusive), together with several site visits by the Auditor/Auditor Assistants, the Auditor was satisfied that Jacobs provided adequate assessment of the investigation findings and the CSM for the property.

5.0 Remediation Action Plan

5.1 Recommendations for Remediation

Based on the findings of the investigations across the Cox Peninsula Site, a Remedial Options Assessment (ROA) was prepared which was presented in Appendix E of the RAP (Jacobs, 2017a). The ROA was developed to identify and evaluate potential remediation and management options for the identified contamination and, hazardous materials, other waste material and redundant infrastructure across the Cox Peninsula Site and provided specific requirements for each section, including S261.

Based on the outcomes of the ROA, the following remedial works were proposed for S261:

- Removal of redundant underground services and associated infrastructure (refer to Remediation Works Area A in Figure 14 and Remediation works Area B in Figure 15 of the S261 RAP).
- Removal of surface infrastructure including antenna footings and other miscellaneous concrete and steel items (refer to Remediation Works Area E in Figure 14 and Remediation Works Areas C, D, E and F in Figure 15 of the S261 RAP).
- Removal of OCP contaminated building slabs and soils under building slabs for thermal treatment and disposal to on-site containment cell located at S265 (refer to Remediation Works Area A in Figure 15 of the S261 RAP).
- Removal of general waste and rubbish items identified across the broader extent of S261 including waste from building demolition and cyclone fencing around the two ACMA compounds (refer to Remediation Works Area C in Figure 14 of the S261 RAP).
- Removal of asbestos and ACM in service pits, around the main ACMA compound and from Area E-1 (refer to Remediation Works Areas A and D presented in Figure 14 of the S261 RAP).

The S261 RAP figures referred above are provided in **Appendix A** of this SAR.

The S261 RAP (Jacobs, 2017a) was prepared to outline the proposed remediation and validation methodologies for S261 based on the findings of the investigation and the ROA.

After an independent review of the contamination investigations undertaken for S261 and the ROA and RAP, the Auditor was satisfied that Jacobs provided adequate assessment of the remediation requirements for S261.

5.2 Risk Mitigation Works

Investigations undertaken at S261, as well as the other Cox Peninsula sites, in 2013 by Jacobs (documented in the SSI reports) identified a number of aspects which were considered to present potential short-term risks to the Commonwealth.

In order to address identified short-term risks, Finance committed to a program of preliminary Risk Mitigation Works (RMW) that was undertaken in October to December 2014. The RMW was carried out by Ventia Utility Services Pty Ltd (Ventia) (formerly known as Thiess Services). Jacobs was appointed as the Project Manager and Contract Administrator (PMCA) for these works.

The majority of S261 was not part of the RMW as it was still occupied. However, aspects of the RMW program on S261, included:

- Clearance of surface ACM and a small number of stockpiles (containing ACM) from Tip Site E-1, located adjacent to Area A – ACMA Main Compound.

The consolidation of contamination considered to represent a high risk, i.e. exposed and/or friable asbestos and contaminated soils, identified as a result of previous investigation undertaken as part of the DBC. The TMSA located at S265 held this material as a short-term management measure to mitigate against the risk of adverse weather events (cyclones) occurring during the 2014-2015 wet season, potentially re-distributing this material across the Cox Peninsula Remediation Site if it were not managed.

Jacobs noted that for clarity, the S261 Validation Report documented only those activities and works undertaken as part of the Cox Peninsula Remediation Project that commenced in 2016. The Risk Mitigation works were summarised in a separate report presented as Appendix B of the Validation Report.

5.3 Remediation Goals

The S261 RAP (Jacobs, 2017a) stated that the overall goal of remediation was to remove the identified hazards (identified contamination source) and / or restrict identified exposure pathways. The RAP stated that the target remediation goal was the rehabilitation of S261 to accommodate use as Public Open Space.

5.4 Overview of Remediation Works

The S261 RAP outlined the following key remediation tasks for S261:

- Removal of antenna footings and redundant underground services with appropriate disposal / recycling of materials.
- Manual removal of visible asbestos from the ground surface with disposal in the containment cell constructed as part of the broader remediation project in S265.
- Excavation and removal of contaminated soils for direct disposal in the containment cell in S265 or treatment prior to disposal.
- Removal of other surficial wastes from across the site with recycling or disposal off-site (i.e. materials deemed unsuitable for disposal in the containment cell in S265).

Further detail on the remediation and validation works undertaken is provided in **Section 7.0** of this SAR.

The Auditor considered that the S261 RAP (Jacobs, 2017a) provided a suitable summary of the proposed remedial approach for S261 and was suitable for use to inform the proposed remediation works.

6.0 Data Quality Objectives

The S261 RAP (Jacobs, 2017a) presented the data quality objectives (DQOs) process to be followed for the remediation and validation works. The DQOs were presented in the seven-step format outlined in the ASC NEPM (2013) and as per the US EPA guidance as follows:

1. Define the Problem
2. Identify the Decision
3. Identify Inputs to the Decision
4. Define the Study Boundaries
5. Specify an Action Level
6. Specify Tolerable Limits on Decision Errors
7. Optimise the Design for Collecting Data

The S261 RAP (Jacobs, 2017a) provided a detailed assessment of the DQOs, the key components of which are presented in **Table 6**.

Table 6 Data Quality Objectives

Item	Description / Inputs
Step 1 – Define the Problem	
Project Drivers	The driver for the remedial works was to undertake works necessary to return all sections of the study area to a suitable condition to facilitate the resolution of the Kenbi Indigenous Land Claim 37.
Objective	The overall goal for the validation program was to assess whether remedial activities had adequately removed the identified risks. The RAP also provided an overview of the primary objectives of the validation program.
Key Issues	• The presence of waste material and redundant infrastructure from historical activities and events. • The actual or potential presence of contamination resulting from such materials, activities, and/or infrastructure.
Project Team	Finance Project Manager: Lauren McInnes Jacobs Project Director: Joe Alban Jacobs Project Manager: William Rodger Jacobs Project Team: Ross Edwards (Contaminated Land Management), Ben Grasso (Contaminated Land Management), Vanessa Edmonds (Aboriginal Heritage), Karen Murphy (Historical Heritage), David Endersby (Ecology)
Conceptual Model	The CSM was included in the RAP as summarised in **Section 4.5** of this SAR.
Resources & Project Timeframes	The Jacobs project team and resources are listed above. The remedial works were planned to be undertaken over a two year period in 2016 and 2017 over two stages. The stages corresponded with the dry season (April and November) in 2016 and 2017.
Community Concerns	The RAP stated that the remediation works have the potential to draw attention from the local community, and a host a stakeholder groups, including the Wagait Shire Council, Northern Land Council, Traditional Owners and NT Government. The RAP stated that Finance and Jacobs would hold meetings with relevant stakeholders to make them aware of the purpose and extent of the remediation works. The RAP stated that a stakeholder management plan would be prepared for the project.
Regulatory Authorities & Local Government	Commonwealth Department of the Environment (DOTE), Northern Territory Department of Land and Resource Management (NT DLRM), NT Environment Protection Authority (NT EPA).

Item	Description / Inputs
Step 2 - Identify the decision	
Media & Receptors	- Is there any soil that through olfactory and visual means is still impacted? - Is there waste material or redundant infrastructure still present at the Site? - Is there any surficial asbestos fragments remaining at the Site?
Contaminants for Validation	- What were the contaminants targeted for remediation? - What is the background concentration of these contaminants?
Validation criteria	The adopted validation criteria were outlined in the RAP, as summarised in **Section 7.2.4** of this SAR.
Decision statements	- Are there any surficial waste materials or asbestos still present at the Site? - What validation activities are required to satisfy the objectives of validation? - Is the Site sufficiently remediated to the adopted validation criteria?
Step 3 - Identify the inputs	
Site Condition	- Visual survey for remaining miscellaneous waste materials and asbestos - Screening with a photo-ionisation detector (PID) to assess potential presence of volatile contaminants - Visual observations of local flora and evidence of stress (caused by remedial works). - Visual observation of soil erosion or land instability (caused by remedial works). - Visual observations of road damage (caused by remedial works).
Aesthetic Condition	Field observations of waste material, remnant infrastructure, condition of soils that have aesthetic impacts on S261 (i.e. fly tipped waste, rubbish, odour, discolouration, stained materials.
Target Media	- A visual record (e.g. photographs) of material being disposed off-site and into the containment cell will be collected during the remediation works along with weighbridge receipts (where applicable). - Continual reporting of site management practises throughout the duration of remediation. - Validation samples will be collected from the walls and base of the remediation excavations.
Validation Criteria	The adopted validation criteria were outlined in the RAP, as summarised in **Section 7.2.4** of this SAR.
Fieldwork- Sampling	Sampling should meet the minimum sampling frequencies outlined in Section 8 (of the RAP) and be undertaken in accordance with AS4964-2004 (Standards Australia, 2004) and AS4482.1-2005 (Standards Australia, 2005).
Laboratory Methods	Laboratory analytical methods will be undertaken in accordance with NATA certification requirements.
Step 4 - Define the boundary of the study	
Geographical limit	The spatial boundary of the investigations will be within S261 excluding S262 and S263/S234 (refer Figure 2 from Jacobs, 2017d provided in **Appendix A** of this SAR).
Validation limits	- Limits on the identification, classification, and estimation of waste material and remnant infrastructure are defined by the geographical limits of S261. - Illegal fly-tipping after remediation but before the commencement of validation works may result in validation conclusions not reflective of remedial activities
Constraints	Access to some areas of concern may be restricted by thick vegetation and difficult terrain.

Item	Description / Inputs
Step 5 – Develop the decision rule	
Decision Statements	- Do soil samples meet the adopted validation criteria? - Is S261 absent of miscellaneous waste materials? - Is S261 absent of asbestos fragments?
Decision Rule	The decision rules have been developed based on the underlying project drivers and the corresponding objectives of the site investigation program. Criteria to be used to evaluate these decision rules are defined in Step 2. • If waste material or remnant or redundant infrastructure is present: - then further removal activities will be required. • If no waste material or remnant infrastructure is present: - then the Site may be deemed as adequately Remediated. • If the concentration of contaminants in environmental samples is greater than the validation criteria: - then further investigation and/or remediation should be undertaken. • If not, - then no further assessment, remediation or management works are required.
Step 6 – Specify tolerable limits on decision error	
Documentation and data completeness	- Site conditions properly described. - Waste material and remnant infrastructure identified and removed are logged, including location, photographs, physical description, material classification, and size and volume estimates. - Validation sampling locations properly described and located. - Completion of field records, chain of custody documentation, laboratory test certificates from NATA registered laboratories. - Visual inspection and logging of all remediated areas, including sample collection from all areas of identified contamination. - Samples are tested for all targeted contaminants.
Data representativeness	- Collection of representative data and information to comprehensively describe the type, extent, and volume of waste material and remnant infrastructure (e.g. coordinates, photographs, descriptions). - Collection of minimum required samples from each sampling location as per AS4482.1 2005 (Standards Australia, 2005). - Use of appropriate techniques for the sampling, storage and transportation of samples.
Data comparability	- Use of standardised and consistent logging techniques and observation descriptions. - Use of appropriate techniques for the sampling, storage and transportation of samples. - Use of laboratories with NATA certification for the analyses conducted and undertaken using NEPM procedures.
Precision for sampling and analysis	- Achieve laboratory QC criteria. - Blanks returned with no contamination. - All matrix and surrogates returned acceptable results. - All laboratory duplicates within acceptable ranges. - All blind field duplicates within acceptable ranges. - All control results within acceptable ranges. - All laboratory LORs or practical quantification limits within acceptable ranges.

Accuracy for sampling and analysis	- Use of properly trained and qualified field personnel. - Use of blind field duplicate samples to be collected at a minimum rate of 1 in 20. - Relative percentage difference (RPD) values for duplicate samples are less than specified criteria. - Acceptable quality of rinsate blanks (if required). - Acceptable quality of trip blank samples (if required). - Acceptable quality of trip spike samples (if required).
Sampling design	The sampling design strategy is based on systematic sampling from stockpiles as well as the base and sides of excavated areas.
Step 7 – Optimise the design for obtaining data	
Review of DQO outputs	The design of data collection activities was aimed at achieving the ultimate target outputs: - Validation of remediated areas to meet adopted validation criteria. - An inventory register of waste materials removed and the disposal method.

The Auditor considers that the DQOs provided in the S261 RAP (Jacobs, 2017a) were appropriate for the purpose of the remediation and validation works and were generally in accordance with the requirements of the ASC NEPM (2013).

7.0 Remediation and Validation Works

7.1 Remediation Works

7.1.1 Roles and Responsibilities

The S261 RAP (Jacobs, 2017a) provided the role and responsibilities of the key stakeholders involved with the key components of the remediation works of which are presented in **Table 7**.

Table 7 Remediation Roles and Responsibilities

Organisation	Role	Key Responsibility
Department of Finance – Project Deliver Branch (PDB)	Principal	Overall leadership, management and delivery of the project
Nation Partners	Technical Advisor	Preparation of the risk management framework for the project and directly support Finance in implementing the stakeholder communications plan and the Indigenous Participation Plan.
AECOM Australia Pty Ltd	Contaminated Site Auditor (referred as Environmental, Site Auditor in the RAP)	Review key deliverables relating to the investigation and remediation works in accordance with NT and NSW EPA requirements. Preparation of Site Audit Report.
Jacobs Group (Australia) Pty Ltd	Project Manager (PM), Contract Administrator (CA) and Environmental Consultant	Overall Project Manager for the project, review and document remediation activities and implement remediation validation program. Monitor environmental performance of the RWC. Preparation of investigation report, RAP, Validation Report and ECP.
Ventia Utility Services Pty Ltd	Remediation Works Contractor (RWC)	Implementation and execution all remediation works and activities in accordance with the Remediation Contract Specification and under the direction of the PMCA.
Five D Holdings Pty Ltd	Site Asset Manager	Continued day to day management of the site, exclusive of remediation works areas. Continued day to day management of the site following completion of remediation works and prior to transfer to NT Government
Kenbi Rangers	Local Ranger Group	Continued day to day security provisions, exclusive of the remediation works and continued day to day land management activities. Day to day management and protection of heritage values at the site.

In addition to the above, the Validation Report (Jacobs, 2017d) stated that Kaefer Integrated Services were the licenced asbestos removalists for the works. The Occupational Hygienists for the asbestos clearance work were from Agon Environmental. The Validation Report provided copies of relevant licences for Kaefer and Agon personnel.

7.1.2 Summary of Risk Mitigation Works

A program of RMW was undertaken in late 2014 to address short-term risks at S261 ahead of the commencement of the primary remediation program. The RMW specific to S261 comprised clearance of surface ACM and a small number of stockpiles (including ACM) from Area E-1, located outside Area A.

The works comprised:

- Clearance and removal of surface ACM and stockpiles, including asbestos from remote tip sites identified at S261, S262 and S265. These materials were placed in the TMSA located adjacent to the main compound at S265.

Validation sampling was not performed at the time of the RMW but was performed during the main Remediation Project.

It is also noted that the RMW activities in 2014 are summarised in Section 5.2 and documented in full in Appendix B of the S261 Validation Report (Jacobs, 2017d).

7.1.3 Summary of Remediation Works

The Validation Report summarised the remediation works undertaken in S261 which was within 14 discrete areas referred to as Remediation Work Areas (RWAs). Table E.1 and Table 1.1 of the Jacobs S261 Validation Report (2017d) provided an overview of the nominated areas for remedial works and the completed works. The nominated areas and completed works are summarised in **Table 8**.

Table 8 Overview of Areas of S261 Nominated for Remedial Works

RWA	Description	Completed Works
General Site Area		
RWA A	**Asbestos conduit and underground cable removal** Removal of asbestos conduits for off-site disposal and clearance by an Occupational Hygienist and removal of underground cables. Refer to Figure 3 of the Validation Report as presented in **Appendix A** of this SAR.	• Disconnection of existing redundant services and isolation / protection of remaining live service. • Live services included those servicing the ACMA facility within Area A. The ACMA facility remained operational until May 2016 at which point these services were disconnected. • Following disconnection of redundant services, the removal task was undertaken: - removal of cables housed in asbestos conduits - removal of cables laid directly into the ground or in plastic conduits - removal of ancillary infrastructure such as markers and control panels on the ground surface as well as concrete and asbestos service pits. • Confirmatory sampling and analysis of a selection of each type of underground cable removed from the ground for PCBs and organochlorine pesticides (OCPs). This sampling was undertaken in order to determine disposal requirements of the cables. • Disposal of waste materials arising from the removal tasks, including: - off-site disposal of cable to a recycling facility - off-site disposal of asbestos conduit and pits to a licenced landfill - off-site disposal of plastic conduit to a licenced landfill - transfer of concrete to S265 for subsequent disposal in the containment cell. The remediation plan originally intended for asbestos waste to be placed in the containment cell on S265. As such the waste material removed from S261 was transferred to S265 for temporary secure storage in the Transmitter Building, pending completion of the containment cell construction. Delays to the completion of the containment cell resulted in a decision to remove the skip bins containing asbestos and disposing at the Shoal Bay Waste Management Facility. Internal transfer records and the waste disposal dockets were provided in Appendix G of the S261 Validation Report. • Validation of the cable removal works was completed as follows: - validation of removal of asbestos conduit and pits by visual means, supported by the issue of a Clearance Certificate by an Occupational Hygienist - validation of the removal of underground cables and plastic conduit by visual means. • Reinstatement of excavations using ‘clean fill’ retained as part of the earlier underground service excavation activity.
RWA B	**Asbestos service pit removal** Removal of asbestos service pits for off-site disposal and clearance by an Occupational Hygienist Refer to Figure 3 of the Validation Report as presented in **Appendix A** of this SAR.	

RWA	Description	Completed Works
RWA C	**ACM at ground surface of Area E-1** Removal of ACM at ground surface at Area E-1 for off-site disposal and clearance by an Occupational Hygienist. Refer to Figure 4 of the Validation Report as presented in **Appendix A** of this SAR.	• Manual removal of visible ACM from the ground surface by a licenced asbestos removalist under the observation of an Occupational Hygienist. • Walkover and visual inspection of the ground surface following completion of the removal works by an Occupational Hygienist and issue of Clearance Certificate. • Placement of asbestos waste at S265 containment cell.
RWA D	**ACM at ground surface** Removal of ACM at ground surface surrounding Area E-1 and Area A for off-site disposal and clearance by an Occupational Hygienist. Refer to Figure 4 of the Validation Report as presented in **Appendix A** of this SAR.	• As above for Area C.
RWA E	**Antenna and miscellaneous footings and surface waste removal** Removal of concrete footings and miscellaneous items identified by Jacobs for crushing and disposal to the containment cell and appropriate disposal or recycling off-site. Refer to Figure 5 of the Validation Report as presented in **Appendix A** of this SAR.	• Removal of concrete antenna footings from the ground. Antenna footings were primarily distributed across S262 with some footings within these arrays located within the S261 boundary. Antenna Array C (fully located within the S261) and a small number of individual footings were concurrently removed with footings located in S262. A total of 97 concrete footings were removed from the S261as part of this task. • Concrete footings were transported to S265 where they were stockpiled and later crushed. While the majority of the crushed concrete was disposed of in the containment cell, some concrete was re-used to create hardstand areas in S265. • Removal of surficial waste items distributed across Area E. A total of 10 surficial waste items were removed for off-site disposal or recycling.
RWA F	**Bitumen road removal** Removal of bitumen road from the entrance to the Site leading to Area A and disposal off-site followed by validation sampling. Refer to Figure 6 of the Validation Report as presented in **Appendix A** of this SAR.	• Removal of bitumen road between the entrance to Area A and the entrance to S261 in the north leading to Cox Peninsula Road. • Collection of validation samples along the former road comprising 18 samples. • ~520 tonnes of bitumen was disposed off-site at Shoal Bay Waste Management Facility as general waste. Waste disposal dockets were provided in Appendix G of the S261 Validation Report.

RWA	Description	Completed Works
RWA G	**Three 'clean fill' stockpiles requiring segregation of concrete and steel** Sampling of stockpiles and confirmation of waste classification for re-use on-site and / or disposal to the containment cell at S265. Refer to Figure 7 of the Validation Report as presented in **Appendix A** of this SAR.	• Collection and analysis of 16 confirmatory soil samples from three stockpiles which had previously been given a preliminary classification as 'clean fill'. • Following confirmation of the 'clean fill' status of the three stockpiles these stockpiles were spread out in their original location in order to blend in with the general landscape.
ACMA Compound		
RWA A	**Concrete slabs and underlying pesticide contaminated soils** Removal of concrete slabs and underlying pesticide contaminated soils and transport to S265. These materials were segregated and transported to S265 for management. Slabs were crushed and either re-used or disposed in the containment cell. Pesticide contaminated soils were either thermally treated or disposed off-site at Shoal Bay landfill. Refer to Figure 8 of the Validation Report as presented in **Appendix A** of this SAR.	• Removal of 318 m^3 from concrete slabs across Area A comprising the major slab, minor slab, water tank stand, antenna footing and material storage bay. The concrete was transported to S265 for crushing and disposal in the containment cell. • Collection of validation samples beneath former slabs, including: - 10 validation samples over two stages of soil removal at the minor slab - 98 validation samples over two stages of soil removal at the major slab - Seven validation samples in the stockpile footprint area used for stockpiling of soils removed from the major slab - Four validation samples from beneath the former water tank slab - Two validation samples from beneath the former material storage bay. • Excavation and transfer of OCP contaminated soil to S265 compound for subsequent thermal treatment or disposal off-site at Shoal Bay Waste Management Facility. The stockpiles transferred included S261_ACMA_V_SP01 (390 m^3) and S261_ACMA_V_SP02 (95 m^3). Stockpile S261_ACMA_V_SP02 was treated during the commissioning of the thermal plant as well as 140 m^3 of S261_ACMA_V_SP01. The remainder of the S261 stockpiles were sorted on S265 into tiers. Tier 1 soils were treated through the thermal plant, while Tier 2 and Tier 3 were either treated through the thermal plant or disposed off-site at the Shoal Bay Waste Management Facility. Waste disposal dockets were provided in Appendix G of the S261 Validation Report.
RWA B	**Asbestos conduit and underground cable removal** Removal of asbestos conduits for off-site disposal and clearance by an Occupational Hygienist and removal of underground cables. Refer to Figure 9 of the Validation Report as presented in **Appendix A** of this SAR.	• Removal of asbestos conduit and underground cabling within Area A upon vacation of ACMA, as part of the remediation works carried out on underground services located in S262 and for General site area RWA B. • Placement of asbestos waste in the S265 containment cell.

RWA	Description	Completed Works
RWA C	**Stockpile with asbestos waste removal** Removal of stockpile with asbestos and disposal to the containment cell followed validation sampling and clearance by an Occupational Hygienist. Refer to Figure 10 of the Validation Report as presented in **Appendix A** of this SAR.	• Removal of stockpile with asbestos waste under observation of an Occupational Hygienist. • Walkover and visual inspection of the ground surface following completion of the removal works by an Occupational Hygienist and issue of Clearance Certificate. • Placement of asbestos waste in the S265 containment cell.
RWA D	**Antenna footings removal in Area C** Removal of concrete footings and miscellaneous items identified by Jacobs for crushing and disposal to the containment cell. Refer to Figure 11 of the Validation Report as presented in **Appendix A** of this SAR.	• Removal of concrete antenna footings from the ground within Antenna Array C that were concurrently removed with footings located in S262. A total of 23 concrete footings were removed from Antenna Array C as part of this task. • Concrete footings were transported to S265 where they were stockpiled and later crushed. While the majority of the crushed concrete was disposed of in the containment cell, some concrete was re-used to create hardstand areas at S265. • Removal of surficial waste items distributed across Area E (a total of 15 surficial waste items were removed for off-site disposal or recycling). • Placement of asbestos waste in the S265 containment.
RWA E	**Bitumen road removal within Area A** Removal of bitumen road within Area A and disposal off-site followed by validation sampling. Refer to Figure 12 of the Validation Report as presented in **Appendix A** of this SAR.	• Removal of bitumen roadways between the entrance to Area A and the entrance to the Site to the north leading to Cox Peninsula Road. • Collection of validation samples along the former road comprising three samples. • The bitumen was disposed off-site at Shoal Bay Waste Management Facility. Waste disposal dockets were provided in Appendix G of the S261 Validation Report.
RWA F	**Cyclone fencing and above ground infrastructure** Removal of cyclone fencing enclosing Area A and Area C for off-site recycling and above ground infrastructure. Refer to Figure 13 of the Validation Report as presented in **Appendix A** of this SAR.	• Removal of cyclone fencing enclosing Area A and Area C for off-site recycling. • Removal of above ground infrastructure within Area A and Area C. • Visual confirmation that all cyclone fencing and infrastructure was removed.

RWA	Description	Completed Works
RWA G	**UST removal within Area A** Decommissioning of two USTs and associated infrastructure for off-site recycling and disposal. Removal of contaminated soils for disposal to the containment cell followed by validation sampling. Refer to Figure 14 of the Validation Report as presented in **Appendix A** of this SAR.	• Removal of hydrocarbon impacted soils around service lines for placement in the containment cell. • Decommissioning of two USTs and associated infrastructure for off-site recycling and disposal. • Removal of soils surrounding USTs for on-site re-use (where suitable), placement in the containment cell or off-site disposal at Shoal Bay Waste Management Facility. Waste disposal dockets were provided in Appendix G of the S261 Validation Report. • Collection of confirmatory and validation samples in areas including: - One confirmatory sample of liquid within redundant pipework - Four validation samples of soil surrounding service lines - 34 validation samples at the walls and base of UST excavation - Three validation samples in area of failed validation and further excavation in excavation pit - Six validation samples in footprint of stockpile area after removal of temporary stockpiles.

The Validation Report indicated that appropriate controls were put in place during the asbestos works, including air monitoring, establishment of exclusion zones and decontamination areas, notification to NT Worksafe and use of licenced removalists and an Occupational Hygienist for final clearance. Air monitoring results and Clearance Certificates issued by the Occupational Hygienist were presented in Appendix J of the S261 Validation Report.

The S261 Validation Report presented several photographs of the remediation works, including drone footage of the removal of footings, sieving bulk soil samples and excavation activities for the underground cables prior to removal.

The Auditor considers that the remediation works undertaken were generally in accordance with the RAP (Jacobs, 2017a) and the requirements of NSW EPA endorsed guidelines.

The original waste dockets, as they relate (in part) to S261, were provided by Jacobs on request from the Auditor. The Auditor has undertaken a review of the waste dockets provided that were associated with S261, including type, quantity and final destination for disposal. The Auditor is satisfied that the waste was handled appropriately during the remediation works.

The Auditor notes that the treatment and placement of soil from S261 in the containment cell on S265 will be subject to future review as part of the works associated with S265.

7.2 Validation Works

7.2.1 Validation Strategy

The Validation Report (Jacobs, 2017d) described the validation strategy as comprising the following:

- Validation of soils contaminated (or potentially contaminated) with chemical contaminants of concern. This was achieved by:
  - Classification sampling of soil in stockpiles, either for potential re-use on-site or for off-site disposal to a licenced facility (Shoal Bay landfill) or the S265 containment cell; and / or
  - Validation soil sampling around the footprints of remediation works areas where soils contaminated (or potentially contaminated) with chemical contaminants of concern have been removed.
- Validation of the removal of asbestos containing materials (including asbestos in soil) in accordance with a Remediation Work Area specific Asbestos Removal Control Plan (ARCP) the achieved by:
  - A systematic visual survey for surface asbestos by teams walking 15 to 20 m transects and follow up inspection by a licenced Occupational Hygienist with issue of a Clearance Certificate.
  - Completion of airborne fibre monitoring in order to validate the effectiveness of asbestos controls during removal activities.
  - Soil sampling for ACM in soil in accordance with WA DoH Asbestos Guidelines (WA DoH, 2009), and / or
  - Soil sampling for FA / AF in soil in accordance with WA DoH Asbestos Guidelines (WA DoH, 2009).
- Visual confirmation that items incompatible with the proposed future use of the site from an aesthetic perspective have been removed. This relates to remnant infrastructure as well as miscellaneous general waste items / rubbish.
- Continual reporting of site management practises throughout the duration of remediation.
- Oversight of the works by an experienced Environmental Scientist and Project Manager from Jacobs.
- A visual record visual record (e.g. photographs) was maintained of material being excavated and stored ready for treatment, then either placed into the on-site containment cell or disposed off-site. Photographs were included in the Validation Report.

- Periodic review of pertinent records maintained by the RWC, such as material handling records, waste disposal records and induction / training records
- Periodic environmental and safety audits at the site to assess the level of RWC compliance with the overarching Construction Environment and Heritage Management Plan (CEHMP) and Work Health and Safety Management Plan (WHSMP) for the project.
- Review by Jacobs of the RWC's key project documentation including (but not limited to) work plans, safety plans, induction material, environmental management plans, quality plans and similar.

7.2.2 Validation Sampling and Analytical Suites

The Validation Report indicated that the validation sampling was undertaken in accordance with AS4482.1 2005 *Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil* (Standards Australia, 2005) and the ASC NEPM (2013) as well as WA Asbestos Guidelines (WA DoH, 2009), NSW EPA *Sampling Design Guideline* (NSW EPA, 1995) and the EPA Victoria guideline document *IWRG Soil Sampling – Publication 702* (EPA Victoria, 2009).

Table 9 provided a summary of the samples collected and the analytical suite for the analysis of the samples as reported in the Validation Report. A log of the validation samples collected from the RWAs on S261 was presented in the Validation Report and provided sample identification (IDs), coordinates of the sample location and soil descriptions.

Table 9 Validation Sampling and Analytical Suites

Remediation Area	Size	Minimum Sample No.*	No. of Samples	Sample ID Prefix	Analytical Suite
General site area – Area E (Radio Australia Cleared Area)^					
RWA A					
Underground services – material sample	-	-	8	C1 – C8	PCBs, pesticides (OCPs)
RWA F					
Validation of bitumen road	11,000 m^2	-	18	S262_BAR_V	13 NEPM metals[1], TRH (NEPM Fractions) BTEX and/or PAHs, OCPs, OPPs, PCBs, Asbestos[4]
RWA G Three clean fill stockpiles					
Validation of material storage bay stockpile SP_F_A	400 m^3	10-	10	S262-ECA-B-A	13 NEPM metals[1] or W C-2[3] and Asbestos[4]
Validation of material storage bay stockpile SP_F_D	40 m^3	3	3	S262-ECA-B-D	13 NEPM metals[1] or WC-2[3] and Asbestos[4]
Validation of material storage bay stockpile SP_F_N	25 m^3	3	3	S262-GEN-B-N	13 NEPM metals[1] or WC-2[3] and Asbestos[4]
ACMA Compound – Area A (ACMA Main Compound)					
RWA A Minor Slab					
Confirmatory sampling of bitumen layer and underlying sands	23 m^2	-	3	S261_ACMA_BS	OCPs, TRH + PAH[8]
Round 1 validation sampling beneath minor		-	6	S261_ACMA_BSV	OCPs

Remediation Area	Size	Minimum Sample No.*	No. of Samples	Sample ID Prefix	Analytical Suite
slab after contaminated soils removal					
Round 2 validation sampling North of minor slab in area of failed validation		-	1	S261_ACMA_BSV	OCPs
RWA A Major Slab					
Round 1 validation sampling beneath major slab area after slab removal	899 m^2	-	55	S261_ACMA_V	OCPs
Round 2 validation sampling beneath areas of soil removed following failure of validation samples from Round 1	494 m^2	-	33	S261_ACMA_V	OCPs
Round 3 validation sampling beneath areas of soil removed following failure of validation samples from Round 2	131 m^2	-	10	S261_ACMA_V	OCPs
Water tank stand					
Validation beneath water tank stand after removal thin bitumen layer	70 m^2	-	4	S261_ACMA_WTS	OCPs
Materials storage bay					
Validation of base of materials staging bay excavation	4 m^2	-	2	S261_ACMA_MSB	OCPs
Validation of material storage bay stockpile S261_ACMA_SP_01	2 m^3	2	2	S261_ACMA_SP	WC 1[2], PCBs
Validation of material storage bay stockpile S261_ACMA_SP_02					
Antenna footing stockpiles					
Validation of S261_ACMA_SP_01	10 m^3	3	2	S261_ACMA_AF	OCPs
Validation of S261_ACMA_AF_SP02			1		
Stockpile footprint area					
Validation Round 1 - Footprint of stockpile area after removal of stockpiles and	18 m^2	-	6	S261_ACMA_SP	OCPs

Remediation Area	Size	Minimum Sample No.*	No. of Samples	Sample ID Prefix	Analytical Suite
underlying sacrificial layer					
Validation Round 2 - Footprint area that failed validation Round 1	6 m^2	6	1	S261_ACMA_SP	OCPs
Validation of footprint of stockpile area after removal of stockpiles and underlying sacrificial layer.	18 m^2	-	6	S261_ACMA_SFP	OCPs, TRH[9]
RWA F					
Validation of bitumen road within Area A	300 m^2	-	3	S261_BAR_V	13 NEPM metals[1], TRH (NEPM Fractions) BTEX and/or PAHs, OCPs, OPPs, PCBs, Asbestos[4]
RWA G UST service lines					
Confirmatory sample of liquid within redundant pipework	-	-	1	S261_UST	TRH fingerprint, TRHs
Validation around UST service lines and area of removed stained soil	40 m^2	-	4	S261_ACMA_V_UST	TRHs
RWA G UST excavation pit walls and base					
Validation Round 1 - Walls and base of excavation pit	100 m^2	-	34	S261_UST_V	13 NEPM metals[1], TRH (NEPM Fractions), BTEX, PAHs, OCPs, OPPs, PCBs
Validation Round 2 – of area failed validation Round 1	18 m^2	-	6	S261_UST_V	13 NEPM metals[1], TRH (NEPM Fractions), BTEX, PAHs, OCPs, OPPs, PCBs
RWA G UST overburden					
Validation of S261_UST_SP01	49 m^3	3	3	S261_UST_SP01	WC 3[10]
Validation of S261_UST_SP02	20 m^3	3	3	S261_UST_SP02	WC 3[10]
Validation of S261_UST_SP03	22 m^3	3	3	S261_UST_SP03	WC 3[10]
Validation of S261_UST_SP04	3 m^3	3	3	S261_UST_SP04	WC 3[10]
Validation of S261_UST_SP05	5 m^3	3	3	S261_UST_SP05	WC 3[10]
Validation of S261_UST_SP06	6 m^3	3	3	S261_UST_SP06	WC 3[10]

Remediation Area	Size	Minimum Sample No.*	No. of Samples	Sample ID Prefix	Analytical Suite
Validation of S261_UST_SP07	1 m^3	3	3	S261_UST_SP07	WC 3[10]
Validation of S261_UST_SP08	6 m^3	3	3	S261_UST_SP08	WC 3[10]
S261_ACMA_V_UST_SP01	3 m^3	3	6	S261_ACMA_V_UST_SP01	TRH, BTEXN (15 Jul) and WC-1[2] and Asbestos (AS4964) (28 Jul)[11]
ACMA Compound – Area C (ACMA HFDF Compound)					
RWA E					
Validation of HFDF area after footings removal	96 m^2	-	25	S261_HFDF_V	13 NEPM metals[1], TRH (NEPM Fractions) BTEX and/or PAHs, OCPs, OPPs, PCBs, Asbestos[4]
HFDF Shed					
Validation beneath shed slab after slab removal	22 m^2	-	2	S261_HFDF_V	13 NEPM metals[1], TRH (NEPM Fractions), BTEX, PAH, OCPs, OPPs, PCBs
Confirmatory sample beneath shed slab after slab removal	-	-	1	S261_HFDF	Asbestos[4]
Confirmatory sample of material from former shed	-	-	1	S261_HFDF_ASB	Asbestos[4]

^*Note that the heading of the Table 6.3 of the Validation Report (Jacobs, 2017d) refers only to RWA F, however the table also includes RWA A which are located within Area E (Radio Australia Cleared Area).*

* *Minimum sampling for excavations was based on NSW EPA Sampling Design Guidelines (NSW EPA, 1995) to detect circular hot spots with a radius of seven metres with 95% confidence using a grid sampling pattern. Minimum sampling requirement for stockpile was based on EPA Victoria IWRG702 Industrial Waste Resource Guidelines, Soil Sampling (EPA Victoria, 2009)*

1. 13 NEPM metals (As, Be, Ba, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, V, Zn)

2. WC-1: NSW EPA waste classification suite (refer Table 1 the NSW EPA 2014 Waste Classification Guidelines – Part 1: Classifying Waste)

3. WC-2: Metals (As, Be, Cd, Cr6+, Pb, Hg, Mo, Ni, Se, Ag), PAHs, OCPs, OPPs, PCBs, TRH (>C6 – C9, >C10 – C36)

4. Asbestos presence/ absence

5. NEPM HIL screen: TRH/ Phenols/ PAH/ OCP/ PCB/ Metals (As, Ba, Be, B, Cd, Co, Cr, Cu, Mn, Hg, Ni, Pb, V, Zn)/ Cr3+, Cr6+/ CN/ CN Free/ Total Sulphur/ Sulphate (1:5ratio)/ Total Phosphorous

6. Only a single sample for this stockpile was analysed for asbestos presence/ absence.

7. VAL 1: Metals (13)5, TRH (NEPM Fractions)6, BTEX, VAL 2: Metals (13)5, TRH (NEPM Fractions)6, BTEX, PCBs, VAL 3: Metals (13)5, TRH (NEPM Fractions)6, BTEX, OCPs, OPPs, VAL 4: Metals (13)5, TRH (NEPM Fractions)6, BTEX, PAHs, OCPs, OPPs, PCBs

8. Only a single sample was analysed for TRH + PAH.

9. Only samples S261_ACMA_SFP_0007 to S261_ACMA_SFP_0010 were analysed for TRHs.

10. WC 3: WC1[2] plus TRH, PCBs and asbestos in soil (AS4964-2004)

11. Three samples collected on 15 July 2016 were analysed for TRHs and BTEXN. A further three samples were collected at the same locations and were analysed for W C 13 plus asbestos (AS4964).

The Validation Report stated that the analysis of samples was undertaken by Eurofins (Oakleigh, Victoria) as the primary laboratory and Australian Laboratory Services (Springvale, Victoria) as the secondary laboratory, with analysis for asbestos undertaken by Eurofins (Sydney, NSW). The Validation Report stated that the laboratories are accredited by the National Association of Testing Authorities (NATA) for the analytical techniques required.

7.2.3 Asbestos Validation

The Validation Report provided a summary of the asbestos validation methodology which comprised the following key components:

- A site reconnaissance by the licenced asbestos removalist and Occupational Hygienist to inspect material condition, location and density to confirm the manual approach to the clearance process in accordance with the RAP and RCS.
- Systematic survey of the works area by the licenced asbestos removalist, performed by a team walking transects (15 to 20 m) across the area.
- An inspection of cleared areas was undertaken by the Occupational Hygienist in order to verity that removal of visible asbestos has been completed effectively. This was documented in the form of an asbestos Clearance Certificate for each relevant RWA.
- Collection of samples from the relevant RWAs (Area E - RWA A, F, Area A RWA A, E, G and Area C RWA E) to assess for the presence of ACM, as well as FA/AF was in accordance with the WA Asbestos Guidelines (WA DoH, 2009) and the ASC NEPM (2013) as follows:
    - Collection of bulk 10 litre samples from each sample point. Samples were sieved onsite using a 7mm metal sieve and ACM identified was separated out and sent to the laboratory for confirmatory analysis and to be weighed.
    - Representative soil samples (each 500ml) from the sub-7mm fraction of sieved soil were also analysed for asbestos fines and fibrous asbestos.
    - The works were undertaken by an Environmental Scientist with at least 3 years of asbestos in soil experience. Curriculum Vitae (CV) of relevant personnel were provided.

7.2.4 Validation Criteria

The S261 RAP and Validation Report provided a summary of the validation criteria for soil which were stated to be based on the proposed Public Open Space land use. The Validation Report stated that the validation criteria were based on the criteria defined in the ASC NEPM (2013) as follows:

- HILs and HSLs for Public Open Space use (HIL-C and HSL-C).
- HSLs for asbestos in soil for recreation land use (HSL-C)
- EILs and ESLs for Areas of Ecological Significance. The criteria included the site specific EILs developed for the site as discussed in **Section 4.3** of this SAR.
- ESLs for petroleum hydrocarbons in soils for Areas of Ecological Significance.

The S261 RAP also indicated the following were considered:

- Consideration of aesthetics including, but not limited to, presence of building materials, plastics, rubber, textiles and glass as well as odours, sheens and staining.
- Clean fill for reuse on the site was required to meet the criteria above, including health and ecological criteria and must meet the aesthetic criteria.

Jacobs noted that the adopted NEPM guidelines for asbestos specifies a screening guideline of 0.001% w/w for FA / AF (refer Appendix C. It is noted that the laboratory undertakes analysis in accordance with Australian Standard method AS4964-2004 with an inherent detection limit of 0.01% w/w (i.e. the guideline value in the NEPM is lower than the accredited detection limit reportable by the laboratory)).

The Auditor considered that the S261 Validation Report (Jacobs, 2017d) provided a suitable summary of remediation and validation works and the validation criteria.

The Auditor notes the constraints associated with utilising the ASC NEPM guidelines for asbestos screening guideline of 0.001% w/w for FA / AF and the suitability of measures implemented by Jacobs by which in the event that the laboratory reports no asbestos fibres detected in a given sample, Jacobs consider the result to meet the site acceptance criteria of 0.001% w/w. However, in the event those asbestos fibres are detected in a sample at concentrations below the HSL of 0.001% w/w by means of a non-NATA accredited laboratory method, Jacobs considered this to be an inconclusive result, because there remained the potential the non-accredited result underestimated the true asbestos concentration due to the limitations associated with the identification and weighing of all fibres present in a given sample.

8.0 Results

8.1 QA/QC Summary

The Validation Report (Jacobs, 2017d) stated the QA/QC program for the investigations were completed in general accordance with recommended good practice, standards and guidelines relevant to the investigation (such as AS44821-2005 and AS56671-1998).

The information presented in **Table 10** and **Table 11** below provides a summary of the QA/QC program as reported in the Validation Report.

Table 10 Field QA/QC

Protocol	Description
Sampling Team	The soil removal was overseen and redirected by an experienced Environmental Scientist and the asbestos validation works were undertaken by an Environmental Scientist with at least three years of asbestos in soil experience.
Chain of Custody Forms	All samples were required to be logged and transferred under appropriately completed Chain of Custody (CoC) documentation. CoC documentation was provided in Appendix I of the S261 Validation Report.
Preservation	The QA/QC program required that all samples be received at the laboratory in appropriately preserved containers and samples placed on ice in eskies. Laboratory sample receipts were presented with CoCs in Appendix I of the S261 Validation Report.
Decontamination	Reusable equipment (e.g. trowels) were cleaned with decontaminant solution (Decon 90), rinsing in tap water and then rinsing in deionised water.
Rinsate Blanks	Rinsate blanks were taken during soil sampling at a rate of one per day where reusable equipment was used (stainless steel trowel). The rinsate samples were collected off the trowel steel. The Validation Report indicated that the potential for cross contamination between samples was considered unlikely given the sampling methodology followed which included use of fresh nitrile gloves for each sample.
Trip Spikes.	Trip spikes were not used during the validation as Jacobs stated that the key contaminants of concern were not volatile.
Field & Trip Blanks	Trip blanks were not used during the validation works. Jacobs did not indicate why they were not used.
Duplicate (intra laboratory) and Split (inter laboratory) Samples	Duplicate and split samples were reportedly prepared in accordance with AS4482.1-2005. Jacobs analysed fourteen sets of replicates for S261 for a total of 275 primary samples (a frequency of 1 in 20 samples). This frequency meets the requirement of 1 in 20 based on the 275 primary samples. Jacobs did not collect duplicate samples for asbestos analysis. Exceedances of the required RPDs were reported 27 instances, with nine of these related to the RPD results for blind duplicates and 18 for split samples. Jacobs assessed that the exceedances did not affect the outcome of the assessment particularly as the results were less than the adopted validation criteria and reported at relatively low concentrations. Given that RPD results were generally within acceptable limits, and that those exceedances that were reported were for samples reporting low concentrations, these results are not considered to indicate a broader issue with the precision / accuracy of reported results. As a percentage, 96% of RPD results were compliant with the required acceptance thresholds. Jacobs (2017d) also noted that exceedances for either aldrin or dieldrin typically also resulted in exceedances for aldrin + dieldrin, thereby increasing the overall number of non-compliances reported.

Table 11 Laboratory QA/QC

Protocol	Description
Holding Times	The QA/QC program required that all samples be kept in secure, chilled eskies and either transported to the primary laboratory directly or via courier under COC procedures. Sample transfer and receipt details were provided with the Laboratory analytical results in the Validation Report. Whilst not specifically discussed in the Validation Report, the Auditor's review of the laboratory certificates indicated that holding times were met for the specified analytes.
Laboratory Duplicates	Laboratory duplicates were completed at a minimum frequency of 1 in every 10 samples or at least 1 duplicate per- batch, (whichever is the smaller). The RPD criteria were based on 30%; however some laboratories have other acceptance limits. The following acceptance criteria applied: • Eurofins considers: - Where results are <10 times the LOR, there is no limit - Results between 10-20 times the LOR, the RPD must lie within 0-50% - Results >20 times the LOR, the RPD must lie between 0-30%. • ALS considers: - if the results are within 10 times the LOR no limit applies - if results are greater than 10 times an RPD between 0 and 20% is acceptable. The Validation Report stated that in general, the RPD results of laboratory duplicate samples within the acceptable criteria with no results greater than 50%, with the exception of several instances. These instances passed following further review against Eurofins acceptability criteria, detailed above.
Laboratory Control Standard	Laboratory Control Samples were completed at a minimum frequency of 1 in every 20 samples or at least 1 per sampling batch. The Eurofins acceptance criterion for metals was 80 - 120%. The Validation Report stated that ALS have different recovery ranges for each analyte. All laboratory control sample recoveries were reported within the required ranges over the sampling program.
Matrix Spikes	Matrix spikes were completed once in every 20 samples or once per batch, whichever is more frequent. The Eurofins acceptance criteria for metals were 75— 130%. The Validation Report stated that ALS have different recovery ranges for each anatyte. All laboratory control sample recoveries were reportedly within the required ranges over the sampling program, with the exception of the following due to sample matrix interference: • Aldrin and dieldrin from report 506933-S • Dieldrin from report 507271-S • Dieldrin from report 508414-S • TRH C6-C9 (45%) and TRH C6-C10 (41%) from report 508439-S • Cyanide (total) (65%) from report 509969 • Fluoride (66%) and 1,1-dichloroethene (50%) from report 510972-S • 1,1-dichloroethene (66%) from report 512718-S • Heptachlor (137%) from report 523070-S Jacobs provided the following reasons for matrix spike exceedances in the Validation Report: • matrix spike exceedances for pesticides and hydrocarbons generally correlated with sample batches that reported elevated concentrations of these same analytes in soil samples. Corresponding laboratory control samples reported results for these analytes within acceptable ranges, thereby indicating matrix interference due to elevated soil contaminant concentrations.

Protocol	Description
	• For other exceedances, the analytes in question did not represent contaminants of concern at the site (cyanide, fluoride and chlorinated solvents for example). On the basis of the above, the results obtained were considered acceptable.
Laboratory Blanks	Laboratory blanks were completed at a minimum frequency 1 in every 20 samples or at least 1 per sampling batch. All analytes were reported below LORs, with the exception of the following: • Tetrachlorvinphos (0.5 mg/kg above the 0.2 mg/kg LOR) • Tokuthion (0.3 mg/kg above the 0.2 mg/kg LOR). Jacobs identified the two analytes detected have not previously been detected at Cox Peninsula. On this basis, the above detections in laboratory blanks were not considered to pose any impact on the integrity of the samples analysed.

8.1.1 QA/QC Conclusions

The Validation Report stated that overall the program was adequate considering the scope and nature of the assessment program undertaken and that the data obtained for the investigations was considered sufficiently reliable for the purpose for which it has been obtained and used.

The Auditor considers that the QA/QC results were generally reported in accordance with the requirements of NSW EPA guidance. The Auditor has undertaken an independent review of the laboratory data provided by Jacobs and considers that the results are of an appropriate quality for the purposes of environmental investigation.

The Auditor notes that the Validation Report did not specifically discuss the procedure for collection of duplicate samples including if samples were mixed prior to splitting. It is noted that in accordance with the ASC NEPM (2013) duplicate samples (for non-volatile organic compound analysis) should be homogenised. However, based on the sample descriptions and the analytical results for the primary and duplicate samples, the Auditor considers that the lack of mixing does not affect the overall outcome of the validation works.

The Auditor noted that sample temperatures were not provided in laboratory reports by the primary laboratory. However, the weight of evidence provided by Jacobs shows that all reasonable efforts were made to ensure samples were received chilled on arrival at the analysing laboratory.

The Auditor notes that Jacobs indicated trip spikes were not utilised because key contaminants of concern were not volatile. Some samples collected from a localised TRH hotspot in the vicinity of the former USTs were analysed for volatiles (e.g. TRH C_6-C_{10}) and hence trip spikes and blanks should have been considered. It is noted, however, that the localised TRH hotspot was associated with fractions >C_{10} and that the samples were analysed for C_6-C_{10} for the purposes of waste classification, with results reported as less than the LOR. On this basis, the lack of trip spikes and blanks is not considered to affect the overall suitability of the data for use and the outcome of the validation works.

8.2 Validation Summary – General Site Area

8.2.1 General Site Area – RWA A/ RWA B

Redundant underground services and associated infrastructure

Underground services (conduits and cables) and associated surface infrastructure (pits and markers) were removed as part of the remediation project. Figure 3 of the S261 Validation Report (presented in **Appendix A** of this SAR) identified the location of the underground services and associated infrastructure.

Analytical results from sampling of the different types of cables were presented in Table H.1 of Appendix H of the Validation Report. A copy of Table H.1 is presented in **Appendix D** of this SAR.

No pesticides or PCBs were detected above the limit of detection. Therefore Jacobs assessed that no supplementary validation sampling along the alignment of cables was necessary.

The Validation Report stated that all identified underground cables had been adequately removed and that all waste materials generated (asbestos, cables and conduit) were appropriately handled and disposed of. Material tracking records were presented in Appendix G of the S261 Validation Report.

Asbestos

The Validation Report stated that in total, 633 linear m of asbestos conduits were removed from S261.

The Validation Report stated that General Site Area – RWA A and RWA B was subsequently cleared by the Occupational Hygienist to confirm removal of visible asbestos had been undertaken. Clearance certificates were included in Appendix J of the Validation Report.

The material, once securely bagged was transported by an NT EPA licensed asbestos waste transporter for temporary storage in a secure compound prior to disposal into S265 containment cell. The Material Tracking Register was included in Appendix G of the Validation Report.

8.2.2 General Site Area – RWA C / RWA D

Asbestos

The identified contamination for General Site Area – RWA C and RWA D was associated with ACM fragments at surface inside Tip Site E-1 and in general area surrounding Area A. Figure 4 of the S261 Validation Report (presented in **Appendix A** of this SAR) identified the location of the areas.

Less than 1 m^3 of non-friable ACM was removed from site in accordance with the Asbestos Removal Control Plan (ARCP) for S261. A systematic emu-pick for removal of identified visible ACM at the surface of Tip Site E-1 and surrounding Area A was completed by removalists. The survey was performed by a team walking transects (15 to 20 m) across the area.

The Validation Report stated that General Site Area – RWA A and RWA B was subsequently cleared by the Occupational Hygienist to confirm removal of visible asbestos had been undertaken. Clearance certificates were included in Appendix J of the Validation Report.

The material, once securely bagged was transported by an NT EPA licensed asbestos waste transporter for temporary storage in a secure compound prior to disposal into S265 containment cell. The Material Tracking Register was included in Appendix G of the Validation Report.

8.2.3 General Site Area – RWA E

Aesthetics

The Validation Report stated that approximately 168 m^3 of concrete footings and miscellaneous items were removed from the redundant antenna area (refer to Figure 5 of the Validation Report, presented in **Appendix A** of this SAR). An inventory of footings and material tracking records were also provided in Appendix G of the Validation Report.

No soil sampling was undertaken following removal of items identified (due to the inert nature of the waste materials noted). Jacobs carried out visual inspections of the area to validate that the items had been removed.

8.2.4 General Site Area – RWA F

Chemical Analysis

The Validation Report stated that approximately 520 tonnes of bitumen was removed from RWA F (including bitumen removed from ACMA RWA E (refer to **Section 8.3.5**)). The location is presented in Figure 6 of the Validation Report, presented in **Appendix A** of this SAR. The analytical results for the validation samples were presented in Data Table B of the Validation Report a copy of which is presented in **Appendix D** of this SAR.

A total of 18 surface soil samples were collected during validation sampling following removal of the bitumen. All results reported concentrations of all contaminants of concern below S261 acceptance criteria.

Jacobs was satisfied that no residual contamination remained within General Site Area – RWA F and that remediation activities have been undertaken to the extent practicable and in accordance with the S261 RAP (Jacobs, 2017a).

Aesthetics

The Validation Report stated that aesthetic issues where identified for General Site Area – RWA F associated with the bitumen road. The removal of the bitumen was completed. Material Tracking Register was included in Appendix G of the Validation Report.

8.2.5 General Site Area – RWA G

Chemical Analysis

The Validation Report stated that inspection of three stockpiles, totalling approximately 465 m^3 identified minor general waste items in the form of concrete pieces. The location is presented in Figure 7 of the Validation Report, presented in **Appendix A** of this SAR.

Samples of the stockpiles were completed for a broad suite of contaminants of potential concern. The analytical results for the validation samples were presented in Data Table C of the Validation Report a copy of which is presented in **Appendix D** of this SAR. All samples obtained as part of the earlier site investigations at General Site Area - RWA G reported concentrations of chemical contaminants of potential concern below the S261 validation criteria.

Based on the results of the stockpile sampling and following removal of minor concrete pieces, all the stockpiles (SP_F_A, SP_F_D and SP_E_N) were considered to be suitable for re-use at the site. The location of these stockpiles, as well as the fact that they had already been spread out in order to remove concrete pieces, lead to the decision to leave the material in its original location.

Asbestos

No asbestos was detected in any of the samples submitted for laboratory analysis.

8.3 Validation Summary – ACMA Compound

8.3.1 ACMA Compounds – RWA A

Chemical Analysis

The Validation Report stated that the removal of OCP contaminated concrete slabs and the underlying soils were completed for the ACMA compound –RWA A in the following areas:

- Minor slab - ~6 m^3 soil removed, 11 samples collected (Figure 8b and Data Table D of the Validation Report)
- Major slab - ~485 m^3 soil removed, 98 samples collected (Figure 8c and Data Table E of the Validation Report)
- Water tank slab - 2 m^3 bitumen and sand, 4 samples collected (Figure 8d and Data Table F of the Validation Report)
- Antenna footing - ~8 m^3 soil removed, 3 samples collected (Figure 8d and Data Table G of the Validation Report)
- Material storage bay - ~2 m^3 soil removed, 4 samples collected (Figure 8e and Data Table F and Data Table G of the Validation Report)
- Stockpile footprint (major slab) - ~6 m^3 soil removed, 6 samples collected (Figure 8f and Data Table H of the Validation Report).

The figures and tables identified above for ACMA Compounds - RWA A are presented in **Appendix A** and **Appendix D**, respectively, of this SAR.

Validation sampling was completed on the concrete slabs and the underlying soils for the contaminant of concern, OCP (aldrin+dieldran). Where results exceeded the S261 validation criteria, additional remediation and sampling was carried out. Following completion of validation sampling, Jacobs was satisfied that the results confirmed that the soil removal activities were performed adequately and that there was no evidence of residual contamination remaining at the nominated locations. It is noted that other remediation and validation activity associated with the stockpile footprint and USTs are presented further in **Section 8.3.7** of this SAR.

The concrete slabs and contaminated soils associated with the ACMA Compound – RWA A was removed to the extent practicable.

8.3.2 ACMA Compounds – RWA B

The validation results for this ACMA Compounds – RWA B comprising underground services within Areas A and C are included within the results presented in **Section 8.2.1** because the activities were undertaken in parallel across S261.

8.3.3 ACMA Compounds – RWA C

Asbestos

The Validation Report stated that approximately 3 m^3 of ACM and concrete was removed from ACMA Compound – RWA C and that ACM was removed from the stockpile and bagged / wrapped prior to placing in a lined skip bin for disposal off-site. The concrete waste was transported to S265 where it was placed in the concrete stockpiling area for crushing and either disposal in the containment cell or re-used on S265. The location of ACMA Compound – RWA C is presented in Figure 10 of the Validation Report, presented in **Appendix A** of this SAR.

The Validation Report stated that ACMA Compound – RWA C was subsequently cleared by the Occupational Hygienist to confirm removal of visible asbestos had been undertaken. Clearance certificates were included in Appendix J of the Validation Report.

There were no detections for AF / FA reported by the laboratory in the sub-7mm sieved fraction of the three validation samples collected from the ground surface around the stockpile (in location where the slab did not extend. The analytical results for the validation samples within the ACMA – RWA C were presented in Data Table Q of the Validation Report, a copy of which is presented in **Appendix D** of this SAR.

Jacobs was satisfied that the removal of the stockpile and any material remaining at the surface, including ACM, at ACMA Compounds – RWA C had been undertaken to the extent practicable and in accordance with the ARCP. The condition of ACMA Compounds – RWA C is now considered suitable for the proposed open space land use.

8.3.4 ACMA Compounds – RWA D

Aesthetics

The Validation Report stated that approximately 168 tonnes of concrete footings were removed with an excavator and backfilled from Area C – ACMA HFDF compound, known as ACMA Compounds – RWA D (refer to Figure 11 of the Validation Report, presented in **Appendix A** of this SAR). The material tracking records were also provided in Appendix G of the Validation Report.

Jacobs carried out visual inspections of the area to validate that the items had been removed.

Chemical Analysis

The Validation Report stated that 25 surface soil samples were collected in a grid pattern across ACMA Compounds – RWA D. All results reported concentrations of all contaminants of concern below S261 acceptance criteria. The analytical results for the validation samples within the ACMA Compounds – RWA D were presented in Data Table I of the Validation Report, a copy of which is presented in **Appendix D** of this SAR.

Jacobs was satisfied that no residual contamination remained within ACMA Compounds – RWA D and that remediation activities have been undertaken to the extent practicable and in accordance with the S261 RAP (Jacobs, 2017a).

Asbestos

A single confirmatory sample of suspected ACM from the shed was collected and a single soil sample from beneath the former shed was analysed for asbestos. No asbestos was detected in any of the samples submitted for laboratory analysis.

8.3.5 ACMA Compounds – RWA E

Aesthetics

The Validation Report stated that approximately 520 tonnes of bitumen was removed by an excavator from the bitumen access road within Area A – ACMA Main Compound, known as ACMA Compounds – RWA E (refer to Figure 12 of the Validation Report, presented in **Appendix A** of this SAR). It is noted that amount of bitumen removed includes the bitumen removed from the General site area – RWA F (refer to **Section 8.2.4**). The material tracking records were also provided in Appendix G of the Validation Report.

Chemical Analysis

The Validation Report stated that three validation surface soil samples were collected at the surface upon removal of the overlying bitumen. All results reported concentrations of all contaminants of concern below S261 acceptance criteria. The analytical results for the validation samples within the ACMA Compounds – RWA E were presented in Data Table J of the Validation Report, a copy of which is presented in **Appendix D** of this SAR.

Jacobs was satisfied that no residual contamination remained within ACMA Compounds – RWA E and that remediation activities have been undertaken to the extent practicable and in accordance with the S261 RAP (Jacobs, 2017a).

8.3.6 ACMA Compounds – RWA F

Aesthetics

The Validation Report stated that cyclone fencing and above ground infrastructure was dismantled and transported off-site for recycling from Area A – ACMA Main Compound (~320 linear m) and Area C - ACMA HFDF (~760 linear m) (refer to Figure 13 of the Validation Report, presented in **Appendix A** of this SAR). The material tracking records were also provided in Appendix G of the Validation Report.

Jacobs carried out visual inspections of the areas to validate that the items had been removed in accordance with the S261 RAP (Jacobs, 2017a).

8.3.7 ACMA Compounds – RWA G

UST Decommissioning

The Validation Report stated that two USTs were decommissioned at Area A – ACMA Main Compound, known as ACMA Compounds – RWA G (refer to Figure 14 of the Validation Report, presented in **Appendix A** of this SAR). The following documents are presented in the Validation report:

- Tank destruction certificate, waste water docket and tank cleaning certificate (refer to Appendix K of the Validation Report).
- Waste Water laboratory results (Appendix I and Data Table R of the Validation Report, noting Data Table R is presented in **Appendix D** of this SAR).
- Material tracking register (refer to Appendix G of the Validation Report).

Jacobs were satisfied that the removal of the identified UST infrastructure was undertaken to the extent practicable.

Chemical Analysis

Excavations were undertaken to remove impacted soils associated with the former fuel lines (UST service lines), UST overburden, UST excavation pit and the stockpile footprint area. Validation samples were collected for laboratory analysis. The amount of soil removed from each of the above areas was estimated as follows:

- ~50 m^3 soil removed from the UST service line area (refer to Data Table K presented in **Appendix D** of this SAR).
- ~106 m^3 of soil was removed and segregated into seven stockpiles based on depth and material type (refer to Data Table M presented in **Appendix D** of this SAR).

- ~6 m^3 of soil removed from the UST excavation pit (refer to Data Table L presented in **Appendix D** of this SAR).
- No soil removed from the stockpile footprint area (refer to Data Table N presented in **Appendix D** of this SAR).

The validation results confirmed that the soil removal activities undertaken as part of the UST decommissioning activities were performed adequately and that there was no evidence of residual contamination remaining at the nominated sampling locations. Jacobs was satisfied that no residual contamination remained within ACMA Compounds – RWA G and that remediation activities have been undertaken to the extent practicable.

8.4 Validation Summary Statement

The Auditor considers that the results summary provided in the Validation Report (Jacobs, 2017d) was in general accordance with the requirements of NSW EPA guidance and was appropriate for the purposes of the validation. The condition of S261 is now considered suitable for the proposed Public Open Space land use.

The Auditor notes that in areas where asbestos contamination presented a risk during removal activities, airborne fibre monitoring was conducted in order to validate the effectiveness of asbestos controls established. Monitoring was conducted at the boundary of each nominated work area.

The Auditor notes that Jacobs identified a number of technical exceedances of TRH >C_{10}-C_{16} less Naphthalene (F2) during the validation sampling program as the result of the adopted ESL criterion being lower than the LOR. Evidence presented by Jacobs that actual concentrations of TRH >C_{10}-C_{16} less Naphthalene (F2) were unlikely is considered suitable in this instance. Evidence included that field observations did not indicate hydrocarbon odours or visible staining.

The Auditor acknowledges that Jacobs and the remediation contractors have undertaken remediation of the ACMA Compounds and general area to the extent practicable and in accordance with the ARCP. The Auditor confirms that the wet season (and the associated high surface water runoff) is the most probable cause for asbestos to become exposed in the future and as such, as per Jacobs recommendations, the implementation of the ECP is required (refer **Section 10.0** of this SAR for further details).

9.0 Conclusions and Recommendations of the Validation Report

9.1 Consultant Conclusions

Based on the results of the validation assessment, Jacobs (2017d) considered that S261 had reached an adequate level of clean-up as an outcome of remedial activities and the remediation goals had been achieved.

On this basis, Jacobs concluded that S261 was considered suitable for the proposed future use (Public Open Space).

9.2 Consultant Recommendations

Jacobs recommended that an Environmental Care Procedures (ECP) be developed as a precaution to provide a general framework and procedures to be followed to ensure the continued protection of S261 users and the environment.

Jacobs indicated that the ECP would address the following elements in particular:

- The potential for ACM to remain in sub-surface soils, which may become exposed over time due to erosion processes.
- The potential for previously unidentified underground cables (or associated infrastructure) to be disturbed at S261, including infrastructure that may contain asbestos.
- The potential for unexpected finds of contamination and/or waste dumping to occur in the future.
- Corrective action procedures in the event that an audit of site conditions indicates that improvements need to be implemented to address potential impacts.
- Roles and responsibilities for implementation of the ECP and managing identified environmental issues.

The Auditor considers that the conclusions and recommendations presented in the Validation Report (Jacobs, 2017d) were in accordance with the decision rules identified for the project and the stated objectives.

The Auditor has provided a discussion regarding overall conclusions of the Site Audit in Section 11.0 of this SAR.

10.0 Environmental Care Procedures

10.1 Introduction

As discussed in **Section 9.2**, the Validation Report (Jacobs, 2017d) recommended that an ECP be developed as a precaution given the potential occurrence of ACM or other unexpected finds (contamination, unidentified underground cables or waste dumping) in the future and this was prepared by Jacobs (2017b). A copy of the S261 ECP and the S261 ECP Information Sheet (Jacobs, 2017b and c) are presented in **Appendix E** of this SAR and the following sections provide an overview of the document.

10.2 ECP Objectives

The objective of the ECP was stated to be to provide a general framework to ensure the continued protection of heritage values, site users and the environment for S261.

10.3 Background

The ECP provided an overview of the condition of S262 prior to and after the remediation works which included an overview of the CSM and the remediation works undertaken within S261.

The ECP provided an overview of the proposed future land use and indicated that S261 will be used predominantly for public open space land use.

10.4 ECP Implementation

Jacobs (2017b) stated that the ECP is an active document, which should be implemented by the site owners and needs to be considered by all parties/stakeholders planning to occupy and undertake work at the site. Should any activities need to occur that are not currently covered in the ECP, then the ECP should be updated to include these activities.

The ECP provided a summary of the key stakeholders and responsibilities for implementation of the ECP. The ECP provided a summary of the responsibilities of the parties under the ECP, the key components of which are provided in **Table 12** below. The ECP stated that the activities do not replace regulatory requirements.

Table 12 ECP Responsibilities

Party	Responsibilities and Qualifications under the SMP
Site Owner	• Implementation of ECP. • Overall responsibility for ongoing management, monitoring and reporting requirements specified in the ECP. • Maintain site records related to the implementation of the ECP. • Report and manage rectification of non-conformances of the ECP, including notification to regulatory authorities if required. • Provide site users and workers a copy of the ECP and training related to its implementation. • Organise site inspections and maintenance activities as specified in the ECP. • Manage implementation of any recommendations made by the environmental, OHS or heritage consultants.
Site users/ workers	• Be aware of site risks and obligations included in the ECP. • Implementation of ECP as relevant to their activity. • Report incidents or unexpected finds encountered during works.
Environment Consultant	• Provide advice, as required, relating to the ongoing condition of the site. • Undertake periodic reviews and updates of the ECP.
Occupational Hygienist	• Supervise/ undertake site inspections periodically or as required as specified in this ECP.

Party	Responsibilities and Qualifications under the SMP
	• Issue of asbestos clearance certificates as required. • Assist in periodic reviews and updates of the ECP. • Hold Class A license for handling of friable and non-friable asbestos (in accordance with Northern Territory *Work Health and Safety National Uniform Legislation Act 2014* (NT Government, 2014)). • Notification to NT WorkSafe prior to commencement of work and as appropriate.
Heritage Consultant	• Provide advice as required relating to the ongoing condition of the Site. • Assist in periodic reviews and updates of the ECP.

10.5 Requirements to Manage and Protect the Site

The S261 ECP provided procedures to be followed during works on site, including guidance on health, safety and environment requirements, soil management; unexpected finds (i.e. asbestos, contamination and general waste materials), incident management, waste management and fire management. The ECP noted that it does not include measures for protection of the Aboriginal heritage precincts given the proposed future transfer of S261 to the Traditional Owners.

The ECP stated that the site owner and all personnel undertaking work within S261 will be required to undertake heritage and environmental awareness training. All site workers who intend to undertake excavation or intrusive ground works shall undergo training relating to the ECP. This includes works such as the erection of fencing or signage and other activities that would result in ground disturbance.

The ECP stated that all waste should be disposed of offsite. In the event of any unexpected finds such as asbestos or contamination, all work should cease immediately and the procedures outlined in the ECP should be followed.

10.6 Monitoring and Review

Jacobs stated that the ECP was an active document that applies while the site is maintained in its current condition and is only relevant for the use of the site for Public Open Space.

10.6.1 Ongoing Monitoring

The ECP recommended the following site walkovers be conducted by an Occupational Hygienist:

- Initial walkover at the beginning of the 2017 dry season following vegetation dies back (around May 2017).

The ECP stated that the frequency of the walkovers should be reassessed following the initial 2017 site walkover. It is understood that the initial walkover over was undertaken by the Occupational Hygienist in June 2017. The results of the initial walkover are pending.

Where ACM is identified, the ECP stated that it should be removed by a suitable asbestos removal contractor under supervision of the Occupational Hygienist. The ECP stated that this should be undertaken by emu picking and/or mechanical excavation in accordance with WA Asbestos Guidelines (WA DoH, 2009) and Northern Territory *Work Health and Safety National Uniform Legislation Act 2014* (NTG, 2014) or as superseded. The ECP stated that a clearance certificate should be issued by an Occupational Hygienist after each walkover event.

10.6.2 ECP Review

Jacobs indicated that S261 ECP should be reviewed on a two yearly basis, or when there is a change in site conditions or use, with the review undertaken by suitable qualified environmental or heritage professional.

10.7 Enforceability

In relation to enforceability of the ECP, Finance and the NT EPA have provided confirmation of the mechanism for the enforcement of the ECP by the issue of a Pollution Abatement Notice (PAN) by the NT EPA in accordance with the *Waste Management and Pollution Control Act* (2016).

The PAN will not be issued to the Commonwealth; however it will be issued on the hand over to the NTG. It is understood that the Northern Land Council (NLC) will assume responsibility for S261 following transfer of the land under the Kenbi Land Claim.

The Auditor considers that the S261 ECP was adequate for the purpose intended and, if implemented, would be sufficient to provide a general framework to ensure the continued protection of heritage values, site users and the environment for S261.

The Auditor notes that correspondence has been received from Finance confirming acceptance of the ECP and its requirements. Copies of this correspondence are included in **Appendix B** of this SAR.

The Auditor notes that the PAN has not been issued at the time of preparation of this SAR.

11.0 Overall Audit Conclusions

The methods employed in the assessment and validation work as reported in the S261 SSI Report, RAP, Validation Report and ECP (Jacobs 2016, 2017a, 2017b and 2017d) by and large complied with the relevant NT and NSW EPA guidelines. Where deviations occurred, the Auditor is generally satisfied that these did not adversely impact on the outcome of the work conducted, and hence the proposed land use of S261 for Public Open Space.

The Auditor considers the documents generally followed an appropriate analytical methodology and, when taken as a whole, were sufficient for assessment and remediation or management of soil and groundwater at S261.

The Auditor is satisfied that validation works were robust enough to establish that remediation was undertaken to the extent practicable.

The Auditor is satisfied that Jacobs provided a suitable assessment of the risks to human health and /or environmental receptors associated with concentrations of residual pesticide contamination at the minor and major slabs at Area A (ACMA Compounds –RWA A), as well as hydrocarbon contamination at Area A (ACMA Compounds – RWA G) and asbestos in soil across S261. The Auditor is also satisfied that visible ACM identified at the ground surface in localised areas on Section 261 (including Area E-1 and surrounding Area A) was removed by suitably qualified personnel.

The Auditor is satisfied that the waste materials removed from S261 (including, but not limited to asbestos, concrete, cables and conduit) were disposed of at appropriate destinations, including:

- Shoal Bay landfill (asbestos waste and general rubbish)
- Sims Metal Management (recyclers) (underground cables and other recyclable materials)
- S265 compound (concrete) for either re-use or disposal in the containment cell.

The Auditor also notes that the sites near to S261, i.e. S262 and S263/S264 are subject to a separate review and are not part of this SAR. In addition, the containment cell located on S265, where some of the waste materials and soils from the remediation activities on S261 where relocated, is also subject to a separate review and does not form part of this SAR.

The Auditor is satisfied that the ECP (Jacobs, 2017b) sets out procedures to effectively manage potential occurrences of ACM and /or unexpected finds in the future.

In relation to enforceability of the ECP, Finance and the NT EPA have provided confirmation of the mechanism for the enforcement of the ECP by the issue of a Pollution Abatement Notice (PAN) by the NT EPA in accordance with the *Waste Management and Pollution Control Act* (2016). The PAN will not be issued to the Commonwealth, however will be issued on the hand over to the Northern Territory Government. It is understood that the Northern Land Council (NLC) will assume responsibility for S261 following transfer of the land under the Kenbi Land Claim.

The Auditor notes that the PAN has not been issued at the time of preparation of this SAR.

Therefore, the Auditor concludes that the detected contamination at S261 has been either suitably remediated or will be suitably managed such that it will pose no unacceptable risk and considers that S261 has been rendered suitable for the proposed Public Open Space land use.

12.0 References

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Appendix A

Figures

Appendix A Figures from Jacobs Reports

Figure 1 - Site Location Plan from S261 Validation Report (Jacobs, 2017d)

Figure 2 - Site Layout Plan from S261 Validation Report (Jacobs, 2017d)

Figure 7i - Sensitive Local Environments from S261 SSI Report (Jacobs, 2016)

Figure 7ii - Topography and Environmental Receptors from S261 SSI Report (Jacobs, 2016)

Figure 2: Remediated/disturbed areas of S261 from S261 ECP (Jacobs, 2017b)

The following additional Figures were sourced from the from S261 RAP (Jacobs, 2017a)

Figure 8 - Indicative Groundwater Contours, Dry Season 2013

Figure 9i - Indicative Groundwater Contours, Wet Season 2014

Figure 9ii - Indicative Groundwater Contours, Wet Season 2015

Figure 14 - Remediation Works Area, General

Figure 15 - Remediation Works Area, ACMA Compounds

The following additional Figures were sourced from the S261 Validation Report (Jacobs, 2017d):

Figure 3 (Map 1 to 5 - General Site Area RWA A and B – Underground Services and Asbestos Service Pits

Figure 4 - General Site Area RWA C and D - ACM at surface of Area E-1 and cleared area

Figure 5 - General Site Area RWA E – Antenna footings and surficial waste items

Figure 6 - General Site Area RWA F – Bitumen access road

Figure 7 - General Site Area RWA G – Three clean fill stockpiles with concrete and steel

Figure 8a - ACMA compounds RWA A - Overview

Figure 8b - ACMA compounds RWA A - Minor slab

Figure 8c - ACMA compounds RWA A – Major Slab

Figure 8d - ACMA compounds RWA A – Water Tank Slab and antenna footing

Figure 8e - ACMA compounds RWA A – Materials Storage Bay

Figure 8f - ACMA compounds RWA A – Stockpile footprint area

Figure 9 - ACMA compounds RWA B - Underground services

Figure 10 - ACMA compounds RWA C - Stockpile with asbestos waste

Figure 11 - ACMA compounds RWA D – Antenna footings

Figure 12 - ACMA compound RWA E – Bitumen access road

Figure 13a - ACMA compounds RWA F –Cyclone fencing and miscellaneous above ground infrastructure (Area A)

Figure 13b - ACMA compounds RWA F –Cyclone fencing and miscellaneous above ground infrastructure (Area C)

Figure 14a - ACMA compounds RWA G – UST service lines

Figure 14b - ACMA compounds RWA G – UST excavation pit

Figure 14c - ACMA compounds RWA G – Stockpile footprint area

Cox Peninsula Remediation Project

Figure 1 - Site Location Plan
Cox Peninsula, NT

672,000 680,000 688,000 696,000 704,000

8,632,000
8,624,000
8,616,000
8,608,000

Section 41
Section 265
Section 266
Section 263
Section 264
Section 262
Section 262
Section 261

WAGAIT SHIRE COMMUNITY
BELYUEN
DARWIN

Stuart Highway
Waterlilly Creek
Corrawara Creek
Cox Peninsula Road

Legend

- Section Boundary
- Major Road
- Minor Road
- Track
- Watercourse
- Waterbody
- Built Up Areas

N

GDA 1994 MGA Zone 52

0 2.5 5
Kilometres

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Cox Peninsula Remediation Project

Figure 2 - Site Layout Plan
Sections 261, 262, and 263/264

688,000

690,000

8,622,000

8,620,000

8,618,000

Area D - Wagait Shire Tip

Section 263

Section 264

Section 262

Section 262

Tip Site E-3

Tip Site B

Tip Site E-2

Cox Peninsula Road

Tip Site E-1

Section 261

Area F - Eastern Cleared Area

Area A - ACMA Main Compound

Area C - ACMA HFDF Compound

Area E - Radio Australia Cleared Area

Area G - Southern Cleared Area

Tip Site G-1

Legend

- Area of Interest
- Section Boundary
- Road
- Tip Site

N

GDA 1994 MGA Zone 52

0 0.5 1

Kilometres

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Date Published: 26 Jun 2017

Cox Peninsula Remediation Project

Figure 7i - Sensitive Local Environments
Section 261

688,000

690,000

8,622,000

8,620,000

8,618,000

Section 263

Section 264

Section 262

Section 262

Cox Peninsula Road

Section 261

Legend

Vegetation Type (ERM 2011)

- *Melaleuca* Swampland
- Coastal *Melaleuca* Forest
- Coastal Dune
- Eucalypt Woodland
- Magnetic Termitaria in Seasonal Floodplain
- Mangrove Forest
- Mangrove, Beach and Cliff Complex
- Wetland within Seasonal Floodplain
- Section Boundary

N

GDA 1994 MGA Zone 52

0 0.5 1

Kilometres

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DARWIN

BELYUEN

0 5 10 km

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Date Published: 19 Dec 2016

Cox Peninsula Remediation Project

Figure 7ii - Topography and Environmental Receptors
Section 261, 262

688,000
690,000
8,622,000
8,620,000
8,618,000

Section 261
Section 262
Section 263
Section 264
45 Merribimam (Magnetic Termitaria)
Danulugiyam/Tjeinjak
30 Bendjiguy
31 Bitbinbirriyarrk-Gwa (Bitbiniyirrk)
40 Martbirl (Madpil)
Pandana and Green Plum Trees
Paperbark Forest
32 Majili (Midjili)
Red Apple Tree

Legend

Aboriginal Heritage Features (ERM 2011)

- Middens and Significant Sites
- Story and Dreaming Places

Vegetation Type (ERM 2011)

- *Melaleuca* Swampland
- Coastal *Melaleuca* Forest
- Magnetic Termitaria in Seasonal Floodplain
- Mangrove Forest
- Mangrove, Beach and Cliff Complex
- Wetland within Seasonal Floodplain
- Wetland / Inundation
- 1m Contour
- 5m Contour
- Section Boundary

N

GDA 1994 MGA Zone 52

0 0.5 1
Kilometres

DATA SOURCES
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BELYUEN
0 5 10 km

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Cox Peninsula Remediation Project

Figure 2 : Remediated/disturbed areas of S261
Sub Area S262

689,000

690,000

8,621,000

8,620,000

Section 262

Section 262

Section 261

Legend

- Section Boundary
- Disturbed/remediated area
- Areas excluded from S261 ECP

N

GDA 1994 MGA Zone 52

0 100 200

Metres

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Cox Peninsula Remediation Project

Figure 8 - Indicative Groundwater Contours, Dry Season 2013
Sections 261, 262, and 263/264

688,000

690,000

8,622,000

8,620,000

MW11 13.19
MW10 13.1
MW16 13.06
MW14 13.26
MW25 n/a
MW22 n/a
MW26 n/a
MW23 n/a
MW27 n/a
MW24 n/a
MW21 n/a
MW12 13.12
MW13 13.09
MW15 13.31
13.1
13.2
13.3
13.4
13.5
Section 263
Section 264
Section 262
Section 262
Section 261
MW05 12.33
MW06 12.71
MW07 11.95
MW08 13.43
MW09 13.62
MW18 13.54
MW17 13.39
MW19 13.51
MW01 13.36
MW02 13.38
MW03 13.4
MW20 13.52
MW04 n/a
12
13
13.4
13.3
13.6
Tip Site E-3
Tip Site B
Tip Site E-2
Tip Site E-1
Cox Peninsula Road

Legend

- Groundwater Well
- Indicative Groundwater Flow Direction
- Indicative Ground Water Contour (mAHD)
- Tip Site
- Section Boundary

N

GDA 1994 MGA Zone 52

0 300 600
Metres

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Date Published: 26 Aug 2016

Cox Peninsula Remediation Project

Figure 9i - Indicative Groundwater Contours, Wet Season 2014
Sections 261, 262, and 263/264

688,000

690,000

8,622,000

8,620,000

MW10 18.38
MW11 18.51
MW16 18.07
MW25 n/a
MW22 n/a
Section 263
MW12 17.97
MW26 n/a
MW13 17.10
MW14 18.50
MW23 n/a
MW27 n/a
Section 264
MW15 18.52
MW24 n/a
MW21 n/a
18.5
Section 262
Section 262
MW05 19.04
MW06 18.62
Cox Peninsula Road
Tip Site E-3
19
Tip Site B
MW09 18.98
MW07 18.05
Tip Site E-2
MW08 18.80
MW18 18.90
MW17 18.88
MW01 18.93
MW19 18.84
MW02 18.93
Section 261
MW20 n/a
Tip Site E-1
MW03 19.21
18
MW04 n/a

Legend

- Groundwater Well
- Indicative Groundwater Flow Direction
- Indicative Ground Water Contour (mAHD)
- Tip Site
- Section Boundary

N

GDA 1994 MGA Zone 52

0 300 600

Metres

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Figure 9ii - Indicative Groundwater Contours, Wet Season 2015
Sections 261, 262, and 263/264

688,000

690,000

8,622,000

8,620,000

MW10 15.91
MW11 16.06
MW16 15.77
MW25 15.40
MW22 15.73
Section 263
MW12 16.14
MW26 15.42
MW13 15.75
MW23 15.78
MW14 16.04
MW27 15.32
MW15 16.06
Section 264
MW24 15.76
MW21 n/a
16.2
Section 262
Section 262
MW05 15.83
Cox Peninsula Road
MW06 15.78
Tip Site B
Tip Site E-3
MW09 16.06
15.8
MW07 15.26
Tip Site E-2
MW08 15.88
16
15.9
MW18 15.94
MW17 15.93
MW01 n/a
MW19 15.93
MW02 15.92
Section 261
MW20 n/a
Tip Site E-1
MW03 15.91
MW04 n/a

Legend

- Groundwater Well
- Indicative Groundwater Flow Direction
- Indicative Ground Water Contour (mAHD)
- Tip Site
- Section Boundary

N

GDA 1994 MGA Zone 52

0 300 600

Metres

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Date Published: 21 Dec 2016

Cox Peninsula Remediation Project

Figure 14 - Remediation Works Area: General
Section 261

689,000

690,000

8,621,000

8,620,000

Section 262

Cox Peninsula Road

Section 262

Area E - Radio Australia Cleared Area

Area C - ACMA HFDF Compound

Area A - ACMA Main Compound

Area F - Eastern Cleared Area

Section 261

Legend

Remediation Works Areas

- A
- B
- C
- D
- E

- Major Road
- Area of Interest
- Section Boundary

N

GDA 1994 MGA Zone 52

0 200 400

Metres

DATA SOURCES
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Date Published: 07 Mar 2016

Cox Peninsula Remediation Project

Figure 15 - Remediation Works Area:ACMA Compounds
Section 261

689,000
689,500
8,620,500
8,620,000

Section 262

Section 261

Legend

Remediation Works Areas

- A
- B
- C
- D
- E
- F

Section Boundary

N

GDA 1994 MGA Zone 52

0 75 150
Metres

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Date Published: 07 Mar 2016

Cox Peninsula Remediation Project

Figure 3a Map 1 - General Site Area RWA A and B - Underground Services and Asbestos Service Pits
Section 261

688,000
689,000
690,000
8,621,000
8,620,000
8,619,000

Section 263
Section 264
Section 262
Section 261

Map 1
Map 5
Map 3
Map 2
Map 4

0 250 500
Metres

Legend

- Area of Interest
- Section Boundary
- Large Antenna Arrays
- Small Antenna Arrays
- Asbestos Conduit
- Cable Only
- Non-Asbestos Conduit

N

GDA 1994 MGA Zone 52

0 250 500
Metres

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DARWIN
BELYUEN
0 5 10 km

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Date Published: 23 Jun 2017

Cox Peninsula Remediation Project

Figure 3b Map 2 - General Site Area RWA A and B - Underground Services and Asbestos Service Pits
Section 261

689,400 689,600 689,800 690,000

8,620,400 8,620,200 8,620,000

Area C - ACMA HFDF Compound

Section 261

Area F - Eastern Cleared Area

Section 262

Map 1

Map 2

Map 3

Map 4

Map 5

0 250 500
Metres

Legend

- Area of Interest
- Section Boundary
- Large Antenna Arrays
- Small Antenna Arrays
- Asbestos Conduit
- Cable Only
- Non-Asbestos Conduit

N

GDA 1994 MGA Zone 52

0 50 100
Metres

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Cox Peninsula Remediation Project

Figure 3c Map 3 - General Site Area RWA A and B - Underground Services and Asbestos Service Pits
Section 261

689,000
689,200
689,400
8,620,200
8,620,000

Section 262
Area A - ACMA Main Compound
Section 261
Area E - Radio Australia Cleared Area

Map 1
Map 5
Map 3
Map 2
Map 4
0 250 500
Metres

Legend

- Area of Interest
- Section Boundary
- Large Antenna Arrays
- Small Antenna Arrays
- Footings (Other RWAs)
- Asbestos Conduit
- Cable Only
- Non-Asbestos Conduit

N

GDA 1994 MGA Zone 52

0 50 100
Metres

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Cox Peninsula Remediation Project

Figure 3d Map 4 - General Site Area RWA A and B - Underground Services and Asbestos Service Pits
Section 261

689,000

8,620,000

Section 261

Area E - Radio Australia Cleared Area

Section 262

Map 1

Map 5

Map 3

Map 2

Map 4

0 250 500
Metres

Legend

- Area of Interest
- Section Boundary
- Large Antenna Arrays
- Small Antenna Arrays
- Footings (Other RWAs)
- Asbestos Conduit
- Cable Only
- Non-Asbestos Conduit

N

GDA 1994 MGA Zone 52

0 50 100
Metres

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Date Published: 15 Aug 2017

Cox Peninsula Remediation Project

Figure 3e Map 5 - General Site Area RWA A and B - Underground Services and Asbestos Service Pits
Section 261

689,000

8,621,000

Section 262

Section 262

Section 261

Area E - Radio Australia Cleared Area

Map 1

Map 5

Map 3

Map 2

Map 4

0 250 500
Metres

Legend

- Area of Interest
- Section Boundary
- Footings (other RWAs)
- Asbestos Conduit
- Cable Only
- Non-Asbestos Conduit

N

GDA 1994 MGA Zone 52

0 100 200
Metres

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DARWIN

PALMERSTON

BELYUEN

0 5 10 km

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Date Published: 15 Aug 2017

Cox Peninsula Remediation Project

Figure 4 : General Site Area RWA C and D - ACM at Surface of Area E-1 and Cleared Area
Section 261

689,000

689,500

8,620,000

Section 262

Area E-1

Area A - ACMA Main Compound

Section 261

Section 262

Area E - Radio Australia Cleared Area

Section 262

Section 261

Section 262

0 250 500
Metres

Legend

- Area of Interest
- Section Boundary
- Tip Site

Remediation Works Area issued with Asbestos Clearance Certificate

- RWA C
- RWA D

N

GDA 1994 MGA Zone 52

0 50 100
Metres

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Date Published: 26 Jun 2017

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Figure 5 - General Site Area RWA E - Antenna Footings
Section 261

688,500
689,000
689,500
690,000
8,621,000
8,620,500
8,620,000

Section 262
Antenna Array D
Antenna Array E
Area A - ACMA Main Compound
Section 261
Area C - ACMA HFDF Compound
Antenna Array C
Area F - Eastern Cleared Area
Antenna Array F
Antenna Array B
Antenna Array A
Area E - Radio Australia Cleared Area

Legend

- Area of Interest
- Areas of Infrastructure Removal
- Section Boundary
- Large Antenna Arrays – RWA
- Small Antenna Arrays – RWA
- Former Antenna Footings – RWA E
- Former Antenna Footings – RWA E (inside Area C)
- Miscellaneous Footings
- Footings (Other RWAs)

N

GDA 1994 MGA Zone 52

0 125 250
Metres

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Cox Peninsula Remediation Project

Figure 6 – General Site Area RWA F – Bitumen Road
Section 261

689,000
689,500
690,000
8,621,000
8,620,500
8,620,000

S261_BAR_V_021
S261_BAR_V_001
S261_BAR_V_002
S261_BAR_V_003
S261_BAR_V_004
S261_BAR_V_005
S261_BAR_V_006
S261_BAR_V_007
S261_BAR_V_008
S261_BAR_V_009
S261_BAR_V_010
S261_BAR_V_011
S261_BAR_V_012
S261_BAR_V_013
S261_BAR_V_014
S261_BAR_V_015
S261_BAR_V_016
S261_BAR_V_017

Section 262
Section 261
Area E - Radio Australia Cleared Area
Area A - ACMA Main Compound
Area C - ACMA HFDF Compound
Area F - Eastern Cleared Area

0 25 50
Metres

Legend

- Area of Interest
- Section Boundary
- Validation Soil Sample

Former Bitumen access road

- ACMA compounds, RWA
- General Site Area, RWA

N

GDA 1994 MGA Zone 52

0 125 250
Metres

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BELYUEN
0 5 10 km

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Cox Peninsula Remediation Project

Figure 7 - General Site Area RWA G – Three Clean Fill Stockpiles with Concrete and Steel
Section 261

689,600

690,000

8,620,000

Section 262

Section 261

Section 262

Section 262

Area C - ACMA HFDF Compound

Section 261

0 250 500
Metres

S262-ECA-B-A-08
S262-ECA-B-A-09
S262-ECA-B-A-07
S262-ECA-B-A-03
S262-ECA-B-A-06
Stockpile SP_F_A
S262-ECA-B-A-05
S262-ECA-B-A-04
S262-ECA-B-A-02
S262-ECA-B-A-10
S262-ECA-B-A-01

0 2.5 5
Metres

Stockpile SP_E_N
S262-GEN-B-N-03
S262-GEN-B-N-02
S262-GEN-B-N-01

0 2.5 5
Metres

Stockpile SP_F_D
S262-ECA-B-D-03
S262-ECA-B-D-02
S262-ECA-B-D-01

0 1 2
Metres

Legend

- Area of Interest
- Section Boundary
- Tip Site
- Soil Sampling Locations

Remediation Works Areas

- B

N

GDA 1994 MGA Zone 52

0 50 100
Metres

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Figure 8a - ACMA Compounds RWA A Overview
Section 261



Legend

- Area of Interest
- Stage 1 excavation
- Stage 2 excavation

Remediation Works Areas

- A

N

GDA 1994 MGA Zone 52

0 10 20

Metres

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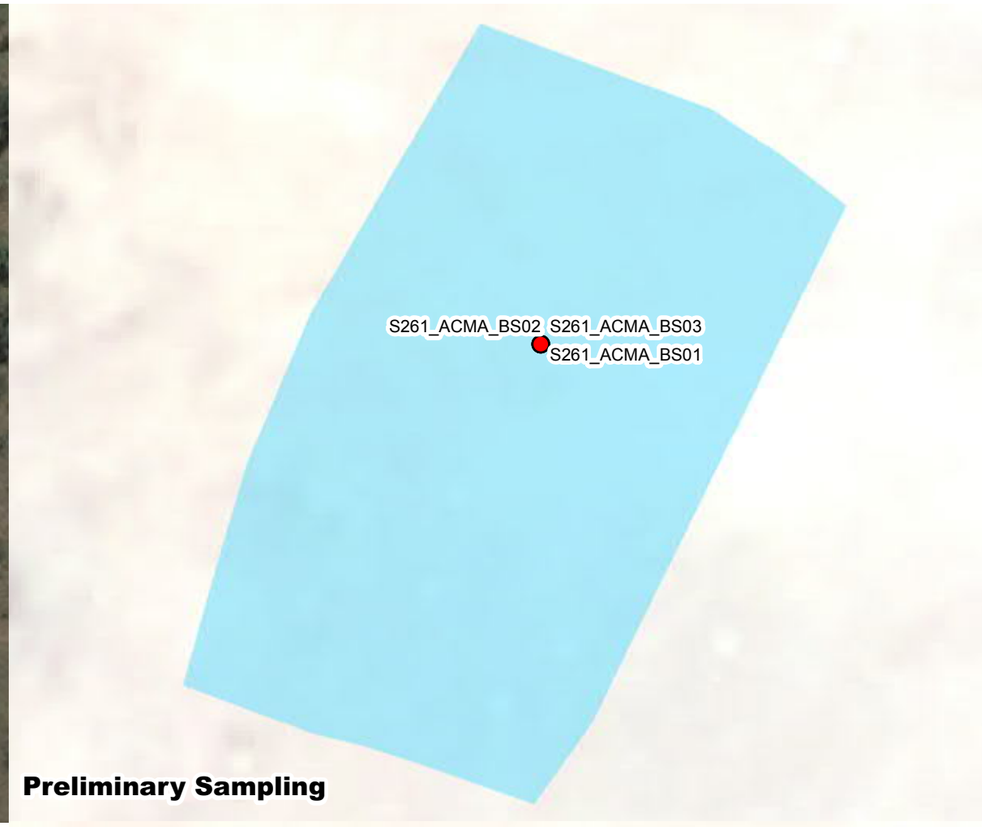
Date Published: 26 Jun 2017

Cox Peninsula Remediation Project

Figure 8b – ACMA Compounds RWA A - Minor Slab
Section 261



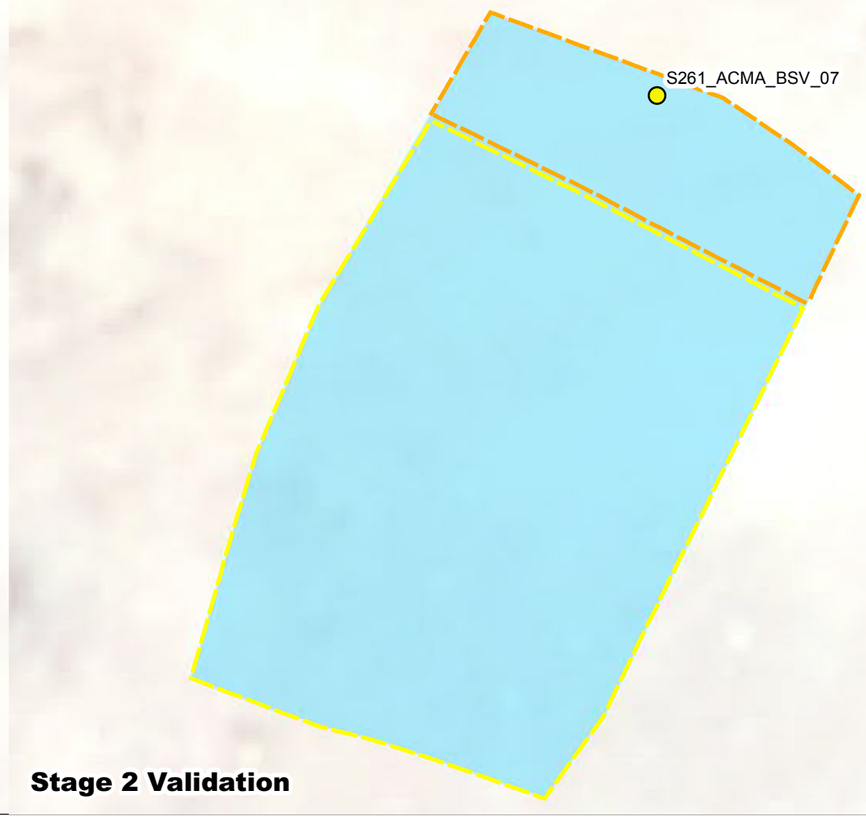
Overview Map



Preliminary Sampling



Stage 1 Validation



Stage 2 Validation

Legend

- Area of Interest
- Stage 1 excavation
- Stage 2 excavation

Validation sample pesticide results (mg/kg)

- <2.0 (no exceedance)
- >2.0 (exceedance)

Remediation Works Areas

- A

N

GDA 1994 MGA Zone 52

0 1 2
Metres

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Date Published: 26 Jun 2017

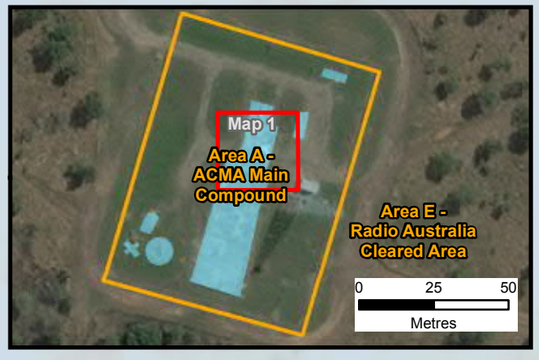
Cox Peninsula Remediation Project

Figure 8ci Map 1 - ACMA Compounds - Major Slab Stage 1
Section 261

UST Slab

Major Slab

S261_ACMA_V_053
S261_ACMA_V_051
S261_ACMA_V_052
S261_ACMA_V_054
S261_ACMA_V_055
S261_ACMA_V_050
S261_ACMA_V_048
S261_ACMA_V_047
S261_ACMA_V_042
S261_ACMA_V_043
S261_ACMA_V_044
S261_ACMA_V_046
S261_ACMA_V_045
S261_ACMA_V_049
S261_ACMA_V_041
S261_ACMA_V_040
S261_ACMA_V_039
S261_ACMA_V_036
S261_ACMA_V_038
S261_ACMA_V_032
S261_ACMA_V_037
S261_ACMA_V_033
S261_ACMA_V_035
S261_ACMA_V_034



Legend

- Area of Interest

Preliminary sample pesticide results (mg/kg) (8/7/16)

- <2.0 (no exceedance)
- >2.0 (exceedance)
- Stage 1 excavation required

Remediation Works Areas

- A

N

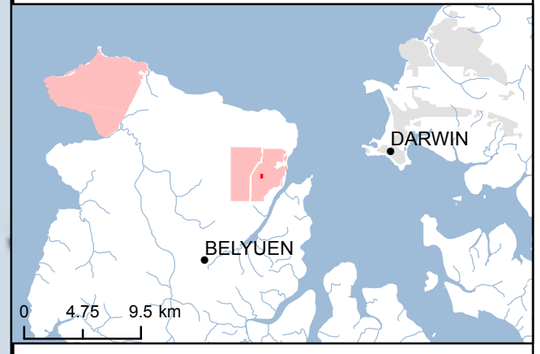
GDA 1994 MGA Zone 52

0 2.5 5
Metres

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Figure 8ci Map 2 - ACMA Compounds - Major Slab Stage 1
Section 261

S261_ACMA_V_024
S261_ACMA_V_025
S261_ACMA_V_026
S261_ACMA_V_031
S261_ACMA_V_030
S261_ACMA_V_029
S261_ACMA_V_028
S261_ACMA_V_023
S261_ACMA_V_022
S261_ACMA_V_027
S261_ACMA_V_018
S261_ACMA_V_020
S261_ACMA_V_013
S261_ACMA_V_019
S261_ACMA_V_016
S261_ACMA_V_014
S261_ACMA_V_017
S261_ACMA_V_015



Legend

- Area of Interest

Preliminary sample pesticide results (mg/kg) (8/7/16)

- <2.0 (no exceedance)
- >2.0 (exceedance)
- Stage 1 excavation required

Remediation Works Areas

- A

N

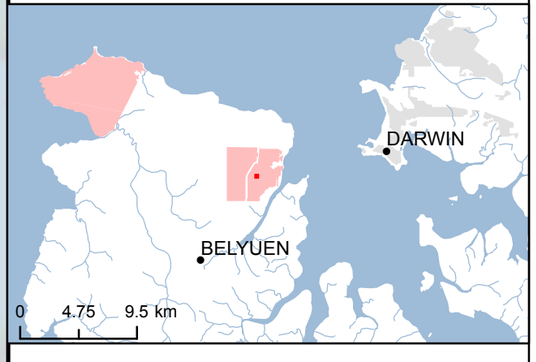
GDA 1994 MGA Zone 52

0 2.5 5
Metres

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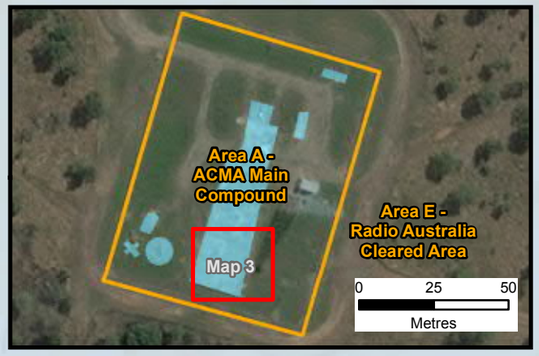
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DPE: DR

Cox Peninsula Remediation Project

Figure 8ci Map 3 - ACMA Compounds - Major Slab Stage 1
Section 261

S261_ACMA_V_012
S261_ACMA_V_011
S261_ACMA_V_021
S261_ACMA_V_010
S261_ACMA_V_009
S261_ACMA_V_005
S261_ACMA_V_006
S261_ACMA_V_007
S261_ACMA_V_008
S261_ACMA_V_004
S261_ACMA_V_003
S261_ACMA_V_002
S261_ACMA_V_001



Legend

- Area of Interest

Preliminary sample pesticide results (mg/kg) (8/7/16)

- <2.0 (no exceedance)
- >2.0 (exceedance)
- Stage 1 excavation required

Remediation Works Areas

- A

N

GDA 1994 MGA Zone 52

0 2.5 5
Metres

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Cox Peninsula Remediation Project

Figure 8cii Map 1 - ACMA Compounds - Major Slab Stage 2
Section 261



Legend

- Area of Interest

Stage 1 excavation validation results for pesticides (mg/kg) - 19/07/16

- <2.0 (no exceedance)
- >2.0 (exceedance)
- Stage 1 excavation
- Stage 2 excavation required

Remediation Works Areas

- A

N

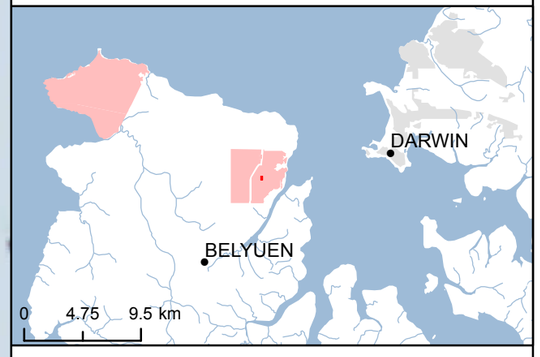
GDA 1994 MGA Zone 52

0 2.5 5
Metres

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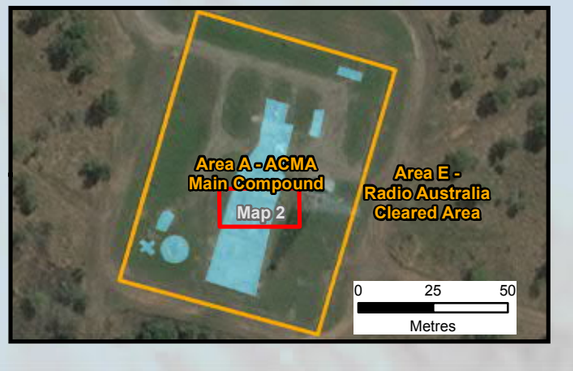
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Date Published: 15 Aug 2017

Cox Peninsula Remediation Project

Figure 8cii Map 2 - ACMA Compounds - Major Slab Stage 2
Section 261

S261_ACMA_V_072
S261_ACMA_V_073
S261_ACMA_V_070
S261_ACMA_V_071
S261_ACMA_V_066
S261_ACMA_V_067
S261_ACMA_V_065
S261_ACMA_V_064
S261_ACMA_V_087
S261_ACMA_V_085
S261_ACMA_V_086
S261_ACMA_V_088
S261_ACMA_V_068
S261_ACMA_V_069
S261_ACMA_V_063
S261_ACMA_V_061
S261_ACMA_V_062



Legend

- Area of Interest

Stage 1 excavation validation results for pesticides (mg/kg) - 19/07/16

- <2.0 (no exceedance)
- >2.0 (exceedance)
- Stage 1 excavation
- Stage 2 excavation required

Remediation Works Areas

- A

N

GDA 1994 MGA Zone 52

0 2.5 5
Metres

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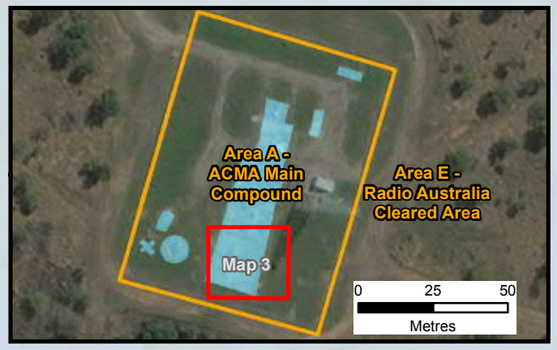
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Cox Peninsula Remediation Project

Figure 8cii Map 3 - ACMA Compounds - Major Slab Stage 2
Section 261

S261_ACMA_V_059
S261_ACMA_V_058
S261_ACMA_V_056
S261_ACMA_V_060
S261_ACMA_V_057



Legend

- Area of Interest

Stage 1 excavation validation results for pesticides (mg/kg) - 19/07/16

- <2.0 (no exceedance)
- >2.0 (exceedance)
- Stage 1 excavation
- Stage 2 excavation required

Remediation Works Areas

- A

N

GDA 1994 MGA Zone 52

0 2.5 5
Metres

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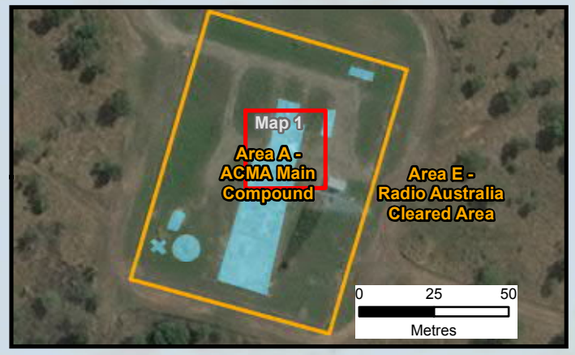
Cox Peninsula Remediation Project

Figure 8ciii Map 1 - ACMA Compounds - Major Slab Stage 3
Section 261

S261_ACMA_V_089
S261_ACMA_V_093
S261_ACMA_V_092
S261_ACMA_V_091
S261_ACMA_V_094
S261_ACMA_V_090
S261_ACMA_V_095

Major Slab

UST Slab



Legend

- Area of Interest

Stage 2 excavation validation results for pesticides (mg/kg) - 26/07/16

- <2.0 (no exceedance)
- >2.0 (exceedance)
- Stage 1 excavation
- Stage 2 excavation

Remediation Works Areas

- A

N

GDA 1994 MGA Zone 52

0 2.5 5
Metres

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Cox Peninsula Remediation Project

Figure 8ciii Map 2 - ACMA Compounds - Major Slab Stage 3
Section 261

S261_ACMA_V_094
S261_ACMA_V_090
S261_ACMA_V_095
S261_ACMA_V_098
S261_ACMA_V_097
S261_ACMA_V_096



Legend

- Area of Interest

Stage 2 excavation validation results for pesticides (mg/kg) - 26/07/16

- <2.0 (no exceedance)
- >2.0 (exceedance)
- Stage 1 excavation
- Stage 2 excavation

Remediation Works Areas

- A

N

GDA 1994 MGA Zone 52

0 2.5 5
Metres

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Figure 8d : ACMA Compounds RWA A – Water Tank Slab

Section 261



Minor Slab

Antenna Footing

Water Tank Slab

S261_ACMA_WTS_04

S261_ACMA_WTS_01

S261_ACMA_WTS_02

S261_ACMA_WTS_03

Legend

- Area of Interest
- Stage 1 excavation

Validation sample pesticide results (mg/kg)

- <2.0 (no exceedance)
- >2.0 (exceedance)

Remediation Works Areas

- A

N

GDA 1994 MGA Zone 52

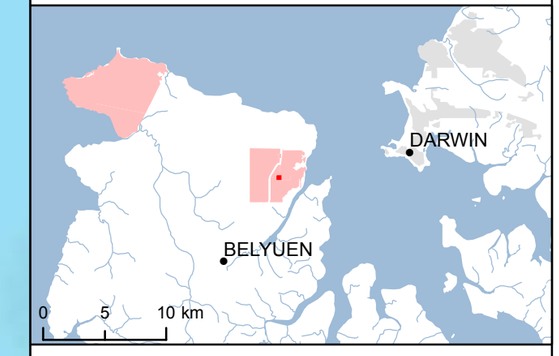
0 2.5 5

Metres

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Date Published: 26 Jun 2017

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Figure 8e : ACMA Compounds RWA A – Materials Storage Bay
Section 261



Area E-
Radio Australia
Cleared Area

Material
Storage Bay

Area A-
ACMA Main
Compound

S261_ACMA_MSB_02

S261_ACMA_MSB_01

Stockpile
S261_ACMA_SP02

Stockpile
S261_ACMA_SP01

UST
Slab

Major
Slab

Legend

Area of Interest

Validation sample pesticide results (mg/kg) (8/7/16)

<2.0

>2.0

Remediation Works Areas

A

N

GDA 1994 MGA Zone 52

0 5 10
Metres

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Date Published: 26 Jun 2017

Cox Peninsula Remediation Project

Figure 8f - ACMA Compounds Stockpile Footprint
Section 261





Legend

- Area of Interest
- Stage 1 excavation (stockpile footprint)
- Stage 2 excavation (stockpile footprint)

Validation sample pesticide results (mg/kg)

- <2.0 (no exceedance)
- >2.0 (exceedance)
- Stage 1 excavation (stockpile footprint)

Remediation Works Areas

- A

N

GDA 1994 MGA Zone 52

0 10 20

Metres

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Date Published: 26 Jun 2017

Cox Peninsula Remediation Project

Figure 9 - ACMA Compounds RWA B - Underground Services
Section 261

689,000

690,000

8,620,000

Area E - Radio Australia Cleared Area

Section 262

Area A - ACMA Main Compound

Area C - ACMA HFDF Compound

Area F - Eastern Cleared Area

Section 261

Legend

- Area of Interest
- Section Boundary
- Underground services (other RWAs)
- Small Antenna Arrays - Area C
- Asbestos Conduit
- Cable Only
- Non-Asbestos Conduit

N

GDA 1994 MGA Zone 52

0 100 200

Metres

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Date Published: 22 Jun 2017

Cox Peninsula Remediation Project

Figure 10 - ACMA Compounds RWAC
Section 261

S261_ASB_SPF_001

S261_ASB_SPF_002

S261_ASB_SPF_003

RWAC Stockpile



Legend

- Stockpile Footprint Validation Samples
- Area of Interest
- Location of RWA C Stockpile

Remediation Works Areas

- C

N

GDA 1994 MGA Zone 52

0 0.5 1
Metres

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Figure 11 - ACMA Compounds RWA D – Antenna Footings
Section 261

S261_HFDF_V_05
S261_HFDF_V_06
S261_HFDF_V_15
S261_HFDF_V_16
S261_HFDF_V_25
S261_HFDF_V_04
S261_HFDF_V_07
S261_HFDF_V_24
S261_HFDF_V_14
S261_HFDF_V_17
Area C - ACMA HFDF Compound
S261_HFDF_V_03
S261_HFDF_V_002
S261_HFDF_V_001
S261_HFDF_V_23
S261_HFDF_V_08
S261_HFDF_V_13
S261_HFDF_V_18
Area F - Eastern Cleared Area
S261_HFDF_V_02
S261_HFDF_V_09
S261_HFDF_V_12
S261_HFDF_V_22
S261_HFDF_V_19
S261_HFDF_V_01
S261_HFDF_V_10
S261_HFDF_V_11
S261_HFDF_V_20
S261_HFDF_V_21
Area E - Radio Australia Cleared Area
8,620,000

Section 262
Section 261
Section 262
0 250 500
Metres

Legend

- Area of Interest
- Section Boundary
- Tip Site
- Former Concrete Footings (ACMA compounds, RWA D)

Validation sample pesticide results (mg/kg)(8/7/16)

- <2.0
- >2.0

N

GDA 1994 MGA Zone 52

0 25 50
Metres

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DARWIN
BELYUEN
0 5 10 km

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Figure 12 - ACMA Compounds RWA E – Bitumen Road
Section 261

689,000

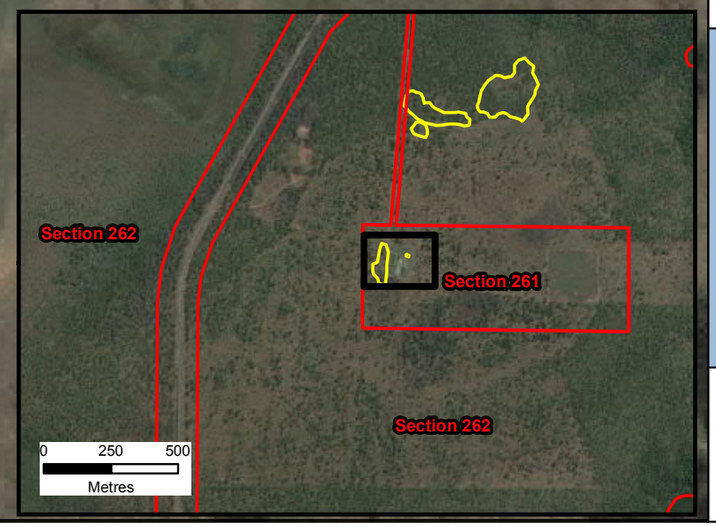
S261_BAR_V_018

S261_BAR_V_019

S261_BAR_V_020

Area A - ACMA Main Compound

Area E- Radio Australia Cleared Area



Legend

- Area of Interest
- Section Boundary
- Tip Site
- Validation Soil Sample Locations

Former Bitumen access road

- General Site Area, RWA
- ACMA Compounds, RWA E

N

GDA 1994 MGA Zone 52

0 20 40
Metres

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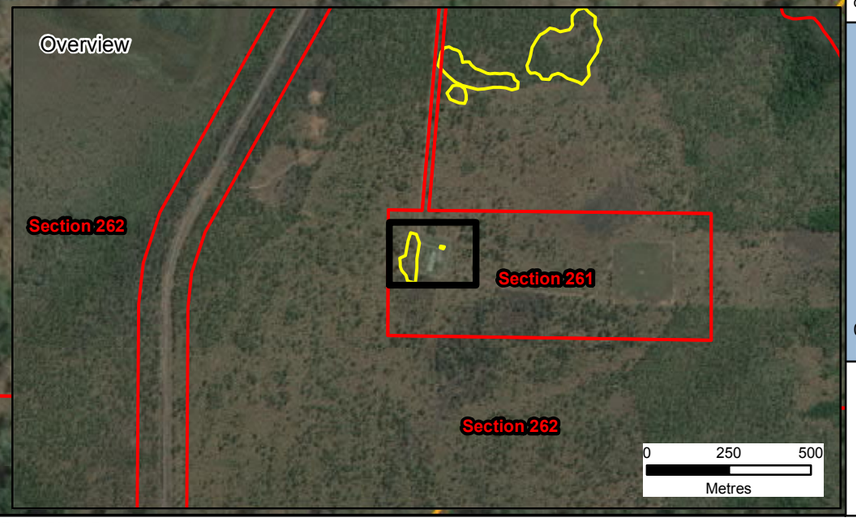
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Figure 13 - ACMA Compounds RWA F – Cyclone Fencing and Miscellaneous Above Ground Infrastructure (Area A and Area C)

Section 261







Legend

- Area of Interest
- Section Boundary
- Tip Site

Removed by ACMA

- ACMA Hut (Indicative)
- ACMA Transformers (Indicative)
- HFDF Shed

Removed by Ventia

- Cyclone Fencing (Indicative)
- ACMA Tower (Indicative)
- Small ACMA Towers (Indicative)
- Water Tank (Indicative)
- Septic Tank

N

GDA 1994 MGA Zone 52

0 20 40
Metres

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Figure 14a: ACMA Compounds RWA G – UST Service Lines
Section 261



S261_ACMA_V_UST_002

S261_ACMA_V_UST_001

S261_ACMA_V_UST_003

S261_ACMA_V_UST_004

Legend

- Former UST Locations
- Removed soils impacted by UST service lines
- Former UST Services Lines
- Former fill points
- Former manhole lids

TRH>C10 - C16 (F2) results (mg/kg)

- <120 (no exceedance)
- >120 (exceedance)

N

GDA 1994 MGA Zone 52

0 1 2
Metres

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Date Published: 26 Jun 2017

Cox Peninsula Remediation Project

Figure 14bi Stage 1: ACMA Compounds RWA G – UST Service Lines
Section 261



S261_UST_V_016
S261_UST_V_014
S261_UST_V_018
S261_UST_V_017
S261_UST_V_019
S261_UST_V_012
S261_UST_V_013
S261_UST_V_020
S261_UST_V_010
S261_UST_V_011
S261_UST_V_015
S261_UST_V_024
S261_UST_V_007
S261_UST_V_006
S261_UST_V_005
S261_UST_V_032
S261_UST_V_031
S261_UST_V_008
S261_UST_V_009
S261_UST_V_021
S261_UST_V_033
S261_UST_V_022
S261_UST_V_030
S261_UST_V_027
S261_UST_V_034
S261_UST_V_029
S261_UST_V_025
S261_UST_V_028
S261_UST_V_026
S261_UST_V_023

Legend

- Former UST Locations
- Stage 1 Excavation

Validation sample TRH>C10 - C16 (F2) results (mg/kg)

- <120 (no exceedance)
- >120 (exceedance)

N

GDA 1994 MGA Zone 52

0 1 2
Metres

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Cox Peninsula Remediation Project

Figure 14bii Stage 2: ACMA Compounds RWA G – UST Service Lines

Section 261



S261_UST_V_035

S261_UST_V_036

S261_UST_V_037

Legend

- Former UST Locations
- Stage 1 Excavation
- Stage 2 Excavation

Validation sample TRH>C10-C16 (F2) results (mg/kg)

- <120 (no exceedance)
- >120 (exceedance)

N

GDA 1994 MGA Zone 52

0 1 2

Metres

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Date Published: 26 Jun 2017

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Figure 14c: ACMA Compounds RWA G – Stockpile Footprint Area

Section 261

S265_ACMA_SFP_0011

Stockpile SP06

S265_ACMA_SFP_0012

Stockpile SP01

Stockpile SP07

Stockpile SP05

Stockpile SP03

S265_ACMA_SFP_0009

Stockpile SP04

S265_ACMA_SFP_0010

Stockpile SP02

S265_ACMA_SFP_0008

Stockpile SP08

S265_ACMA_SFP_0007



Legend

- Former UST Locations
- Stage 1 Excavation
- Stage 2 Excavation
- Validation sample TRH>C10-C16 (F2) results (mg/kg) (2/9/2016)

N

GDA 1994 MGA Zone 52

0 2.5 5

Metres

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PM: WR
DPE: DR

Appendix B

Relevant Correspondence and Documents

Appendix B Relevant Correspondence and Documents

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11 November 2014

Tom Hoole
Asset Manager - Department of Finance
Level 11
201 Kent Street
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NSW 2000

Dear Tom,

Environmental Audit - Provision of Interim Site Auditor Advice
Review of SKM Supplementary Site Investigation Reports for Sections 32, 34 and 41, Cox Peninsula, Northern Territory

1.0 Introduction

Paul Steinwede of AECOM Australia Pty Ltd (AECOM) was engaged by Five D Holdings Ltd (Five D), on behalf of the Department of Finance and Deregulation (Finance), to undertake an Environmental Audit in the Northern Territory in accord with Part 6 of the NT's Waste Management and Pollution Control Act as an approved person accredited under the NSW EPA Site Auditor Scheme. This Environmental Audit review relates to Section 32, Section 34 and Section 41 of the Cox Peninsula, Northern Territory. These areas are owned by Finance and are subject to Kenbi Indigenous Land Claim 37, pursuant to the Aboriginal Land Rights (Northern Territory) Act 1976.

The Environmental Consultant for the Project, Sinclair Knight Merz Pty Limited (SKM, now Jacobs), was commissioned by Finance to complete supplementary site investigations at the three Sections as part of the Cox Peninsula Remediation Project, described in **Section 2.0** below. This letter provides a review of the investigation reports for the three Sections of the Cox Peninsula.

This advice letter should not be considered a Site Audit Report under the meaning of the NSW CLM Act.

2.0 Background

Cox Peninsula is located approximately 10 km west (by ferry or 130 km by road) of Darwin in the Northern Territory. The Commonwealth Government used Sections 32, 34 and 41 for a number of purposes, including operating a radio transmission and receiving facility and operating a World War II radar station. As part of these uses, large tracts of land were cleared, compound areas were constructed and numerous waste tips were created.

The objective of the Cox Peninsula Remediation Project is to facilitate the resolution of Land Claim 37 (The Kenbi Land Claim), which will see the eventual transfer of Sections 32, 34 and 41 to the Northern Territory Government and ultimately the Larrakia Aboriginal People. In 2009, the Australian Government approved of the 'In Principle Agreement' to settle the Kenbi Land Claim and under this Agreement, Finance has an obligation to ensure that the land is returned to a condition that is suitable for the proposed future use by the Larrakia Aboriginal People before any transfer can take place.

SKM completed investigations across the three Sections to assess the nature, extent and significance of contamination resulting from current and former land uses, the results of which will inform the Detailed Business Case (DBC) which makes the case for remediation of the study areas in order to meet this broader project objective.

3.0 Documentation

The documents which are the subject of this review included:

- SKM '*Cox Peninsula Supplementary Site Investigation - Section 32 VW07225*', dated January 2014 (version V2 Draft). This will hereafter be referred to as the "Section 32 SSI";
- SKM '*Cox Peninsula Supplementary Site Investigation - Section 34 VW07225*', dated January 2014 (version V2 Draft). This will hereafter be referred to as the "Section 34 SSI" ; and
- SKM '*Cox Peninsula Supplementary Site Investigation - Section 41 VW07225*', dated January 2014 (version V2 Draft). This will hereafter be referred to as the "Section 41 SSI".

It should be noted that all three Reports stated that the scope of works completed by SKM was designed to meet the critical information requirements of the DBC and was not designed to meet the reporting requirements of the Audit system.

Twenty-four reports, letters and memos completed by Parsons Brinckerhoff Pty Ltd (PB) relating to these three Sections were also made available to AECOM. While these were made available for context reference, a thorough review of the PB documentation has not been completed and comments on PB documents were therefore not been included in this Interim Advice.

The Auditor's review of the Reports is covered individually below with general comments then provided which apply to all three Reports. For ease of reading, the Site Auditor's comments are included within grey shaded text boxes throughout this Interim Advice.

4.0 Technical Review – Section 32 SSI

The Site Auditor has undertaken a technical review of the Section 32 SSI as outlined below.

4.1 Executive Summary

The Executive Summary provided a summary of the background, scope of works and a summary of the key findings.

The Executive Summary should be updated to reflect any changes associated with the comments below.

4.2 Introduction

The Introduction Section provided information on the background, objectives, scope of works and the guidelines and standards.

The Auditor considers that sufficient information is provided in the Introductory Section, although the Auditor seeks confirmation from SKM to confirm the potential need for completing hazardous ground gas (including landfill and soil vapour) investigations in Section 32.

4.3 Site Identification and History

Section 2 of the Section 32 SSI included information on the location of Cox Peninsular and Section 32 including a description, the use, the history and provided a summary of previous investigations and the contaminants of potential concern (CoPC), pathways and receptors for Section 32.

The Auditor considers that the follow requires clarification in Section 2:

- Were there any basements in the buildings on site ? From the Auditor's Site inspection there did not appear to be any buildings with basements.
- What are the names of the two on site groundwater monitoring wells mentioned in Section 2.2 ?
- The plate of Wagait Shire Tip in Section 2.2 shows smoke. The report does not seem to clarify the source of this smoke. The Auditor notes from his Site Inspection that burning of materials in burial pits appeared to be a common practice.
- Were any waste disposal dockets made available for the material and tanks that was taken offsite in Section 2.3? The Auditor is unclear as to whether any validation sampling undertaken and seeks clarification to any further information being available in relation to the tanks.
- The final three previous investigations listed in Section 2.4 were not made available to AECOM for review.
- In Section 2.4.1, the amount and condition of asbestos was not provided.
- Although their boundaries have been identified, the "*areas of interest*" in the PB investigation have not been labelled on the Figures. The Auditor is also unclear from the information contained in Appendix B where some of the structures are located. The Auditor considers it would also be useful to overlay the infrastructure presented in Appendix A onto a site plan to show where the samples were taken relative to historic infrastructure. As it is, the Auditor considers it is difficult to assess the suitability of the sampling locations.

- Landfill gas was noted as a CoPC associated with Area D in Section 2.5.1, although no investigation into this appears to have been undertaken. The Auditor considers that justification is required. Additionally, has consideration been given to the potential presence of soil vapour, given that volatile substances were identified as a primary contaminant of concern in Table 2.1 for this area.

4.4 Environmental Setting

Section 3 of the Section 32 SSI included information on the topography, hydrology, geology, hydrogeology, and local sensitive environments.

The Auditor considers that the follow requires clarification in Section 3:

- Is groundwater in Section 32 potentially tidally influenced ?
- Are any of the sensitive local environments listed in Section 3.5 specifically protected, and if so, are there are conditions about the use and development of these environments which may affect potential future remediation approaches/management strategies ?

4.5 Site Investigation and Design Methodology

Section 4 of the Section 32 SSI included the purpose of the investigation, the investigation design, field investigation and laboratory analysis.

The Auditor considers that the follow requires clarification in Section 4:

- The areas of interest in Table 4.1 do not appear to match the areas of interest in Table 2.1 and some of the contaminants included in Table 2.1 appear to be missing from Table 4.1. Additionally, Table 2.1 indicated that microbial and soil gas contamination is likely to be present on site, although these are not discussed in Table 4.1 and do not appear to have been investigated at Section 32.
- Step 4 in Section 4.2.5 states that sediment contamination is unlikely to be significant due to high rainfall and the absence of a permanent surface water body. The Auditor notes that sediment accumulation may still occur over a long period of time even in ephemeral water bodies.
- It is considered that an estimation of targeting a hotspot size should also be made given that some areas appear to have only undergone judgemental sampling.
- Table 4.3.1 does not appear to specify sampling undertaken in Area G.
- Section 4.3.2 stated that no sampling was undertaken in Area F due to little evidence of contamination. The Auditor seeks clarification as to whether more information could be provided for Area F. Specifically, what did the mounds consist of ?
- Section 4.3.2 stated that MW04 was used to assess the background concentrations of groundwater contaminants, although Figure 9 appears to show that it is within a PB "*area of interest*". Do SKM consider that MW04 is upgradient of all potential contamination sources associated with the Government use (and subsequent leases) of Section 32 ?
- Can the service pits (potentially containing asbestos containing material (ACM)) mentioned in Section 4.3.3 be located on a map ? The lack of laboratory data relating to whether these pits contain asbestos is considered to be a data gap that would merit subsequent investigation. Section 4.5.4 also stated that soil samples were not collected from the Wagait Shire Tip as it is operational. The Auditor seeks further information as to how the operational nature of this Tip will be managed and minimise the potential for these operations to impact the Commonwealth Site. It is recommended that this area be investigated prior to any hand over as this is currently considered to be a data gap.
- The cover sheet for Appendix L stated that the development record for MW20 could not be located. Can SKM confirm that MW20 was sufficiently developed.
- Some of the field sheets presented in Appendix M indicated a significant drop in water level (MW01 for example dropped by 2.54 m during sampling) although the possible consequences this might have on the results was not discussed.
- Was the sample for MW11 collected on different dates ?

- The "*light sulphurous odour*" noted in well MW22 and the "*slight sheen*" noted in MW23 (on the field sampling sheets) do not appear to have been discussed in the Report.

4.6 Site Assessment Guidelines

Section 5 summarised the soil and groundwater investigation criteria.

The Auditor considers no clarification is required for Section 5.

4.7 Overview and General Observations

Section 6 included information on the ground conditions, waste inventory and hazardous materials.

The Auditor considers that the follow requires clarification in Section 6:

- It appears no information was provided on the Wagait Shire tip in Area D.
- Section 6.2 stated that SKM undertook an inspection of the areas of potential concern identified by PB. It is considered that it would be useful to include comments on the information presented in Appendix D to ensure that each item identified in Appendix C and Appendix E was inspected.
- Section 6.3 stated that soil samples were not collected from each area where suspected ACM was encountered, although no justification was provided.
- Section 6.3 appears to focus on asbestos. Were any other hazardous materials surveyed while on site, including those identified in previous investigations ?
- Figures 4 and 5 lists categories of antennae footings and infrastructure, although it did not specify what these categories were.
- Several logs (including MW01 and MW02) in Appendix G have odour and visual rankings for material where no return was noted.

4.8 Quality Assurance and Quality Control

Section 7 provided a summary of the quality assurance and quality control procedures, although Appendix N provided a more comprehensive summary.

The Auditor considers that the follow requires clarification in Section 7:

- Appendix K included calibration certificates for multi gas detectors from 2013. Were these used on the project ? Additionally, was any daily field bump testing carried out on instruments kept longer than a day ? If so, please include this information.
- Is Appendix N specific to the samples taken for Section 32 ? Section 7 of the Report states that PB took no samples other than a few hazardous materials samples. However, some of the information in Appendix N (including duplicate samples taken) talks about duplicate and rinsate samples. Was the information presented here specific to Section 32, or was it generic to Sections 32, 34 and 41 ?
- Section 1.6 of Appendix N stated that rinsate samples were only taken during soil sampling on two occasions. Please provide justification for this and supply the names of the rinsate samples in this Section. Do SKM know if rinsate samples were taken by PB during their investigations? Additionally, Section 1.7 of Appendix N stated that trip blank samples were taken on three occasions. The Auditor seeks clarification as to why trip blank samples were not analysed for every soil sampling event ? Additionally, the names of these samples did not appear to have been supplied.
- Section 1.5 in Appendix N stated that duplicate samples were not analysed for a comprehensive suite, although there was no discussion on the implications of this.
- Section 1.5 also stated that intra-laboratory data for PB investigations was not available, although this was not discussed.
- The effect of the matrix spike recoveries outside of the limits of reporting were not discussed.

A brief independent check on the laboratory data was also completed and the following was noted:

- The sample receipt temperature was recorded as being high for several sample batches (including where volatile analysis was requested) although this was not discussed. Such batches included MGT Labmark 385992, 386370.

4.9 Assessment of Soil Contamination

Section 8 outlines information relating to the previous investigations, field observations, and a summary of the laboratory analytical results.

The Auditor considers that the follow requires clarification in Section 8:

- Section 8.2 stated that PID sampling was selectively undertaken on samples, although it did not appear to specify on what basis.
- Logs or soil descriptions for samples were not provided for the PB investigation.

4.10 Assessment of Groundwater Contamination

Section 9 provided a summary of the groundwater levels, physical and chemical water quality parameters and a summary of the laboratory analytical results.

The Auditor considers no clarification is required for Section 9.

4.11 Summary of Findings

Section 10 provided a summary of the objectives, the soil contamination, groundwater contamination and general waste.

The Auditor notes that in Section 10.2 in the third paragraph, the numbers of technical versus actual exceedances seem to add up to the total number of exceedences. This Section should also be updated based on the above.

5.0 Technical Review – Section 34 SSI

The Site Auditor has undertaken a technical review of the Section 34 SSI has been completed with comments outlined below.

5.1 Executive Summary

The Executive Summary provided a summary of the background, scope of works and a summary of the key findings.

The Executive Summary should be updated to reflect any changes associated with the comments below.

5.2 Introduction

The Introduction Section provided information on the background, objectives, scope of works, the guidelines and standards.

The Auditor considers that sufficient information is provided in the Introductory Section. However, can SKM confirm whether it considered the need for completing hazardous ground gas (including landfill and soil vapour) investigations in Section 34?

5.3 Site Identification and History

Section 2 of the Section 34 SSI included information on the location of Cox Peninsular and Section 34, a description, the use, the history, summary of previous investigations and the contaminants of potential concern (CoPC), pathways and receptors for Section 34.

The Auditor considers that the follow requires clarification in Section 2:

- Were there any basements in the buildings on site? From the Auditor's Site inspection there did not appear to be any buildings with basements.
- The location of the existing and removed infrastructure should be provided on a plan to allow for an easy assessment of where the infrastructure is in relation to the sampling locations.
- Were the recommendations listed in Table 2.1 carried out ?
- Was any of the work detailed in Section 2.4.2 carried out in Section 34, or is the inclusion of Section 32 in the title a typographical error ? If it is a typographical error, can the locations of the elevated concentrations be marked on a plan ?
- Did the investigation in Section 2.4.4 identify any heritage items on site ? If so, what are their locations and would there be any limitations around working in the area they are located in ?
- What were the names of the locations excavated by PB in Section 2.4.5 ? How deep were the excavated pits ? What scenario HIL criteria were these results screened against ? Are these locations shown on a site plan ?
- Section 2.4.6 discusses a tank excavation. There are a range of queries the Auditor has in relation to better appreciating the nature of this work including: are any further details available on the tank (age, capacity, product, construction) ? What was the rate and nomenclature of the validation samples taken ? What criteria were the validation samples compared against? What was the range of concentrations ? Additionally, can more information be provided on the stockpiles of soil used to backfill the excavations ? What analytes were the stockpiles tested for ? What results were presented ?
- It appears from the information presented in Table 2.2 that there are still some outstanding recommendations for Tip Sites1/1A, 2, 3 and 4, 105 Radar Precinct, the Antenna Field, the helipad area, Charles Point Lighthouse Precinct and the Site Compound. The Auditor seeks clarification in the Report as to what remains to be addressed after the SKM investigation in Section 10 ?
- On site water features (ephemeral or otherwise) should be included in Section 2.5.9.
- Table 2.3 identifies microbiologicals as a contaminant of potential concern, although no investigation into it was completed.

5.4 Environmental Setting

Section 3 of the Section 34 SSI included information on the topography, hydrology, geology, hydrogeology, and sensitive local environments.

The Auditor considers no clarification is required, apart from confirmation whether any of the sensitive local environments listed in Section 3.5 are specially protected, and if so, are there are conditions relating to the use and development on them which may affect potential future remediation and/or management works ?

5.5 Site Investigation and Design Methodology

Section 4 of the Section 34 SSI included the purpose of the investigation, the investigation design, field investigation and laboratory analysis.

The Auditor considers that the follow requires clarification in Section 4:

- The areas of interest (and contaminants for these) in Table 4.1 do not appear to match the areas of interest (or CoPC) in Table 2.1.
- Step 4 in Section 4.2.5 stated that sediment contamination is unlikely to be significant due to high rainfall and the absence of a permanent surface water body. The Auditor notes that sediment accumulation may still occur over a long period of time even in ephemeral water bodies.
- It is considered that an estimation of targeting a hotspot size should be made given that some areas have only undergone judgemental sampling.
- How was the terminal depth of the boreholes decided ?

- Where the Section summarised the results from the PB investigations, it would be useful to include a summary of the borehole names, sample depths and include the range of contaminant concentrations.
- How many of the tip sites had sub-surface samples collected ?
- Were there stockpiles in all the areas where a '0' is marked in Table 4.3 ? Currently it is unclear whether stockpiles were presented and not sampled, or whether there were no stockpiles.
- In relation to samples that were collected from unknown locations and unknown depths, did any of these have elevated concentrations for CoPC ? Were these results included in the assessment tables ?
- Is there any further information on Wells 1 to 3 ? Were the wells open to ambient air (and therefore potentially from surface water and atmospheric interference) ? Section 4.3.3 stated that their depths were unknown. Were their depths investigated during the works by the use of an interface probe ? Is it possible that these wells may have targeted the deeper aquifer (whereas the wells drilled by SKM targeted the shallower aquifer) ?
- Section 4.4.10 stated that some groundwater samples underwent laboratory filtering, although did not specify the type.
- The development details for GW10, and wells after GW 20 do not appear to have been presented in Appendix H.
- The Standing Water Level (SWL) did not appear to have been recorded during the sampling of some wells, including GW21, GW22 and GW23. Was the interface probe not working (as specified on the sheet for GW05) ?
- The majority of the information pertaining to Section 41 is also included in the Section 34 SSI, although some of the sampling locations were not included. Justification for these inclusions/exclusions should be included.
- GW10 was designated as a background well. On what basis was it assessed to be a background well ?
- Wells 1 to 3 and Bore 2 do not appear to be located on Figure 7.

5.6 Site Assessment Guidelines

Section 5 summarised the soil and groundwater investigation criteria.

The Auditor considers no clarification is required for Section 5.

5.7 Overview and General Observations

Section 6 included information on the ground conditions, waste inventory and hazardous materials.

The Auditor considers that the follow requires clarification in Section 6:

- Section 6.1 stated that no investigation could be undertaken at Tip Site 5 due to the cultural sensitivity of the Site, which is considered to be a data gap.
- What was the name of the two groundwater bores mentioned in Section 6.2 ? Where were they located ?
- Section 6.3 stated that the hazardous materials removed by a remediation contractor from the main compound, subsequent to the investigation by PB, although there is no documented evidence of this removal. It is suggested that the presence or absence of these hazardous materials be investigated prior to the transfer of Section 34 as there is still the potential for them to remain on site.
- The Auditor considers it would be advantageous if the observations made by PB of the hazardous material (as listed in Appendix K) could be updated by SKM observations to ensure all materials were inspected.
- The logs of the investigations completed by PB were not included in the Report, including descriptions of surface soil sampling locations.

5.8 Quality Assurance and Quality Control

Section 7 provided a summary of the quality assurance and quality control procedures, although Appendix J provided a more comprehensive summary.

The Auditor considers that the follow requires clarification in Section 7:

- Appendix G included calibration certificates for multi gas detectors. Were these used on the project ? Additionally, was any daily field bump testing carried out on instruments kept longer than a day ? If so, please include this information.
- Section 1.6 of Appendix J stated that rinsate samples were only taken during soil sampling on two occasions. Please provide justification for this and supply the names of the rinsate samples in this Section. Does SKM know if rinsate samples were taken by PB during its investigations ? Additionally, Section 1.7 stated that trip blank samples were taken on three occasions. Why were trip blank samples not analysed for every soil and groundwater sampling event ? Additionally, the names of these samples does not seem to have been provided.
- Section 1.5 in Appendix J. stated that intra-laboratory data for PB investigations was not available, although consequences of this was not discussed. Was the collection of these samples, for which there are no results, included in the calculation of the suitability of the rate of duplicate sampling ?
- The effect of the matrix spike recoveries outside of the limits of reporting were not discussed.

A brief independent check on the laboratory data was also completed and the following was noted:

- Where was DUP02 presented on the CoC for 285624 taken from ?
- Where were ABS 1 to ABS 3 taken from ?
- The sample receipt temperature was recorded as being high for several sample batches (including where volatile analysis was requested, although this was not discussed. Such batches included MGT Labmark 385992, 386370).
- Page 488 stated that a hydrocarbon sheen was noted in GW23 and GW24, but this was not discussed in the main body of the Report.

5.9 Assessment of Soil Contamination

Section 8 outlined information relating to the previous investigations, field observations, and a summary of the laboratory analytical results.

The Auditor considers that the follow requires clarification in Section 8:

- Section 8.2 stated that some errors may have occurred due to the large volume of data, but did not discuss what these might be or what effect these errors might have on the interpretation of the results.
- Section 8.3.2 did not discuss the SKM or PB results from Tip Sites 4 and 5, although Section 4 indicated that surface and sub-surface samples were taken.
- The minor elevated PID readings mentioned in Section 8.2 should be provided.
- Section 8.2 states that PID sampling was selectively undertaken on samples, although it did not specify on what basis.
- Logs or soil descriptions for samples were not provided for the PB investigation.

5.10 Assessment of Groundwater Contamination

Section 9 provided a summary of the groundwater levels, physical and chemical water quality parameters and a summary of the laboratory analytical results.

The Auditor considers no clarification is required for Section 9, apart from the fact that the “rotten egg odour” noted on the sampling sheet in Appendix I for GW26 was not discussed in the main body of the Report.

5.11 Summary of Findings

Section 10 provided a summary of the objectives, the soil contamination, groundwater contamination and general waste.

The Auditor considers Section 10 should be updated based on the comments provided above.

6.0 Technical Review – Section 41 SSI

The Site Auditor has undertaken a technical review of the Section 41 SSI with the following technical comments provided in the sections below.

6.1 Executive Summary

The Executive Summary provided a summary of the background, scope of works and a summary of the key findings.

The Executive Summary should be updated to reflect any changes associated with the comments below.

6.2 Introduction

The Introduction Section provided information on the background, objectives, scope of works, the guidelines and standards.

The Auditor considers that sufficient information was provided in the Introductory Section.

6.3 Site Identification and History

Section 2 of the Section 41 SSI included information on the location of Cox Peninsular and Section 41, a description, the use, the history, a summary of previous investigations, the contaminants of potential concern (CoPC), pathways and receptors for Section 41.

The Auditor considers that the follow requires clarification in Section 2:

- Section 2.4 should summarise the information in the milestone reports pertaining to Section 41, as the Section 32 SSI did to aid with data gap analysis. Additionally, the previous investigation location nomenclatures should also be provided.
- The location of the infrastructure identified in Section 2.5.1 should be marked on a site plan.
- Were there any basements in the buildings onsite ?

6.4 Environmental Setting

Section 3 of the Section 41 SSI included information on the topography, hydrology, geology, hydrogeology, and sensitive local environments.

The Auditor considers that sufficient information is provided in Section 3, although clarify is required over whether any of the sensitive local environments listed in Section 3.5 are specially protected, and if so, are there are conditions about the use and development on them which may affect potential future remedial works ?

6.5 Site Investigation and Design Methodology

Section 4 of the Section 41 SSI includes the purpose of the investigation, the investigation design, field investigation and laboratory analysis.

The Auditor considers that the follow requires clarification in Section 4:

- Some of the contaminant listed as potentially being present in Table 2.1 were not listed as CoPC in Table 4.1.
- Step 4 in Section 4.2.5 states that sediment contamination is unlikely to be significant due to high rainfall and the absence of a permanent surface water body. Sediment accumulation may still occur over a long period of time even in ephemeral water bodies.
- Should Section 4.4.7 state that the PID was fitted with a 10.6 eV lamp, as in Section 32 and Section 34 ?
- It is considered that an estimation of targeting a hotspot size should also be made given that some areas have only undergone judgemental sampling.
- How was the terminal depth of the investigation locations decided ?
- Where the Section summarises the results from the PB investigations, it would be useful to include a summary of the investigation location names.

- Is any further information about the sand blasting in Section 4.3.2 available ?
- Section 4.3.2 also states that there was potential fuel storage in Section 41, although does not specify what this might include and what form of storage it might have taken.
- Table 4.4 denotes GW 10 as a background well. Do SKM believe this would be upgradient of potentially contaminating activities associated with the Government use (and associated leases) of the Section ?
- Section 4.4.10 states that some groundwater samples underwent laboratory filtering, although did not specify the type.

6.6 Site Assessment Guidelines

Section 5 summarised the soil and groundwater investigation criteria.

The Auditor considers no clarification is required for Section 5.

6.7 Overview and General Observations

Section 6 included information on the ground conditions, waste inventory and hazardous materials.

The Auditor considers that the follow requires clarification in Section 6:

- Did PB note any other potentially hazardous materials in Section 41, other than the asbestos noted in Section 6.3 ?
- Could the observations PB made of the hazardous material be updated with the observations SKM made to ensure all the material were inspected ?
- The logs of the investigations completed by PB were not included in the report, including descriptions of surface soil sampling locations.

6.8 Quality Assurance and Quality Control

Section 7 provided a summary of the quality assurance and quality control procedures, although Appendix J provide a more comprehensive summary.

The Auditor considers that the follow requires clarification in Section 7:

- Appendix G includes calibration certificates for multi gas detectors. Were these used on the project? Additionally, was any daily field bump testing carried out on instruments kept longer than a day ? If so, please include this information.
- Section 1.6 of Appendix J states that rinsate samples were only taken during soil sampling on two occasions. Please provide justification for this and supply the names of the rinsate samples in this section. Do SKM know if rinsate samples were taken by PB during their investigations ? Additionally, Section 1.7 states that trip blank samples were taken on three occasions. Why were trip blank samples not analysed for every soil and groundwater sampling event? Additionally, the names of these samples was not supplied.
- Section 1.5 in Appendix J. also states that intra-laboratory data for PB investigations was not available, although this was not discussed.
- The effect of the matrix spike recoveries outside of the limits of reporting were not discussed.

A brief independent check on the laboratory data was also completed and the following was noted:

- The sample receipt temperature was recorded as being high for several sample batches (including where volatile analysis was requested, although this was not discussed. Such batches included MGT Labmark 385992, 386370).

6.9 Assessment of Soil Contamination

Section 8 outlines information relating to the previous investigations, field observations, and a summary of the laboratory analytical results.

The Auditor considers that the following requires clarification in Section 8:

- Section 8.2 states that surface soil samples were taken from near the lead blasting, although did not specify the nomenclature of these.
- Section 8.2 states that PID sampling was selectively undertaken on samples, although does not specify on what basis.
- Logs or soil descriptions for samples were not provided for the PB investigation.
- Was any evidence of fuel storage noted onsite?

6.10 Assessment of Groundwater Contamination

Section 9 provided a summary of the groundwater levels, physical and chemical water quality parameters and a summary of the laboratory analytical results.

The Auditor considers no clarification is required for Section 9, although it is noted that the development sheet for GW09 is not presented in Appendix H.

6.11 Summary of Findings

Section 10 provided a summary of the objectives, the soil contamination, groundwater contamination and general waste.

The Auditor considers Section 10 should be updated based on the comments given above.

7.0 General Review Comments for Sections 32, 34 and 41

- Justification for the use of Victorian guidelines requires further discussion.
- Has the potential for the carbonate rocks to be a potential source of carbon dioxide been considered ?
- Section 3.4 states that there are two aquifers at the site, the first of which is between 10 and 46 m bgs and the second is more than 58 m bgs. Do SKM consider that only the shallower aquifer has been assessed ?
- Were samples collected directly from the augers? If so, a discussion about the limitations of this should be presented.
- What happened to the waste generated during the onsite investigations, including purged water and material from borehole drilling ?
- Are all of the Work Instructions presented in relevant to the works carried out including Work Instructions, 8, 11, 18, 20, 29 ?
- It is stated that gauging of the monitoring wells was undertaken on 22 July and 10 September as discrete events, although the results of the September round of gauging were not included in the reports
- Could a key to explain what the graphics mean on the logs be included ?
- Were any photoionisation detector (PID) readings taken in the groundwater monitoring wells ? Only a few wells include the information of the PID readings. Where are the PID readings presented for surface samples ?
- Sample receipt notes were not included for any laboratory reports.
- It appears that laboratory results for all of three Sections have supplied in each SSI.
- Were tanks located in Section 32 and 34 only ?
- Sections 34 and 41 have compared the PB soil results for petroleum hydrocarbons to NSW EPA Guidelines for Assessing Service Station Sites (1994) given that these align with the fractions reported in the PB reports as the PB works were completed prior to the NEPM amendments. Might they be compared to the ASC NEMP guidelines to allow for consistent assessment between the SKM and PB investigations?

8.0 Conclusions

It is requested that the issues raised in this correspondence be addressed and incorporated into the revised Section 32, 34 and 41 reports.

Should you have any further queries relating to this review, please do not hesitate to contact Paul Steinwede directly.

Yours sincerely,



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cc: Adrian Kirk, Dept of Finance and Deregulation
Ross Edwards, Jacobs

This interim site audit advice is not a Site Audit Report or a Site Audit Statement, but forms part of the Site Audit process. It is intended that a Site Audit Statement and report will be issued at the completion of the Site Audit.

Consistent with NSW EPA requirements for staged "sign-off" of sites that are the subject of progressive assessment, remediation and validation, the Auditor is required to advise that:

- This site audit advice does not constitute a site audit report or statement.
- This interim advice is considered by the Auditor to be consistent with NSW EPA guidelines and policies.
- This interim advice will be documented in the final Site Audit Statement and associated documentation.
- At the completion of the site audit, a Site Audit Statement will be prepared, for the consent agency to include the Site's property information, held by the local council.

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2 September 2016

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Dear Ross

Site Auditor Interim Advice - Review of Jacobs Supplementary Investigation Report
Section 261, Cox Peninsula, Northern Territory

1.0 Introduction

In his role as a Northern Territory Environmental Protection Authority (NT EPA) accredited Contaminated Site Auditor, Paul Steinwede of AECOM Australia Pty Ltd (AECOM), has been engaged by the Department of Finance (Finance) to review documentation relating to the investigation and remediation works being undertaken for the Cox Peninsula Remediation Project, Northern Territory.

The Cox Peninsula Remediation Project site was previously divided into Section 32, 34 and 41. To facilitate various aspects of the land handback, Section 32 has now been divided into the following Sections:

- Section 261 (S261) – the Australian Communications and Media Authority (ACMA) sites
- Section 262 (S262) – the area surrounding the ACMA sites and Wagait Shire Tip
- Section 263 (S263) – the western portion of the Wagait Shire Tip
- Section 264 (S264) – the eastern portion of the Wagait Shire Tip

This letter provides Interim Site Auditor Advice in relation to S261, the ACMA Sites. As part of this role, the Auditor has reviewed the documentation listed in Section 2.0 which relates to investigation and remediation planning for S261 in order to support the future transfer to the Northern Territory Government and ultimately the Larrakia people for future use.

The Environmental Consultant for the Project, Jacobs Group (Australia) Pty Limited (Jacobs), was commissioned by Finance to complete a supplementary site investigation (SSI) and prepare a Remediation Action Plan (RAP) for S261. Separate SSI reports have been prepared for the other Sections as required and will be reviewed separately by the Site Auditor.

This letter should be considered Interim Advice from the Auditor. A copy of this correspondence will be included in the final supporting Site Audit Report for S261.

2.0 Documents Reviewed

For preparation of this letter, the Site Auditor has reviewed the following document:

- Jacobs (2016), *Cox Peninsula Remediation Project, Supplementary Site Investigation – Section 261*, March 2016 (Ref. IW102400-0000-NP-RPT-0003). This will hereafter be referred to as the "S261 SSI".

In reviewing the above report, the Auditor has referred to the following documents:

- SKM (2014), *Cox Peninsula Supplementary Site Investigation - Section 32*, January 2014 (Ref. VW07225 version V2 Draft). This will hereafter be referred to as the "Draft S32 SSI". (Note SKM are now Jacobs). The Section 32 SSI has now been updated and focusses on the Section now known as S262 being the area surrounding the ACMA sites and Wagait Tip.
- AECOM (2014), *Environmental Audit - Provision of Interim Site Auditor Advice, Review of SKM Supplementary Site Investigation Reports for Sections 32, 34 and 41, Cox Peninsula, Northern Territory*, 11 November 2014. This letter provided the Auditor's comments on the Draft S32 SSI report.

3.0 Technical Review

The Site Auditor has undertaken a technical review of the S261 SSI Report and reviewed against comments (AECOM, 2014) on the Draft S32 SSI report as they related to S261.

For ease of reading, the Auditor's comments for consideration are included within grey shaded text boxes throughout this Interim Advice. The Auditor notes that additional information was included in the updated report following the Interim Advice (AECOM, 2014).

3.1 Executive Summary and Introduction

The Executive Summary provided updated information on the background of the Cox Peninsula site and the various sections and relevant reports. The background information identified that S261 was the focus of this SSI report.

The Executive Summary and Introduction of the SSI provided the following key information:

- Section 1.1 Background identified that the future use will be by Traditional Owners. Section 1.2 Objectives identified that S261 will be used for public open space. Based on the likely future use of S261 the most sensitive future use scenario (i.e. Public Open Space) was applied for the purposes of assessing the nature and extent of contamination.
- A summary of assessment findings for soil was provided and identified exceedances of contaminants of concern that were typically reported in a small number of areas of interest rather than widely distributed across S261 as a whole.
- A summary of findings for groundwater was provided and identified various exceedances of the adopted assessment criteria for protection of human and ecological health, as well as aesthetics.
- A summary of findings was provided for general waste, remnant infrastructure and hazardous materials which included:
    - Information on tip sites, including those in S262 and waste which ranged from general demolition waste (corroded metal drums, sheeting, structures and caballing), miscellaneous mechanical equipment, concrete, timber, glass, porcelain, brick and asbestos containing material (ACM). Jacobs reported the nature of the waste suggested it originated from the compound at the Site during historic use by Radio Australia.
    - Remnant infrastructure, comprising antenna footings as wells as associated underground utilities connecting various antenna arrays with the compound at the Site. Previous trenching and sampling around these structures has reported no evidence of chemical treatment in these areas, i.e. for the control of termites.
- Section 1.4 was updated to provide a list of NSW EPA made or endorsed guidelines and standards used as reference for the investigation. The Draft S32 SSI had referred to guidelines under Victorian State legislation. Section 5 and Appendix A was updated to indicate that the analytical results for soil were screened against the Health Investigation Levels (HILs) for Public Open Space (HIL-C) rather than all four land use settings which were considered in the Draft S32 SSI.

The following changes were made to the report:

- The Background Section identified future use by Traditional Owners. Whilst it is not specifically clear in the Executive Summary what the future use will be for S261 (as previously requested by the Auditor) Section 1.2 and Section 2.5.3 identified that it will be public open space. Based on the likely future use of the Site the most sensitive future use scenarios (i.e. Public Open Space) have been applied for the purposes of assessing the nature and extent of contamination at the Site.

The Auditor considers that overall the S261 SSI provided a suitable Executive Summary and Introduction Section which generally met the requirements of NSW EPA (OEH, 2011)[1].

The Executive Summary should be updated to reflect any changes associated with the comments by the Auditor presented in the following sections. The following additional comments are noted:

- In Section 1.4 reference should be made to the Northern Territory (NT) Environment Protection Agency (EPA) *Guidelines for Consultants Reporting on Environmental Issues*. The Auditor notes that the NT EPA guidelines are largely adopted from the NSW Guidelines referred to in the SSI.
- In addition reference should be made to the NT *Waste Management and Pollution Control Act* and the *National Environment Protection Council (Northern Territory) Act* which are the key pieces of legislation for the assessment of contaminated sites in the Northern Territory.

[1] NSW OEH (2011) *Contaminated sites: Guidelines for Consultants Reporting on Contaminated Sites*

3.2 Site Identification and History

The S261 SSI provided information for the identification, current land use and history of S261, and the broader Cox Peninsula area, and these sections had been updated following previous comments from the Auditor. The following key information was presented:

- No basements were known to have existed or currently exist at S261 (Section 2.2).
- The layout of S261 was presented on Figure 2. All figures were overlaid on aerial photographs to show infrastructure/investigation areas. Five figures (Figure 3 to 5, 7 and 8) were presented which highlighted areas of significant heritage sites and areas of sensitive local environments.
- Section 2.3 provided information on site history, including the demolition of above ground infrastructure in the late 1990s. Concrete slabs remained in-situ due to the historical sub-slab treatment with dieldrin.
- Additional details were provided on the lack of information regarding the demolition of the above ground tanks and an air conditioning unit. No details were provided to Jacobs as evidence of validation sampling or waste disposal dockets.
- Section 2.3 reported on the current ACMA use of S261 since demolition in the late 1990s, as a monitoring and High Frequency Direction Finding (HFDF) facility. Infrastructure in Area A (ACMA main compound) included a temporary building used as an equipment hut, an antenna tower, a small transformer, a septic tank and a disused underground fuel storage facility. Area C (HFDF compound) contains a small temporary building (used as an equipment hut) as well as a number of small antenna connected by a network of underground cables.
- Section 2.4.1 provided some additional details on the condition of the asbestos identified.
- Section 2.5 was updated to no longer reference future residents as potential receptors of concern.

The Auditor considers that the follow requires clarification in Section 2:

- In Section 2.4.1, the potential volume of asbestos was not provided.
- Tip Site E-1 and Area E are contained within S261 and should be included in Table 2.1 and Table 2.3. Also, a description of possible materials disposed of at the Tip Site would be useful to inform historic site use and potential CoPCs.

The Auditor considers that the S261 SSI provided sufficient information for the identification and history of the section.

The following comments are noted:

- S261 is currently listed as S32 on the Northern Territory Governments database.
- The SSI did not include a survey plan for S261, however it is understood that this will be provided as part of the validation report following remediation and validation works.

3.3 Environmental Setting

Section 3 (Environmental Setting) of the S261 SSI included general information on the topography, hydrology, geology, hydrogeology, and local sensitive environments.

The Auditor considers that the updated S261 SSI generally addressed the Auditor's comments on the Draft S32 SSI report. The following additional comments are noted:

- Section 3.4 provided a description of the hydrogeology and stated that shallow aquifers are widely distributed on Cox Peninsula at depths between 10 m and 46 m. The Auditor has previously commented on the assessment of the shallow aquifer across the Cox Peninsula site and this should be addressed as part of the ongoing assessment and review of remediation works for S261).
- Section 3.5 provided sufficient information to identify sensitive local environments. It is noted that an EPBC referral was completed and deemed that the remediation project is not considered to be a controlled action under Section 75. The SSI recommended the development of a robust Environmental Management Plan to ensure impacts of significant environmental features will be managed appropriately for the areas to be disturbed. On this basis, no further clarification is required for the S261 SSI. However, the Auditor requests this should be addressed in the RAP/during remediation works.

3.4 Site Investigation and Design Methodology

Section 4 of the S261 SSI included the purpose of the investigation, the investigation design, field investigation and laboratory analysis. The investigation and sampling methodology presented in the SSI was designed to identify, delineate, and assess the presence, level and extent of the primary areas of contamination within S261.

The data quality objectives were in general accordance with the process presented by the National Environment Protection (Assessment of Site Contamination) Measure 2013 (ASC NEPM, 2013), which references the United States Environmental Protection Authority (US EPA) guidance documents for the design and implementation of the SSI. The main site investigation tasks undertaken by Jacobs for the S261 SSI were aimed at supplementing the previous work carried out by Parsons Brinckerhoff (PB).

- Table 4.1 conceptual site model (CSM) for S261 presented the contaminants of concern for the areas of interest. Table 4.1 included the neighbouring study areas located in S262.
- Section 4.1.5 identified that landfill gases are not likely to be generated from on-site sources.
- Section 4.1.5 identified that sediment contamination was not likely to be a significant issue due to high rainfall and surface water flows during the wet season and the absence of permanent surface water bodies in S261. Jacobs acknowledged that there is a possibility that sediment accumulation may occur over the long-term but that it is unlikely that contaminants will be retained due to the powerful nature of the local hydrological processes and flows.
- Section 4.2.1 provided retrospective estimations on hotspot sizes based on NSW EPA Sampling Design Guidelines (NSW EPA, 1995). Hotspot sizes were estimated for Area A (9 m radius).
- Table 4.3 presented a summary of soil samples collected at S261. Based on the table only Areas A, C E and Tip Site E-1 had subsurface soil testing completed.
- Section 4.2.2 identified MW4 (located in S262) as located up hydraulic gradient of potential contamination sources from the areas of interest to provide background groundwater conditions. MW10 was considered to be representative of background conditions based on the findings of groundwater flow direction around areas of interest and the absence of potential contamination sources up hydraulic gradient of the well. There are no up hydraulic gradient groundwater monitoring wells located in S261.
- Table 4.4 was updated to include results for two additional wet season groundwater monitoring events (GMEs) between February 2014 and March 2014 and between March 2014 and April 2015.

The Auditor considers that the follow requires clarification in Section 4:

- The areas of interest in Table 4.1 did not appear to match the areas of interest in Table 2.3 and some of the contaminants included in Table 2.3 appeared to be missing from Table 4.1. Additionally, Table 2.3 indicated that microbial and soil gas contamination is likely to be present on site, although these were not discussed in Table 4.1 and did not appear to have been investigated at Section 261.
- As Area E is contained within S261 it should be added as an AOI under “Site” in Table 4.1. Reference to Area E-1 needs to be updated to Tip Site E-1.
- Wagait Shire Tip (S263 and S264) no longer needs to be included under “Site” in Table 4.2, but moved to “Neighbouring Site Areas”.
- Table 4.3 did not include details of soil sampling completed at Area F.
- For Area E, in Table 4.3, text to be updated to “No soil samples were taken inside the portion of Area **E** that lies within the Site”.
- In Table 4.4, the targeted screened intervals for monitoring wells located in S261 did not provide targeted screened intervals, specifically in the wet season, when screened intervals are not located within the water table. The Auditor has previously commented on this for the whole Cox peninsula site and this should be considered in future assessment/validation particularly where in proximity to subsurface tip sites.

3.5 Site Assessment Criteria

Section 5 of the S261 SSI presented the site assessment criteria used for the Investigations. The soil investigation criteria were based on the environmental values and proposed further land use of Public Open Space. Groundwater contamination criteria were developed based on the NSW State Groundwater Policy Framework Document (NSW DLWC, 1997) and the Guidelines for the Assessment and Management of

Groundwater Contamination (NSW DEC, 2007). Appendix A provided further detail on the regulatory framework and assessment guidelines utilised for the SSI.

The Auditor considers that the site assessment criteria used for the investigation were suitable for the S261 SSI. As previously noted, the following comments are made in relation to NT regulatory framework:

- It is also noted that under the *National Environment Protection Council (Northern Territory) Act 2004* the NT EPA endorses the use of the NEPM framework which is the jurisdiction where the SSI occurs, not NSW EPA jurisdiction as mentioned in Appendix A Section A.1.1 of the SSI.
- Appendix A provided information on the derivation of EILs using site specific physiochemical soil properties. The inputs to the calculations and the rationale for selection were clearly presented and were the same as presented in other section SSI reports (i.e. S41 and S266). The Auditor has previously commented on the EILs and the fact that the Auditor was not able to replicate all the EILs using the input data presented in Table A.1 and the ASC NEPM Ecological Investigation Calculation Spreadsheet. The S261 SSI should be updated in accordance with updates to the other Section SSI Reports.
- It was noted in A.1.4 that the full tabulated results from which these input parameters have been derived was presented in a table at the end of the Appendix, however this was missing.

It is noted that Appendix A presented similar information for each of the SSI reports. The Auditor has previously provided comment on the S35, S41, S262 and S265 SSIs and the following comments also relate to S261:

- Given the location of MW04, the Auditor considers that it is representative of background conditions for S261.
- Appendix A indicated that the site specific Groundwater Investigation Levels (GILs) were developed using the average from 9 samples taken from MW04 and GW10 and the laboratory LOR.
- The Auditor notes that Appendix A presented data for both MW04 and GW10 to describe the background groundwater conditions, while the main report text only mentions MW04. The Auditor notes that MW04 was considered for S262 background conditions. Can you confirm if results from MW04 have been used for deriving the GILs for S265 ?

3.6 Overview and General Observations

Section 6 provided information on the ground conditions, waste and infrastructure inventory and hazardous materials. This section presented the following key information:

- No intrusive investigations were undertaken at Area C, E, Area E or Area F, due to ongoing operations by ACMA (Area C), or due to a lack of evidence of sub-surface filling (Tip Site E-1).

The following requires further clarification in relation to Section 6:

- The report noted that the numerous stockpiles identified around the edge of the formerly cleared area are likely to have originated from the clearing of Area F. No further evaluation was provided of the potential CoPC of Area F (as presented in Table 2.3) and potential impact on Area E of S261.
- Section 6.3 stated that soil samples were not collected from each area where suspected ACM was encountered, although no justification was provided. Only soil at Tip Site E-1 was sampled. Where were the service pits encountered ? Where these located at the Tip Site E-1 ?
- Section 6.3 appeared to still focus on asbestos. Were any other hazardous materials surveyed while on site, including those identified in previous investigations, such as PCB containing material or resinous membrane, reported in the PB hazardous materials register (provided in Appendix D) ?
- Table 6.1 and Table 6.2 would benefit from including a column listing where (Areas) the samples were collected from.

3.7 Quality Assurance and Quality Control

Section 7 provided a summary of the quality assurance and quality control procedures, while Appendix N provided more comprehensive procedures. Jacobs stated that the QA/QC program was in general accordance with recommended good practice, standards and guidelines relevant to the investigation, with minor non-compliances associated with recommended practice or data quality objectives.

The following requires further clarification in relation to Section 7 and Appendix N. The Auditor notes that Appendix N presented the entire Cox Peninsula Project QA/QC for all areas (S41, S261, S262 and S265). The following comments are noted:

- No daily calibration/bump test records were supplied, only the supplier certificates.
- A large number of sample batches reported raised sample receipt temperatures by the analysing laboratory for the 2013, 2014 and 2015 laboratory reports. The updated report did not include a discussion on sample receipt temperature.
- Appendix I and J contained the laboratory supplied documents. It is noted that sample receipt notifications (SRN) and the some Chain of Custody documents (refer Appendix I) were not included for the 2013, 2014 and 2015 program.
- A number of the field sheets were missing information. For example, for the 2014 groundwater sampling, the total depth was not noted for any groundwater monitoring wells sampled. For the 2015 groundwater sampling, observations were omitted for GW09 (sampled on 13/04/2015), GW04 and GW07 (sampled on 15/04/2016). A sampling form was not included for MW12 (sampled on 10/04/2015).
- A "slight putrid odour" was noted at GW14 but this was not discussed in the text of the report.
- Section 2.5 in Appendix N stated that duplicate samples were not analysed for a comprehensive suite, although there was no discussion on the implications of this. The Auditor has previously commented on this (AECOM, 2014).
- The effect of the matrix spike recoveries outside of the limits of reporting (in Table 3.4, Appendix N) were still not discussed in the updated report. The Auditor has previously commented on this (AECOM, 2014).

3.8 Assessment of Identified Soil and Groundwater Contamination

Section 8 and Section 9 provided the assessment of the identified soil and groundwater contamination across the Site. The Auditor notes the following changes were made to the report:

- Section 8 (Assessment of identified soil contamination) confirmed that PID field screening was undertaken from locations where groundwater wells were drilled and installed, tip sites, all stockpile sampling locations and background soil sample locations. Generally field screening was below 0.5 ppm.
- Jacobs advised that previous PB investigations did not involve the collection of soil samples. As such logs and soil description were not specifically provided in the S261 SSI report.
- Section 9 (Assessment of identified groundwater contamination) discussed the two additional groundwater monitoring and sampling rounds in 2014 and 2015. The report also provided some additional information and assessment criteria relevant to the investigations.
- Appendix A was updated to include amended criteria for groundwater on the basis of the background concentrations in accordance with NSW EPA (2007). For this assessment Jacobs indicated they used the data from two wells, GW10 and MW04, which were considered background wells across the Cox Peninsula Remediation Project Sites.
- The background location of the groundwater investigations was MW04 located on the southern boundary of S262.

The Auditor notes the following:

- Given the location of MW04, the Auditor considers that it is reasonable to assume that this is representative of background conditions in S261.

The Auditor notes that some of the above comments are consistent across the Cox Peninsula Remediation project SSIs (e.g. the derivation of the site specific EILs).

3.9 Summary of Findings

Section 10 provided a summary of the objectives, the soil contamination, groundwater contamination and general waste findings.

The Auditor considers that overall the S261 SSI provided a suitable summary of the findings of the investigation

The following requires further discussion:

- Section 10.3 did not discuss the implications of exceedances of the relevant criteria for remediation works and for the long-term use of groundwater for irrigation impacted with iron, industrial land use (low pH of groundwater across S261) and the aggressivity of the groundwater (in relation to buildings and structures).
- In Section 10.4, the report stated that numerous stockpiles were identified around the edge of Area E of the formerly cleared area and likely to have originated from the clearing of Area A. However, in Section 6.2, the report stated these were likely to have originated from the clearing of Area F. Please confirm which area the material was likely to have originated from and hence, the potential CoPCs potentially impacting Area A in S261.
- Section 10.5 summarised Hazardous Waste, however as per Section 6.3, did not discuss the potential for other hazardous materials, as listed in PB hazardous materials register (provided in Appendix D).

4.0 Auditor Summary and Conclusions

Notwithstanding the specific comments made, clarifications and amendments sought in this letter, the Site Auditor considers that the S261 SSI provided a suitable summary of the investigations for S261 and is suitable for use to inform the proposed remediation works. It is noted specifically that the Auditor requests further clarification and/or investigation in relation to the wet season shallow perched aquifer.

Yours sincerely



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Debbie Midwinter - AECOM

REGISTER OF DOCUMENT COMMENTS	
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ITEM NO.	TEXT REF.	AUDITOR COMMENT	JACOBS RESPONSE
The auditor considers that overall the S261 SII provided suitable Executive Summary and Introduction Sections which generally met the requirements of NSW EPA (OEH, 2011)			
1	Section 1.4	Reference should be made to the Northern Territory (NT) Environment Protection Agency (EPA) Guidelines for Consultants Reporting on Environmental Issues. The Auditor notes that the NT EPA guidelines are largely adopted from the NSW Guidelines referred to in the SSI	This reference is now included within the list in Section 1.4.
2	Section 1.4	In addition, reference should be made to the NT Waste Management and Pollution Control Act and the National Environment Protection Council (Northern Territory) Act which are the key pieces of legislation for the assessment of contaminated sites in the Northern Territory	These references are now included within the list of Section 1.4.
3	Section 2.4.1	The potential volume of asbestos was not provided	The estimated volume of potential ACM has been included.
4	Section 2	Tip Site E-1 And Area E are contained within S261 and should be included in Table 2.1 and table 2.3. Also, a description of possible materials disposed of at the Tip Site would be useful to inform historic site use and potential CoPCs	Table 2.1 and Table 2.3 have been revised accordingly, including Table 4.1 and associated text.
5	Section 2	S261 is currently listed as S32 on the Northern Territory Governments database.	The NLC and the NTG will arrange for the registration of all necessary documents (ILUA and Land Grant) at the LTO to effect the land transfer into the name of the Kenbi Aboriginal Land Trust. This process will be completed in due course. Refer to the flow chart provided from Department of Finance for further information regarding the transfer process.
6	Section 2	The SSI did not include a survey plan for S261, however it is understood that this will be provided as part of the validation report following remediation and validation works.	Survey plans will be provided in the S261 Validation Report.
The Auditor considers that the updated S261 SSI generally addressed the Auditor's comments on the Draft S32 SSI report. The following additional comments are noted:			
7	Section 3.4	Section 3.4 provided a description of the hydrogeology and stated that shallow aquifers are widely distributed on Cox Peninsula at depths between 10 m and 46 m. The Auditor has previously commented on the assessment of the shallow aquifer across the Cox Peninsula site and this should be addressed as part of the ongoing assessment and review of remediation works for S261).	There are a number of points to consider in relation to the groundwater use and groundwater levels in Section 261: -The aesthetic qualities of the groundwater preclude use as drinking water. - Identified contamination at the Site has not been identified at depth in the soil profile, indicating that downward migration of contamination to groundwater has not occurred. -The slightly moist nature of the strata below 2m is noted and is likely attributable to residual moisture in the strata from the wet season. Based on consideration of the multiple lines of evidence noted in the points above, it is considered that the yield, ephemeral nature and low pH do not make it suitable as a drinking water resource. In relation to the identified contamination at the Site, none has been identified at depth in the soil profile, indicating that downward migration of contamination has not occurred, therefore not impacting groundwater. The slightly moist nature of the strata below 2m is noted and is likely attributable to residual moisture in the strata from the wet season.

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8	Section 3.5	Section 3.5 provided sufficient information to identify sensitive local environments. It is noted that an EPBC referral was completed and deemed that the remediation project is not considered to be a controlled action under Section 75. The SSI recommended the development of a robust Environmental Management Plan to ensure impacts of significant environmental features will be managed appropriately for the areas to be disturbed. On this basis, no further clarification is required for the S261 SSI. However, the Auditor requests this should be addressed in the RAP/during remediation works.	No action required.
9	Table 4.1	The areas of interest in Table 4.1 did not appear to match the areas of interest in Table 2.3 and some of the contaminants included in Table 2.3 appeared to be missing from Table 4.1. Additionally, Table 2.3 indicated that microbial and soil gas contamination is likely to be present on site, although these were not discussed in Table 4.1 and did not appear to have been investigated at Section 261	Table 4.1 and Table 2.3 have been amended accordingly. Investigation of gas and microbiological contaminants has been revised as being relevant only to Wagait Shire Tip (Area D) is reported in a separate prepared SSI.
10	Table 4.1	As Area E is contained within S261 it should be added as an AOI under “Site” in Table 4.1. Reference to Area E-1 needs to be updated to Tip Site E-1.	Table 4.1 has been amended accordingly.
11	Table 4.2	Wagait Shire Tip (S263 and S264) no longer needs to be included under “Site” in Table 4.2, but moved to “Neighbouring Site Areas”.	This has been revised accordingly.
12	Table 4.3	Table 4.3 did not include details of soil sampling completed at Area F.	Table 4.3 has been amended accordingly.
13	Table 4.4	In Table 4.4, the targeted screened intervals for monitoring wells located in S261 did not provide targeted screened intervals, specifically in the wet season, when screened intervals are not located within the water table. The Auditor has previously commented on this for the whole Cox peninsula site and this should be considered in future assessment/validation particularly where in proximity to subsurface tip sites.	The only exceedances of adopted assessment criteria were limited to four locations within Area A (Former Radio Australia Receiver Station Site). A total of four aldrin+dieldrin exceedances of adopted human health criteria and a single arsenic exceedance of adopted ecological criteria were reported in surface soils (0-0.1 mbgl). The concentration of these contaminants at depth are either below adopted criteria or LOR, therefore indicating that vertical migration of contamination is limited. In relation to LNAPL associated with hydrocarbons (such as fuels or oils) the following is considered: -No TRH or BTEX were detected in groundwater samples obtained during investigations. -No LNPAL was detected at the site during groundwater sampling. -No visual indicators (oily sheens) were observed during sampling of groundwater. -No olfactory or PID indications of hydrocarbon contamination were recorded during investigations. On the basis of the soil results above for these tip sites, the vertical migration and therefore the potential for these sites to impact groundwater is considered highly unlikely.
The auditor considers that the site assessment criteria used for the investigation were suitable for the S261 SSI. As previously noted, the following comments are made in relation to NT regulatory			

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14	Appendix A Section A.1.1	It is also noted that under the National Environment Protection Council (Northern Territory) Act 2004 the NT EPA endorses the use of the NEPM framework which is the jurisdiction where the SSI occurs, not NSW EPA jurisdiction as mentioned in Appendix A Section A.1.1 of the SSI.	Section A.1.1 has been revised accordingly.
15	Appendix A Table A.1	Appendix A provided information on the derivation of EILs using site specific physiochemical soil properties. The inputs to the calculations and the rationale for selection were clearly presented and were the same as presented in other section SSI reports (i.e. S41 and S266). The Auditor has previously commented on the EILs and the fact that the Auditor was not able to replicate all the EILs using the input data presented in Table A.1 and the ASC NEPM Ecological Investigation Calculation Spreadsheet. The S261 SSI should be updated in accordance with updates to the other Section SSI Reports.	Jacobs acknowledges that the EILs used for the purposes of screening results are inconsistent with that calculated by the auditor using the NEPM EIL calculator with site specific inputs and guidance from Schedule B1. EILs for copper, nickel and zinc used in the SSI are either the equivalent or more conservative than that outlined in the NEPM and are therefore of no consequence. Jacobs added the ambient background concentration (ABC) for lead (17 mg/kg) to the generic criteria provided in the NEPM as per guidance in Schedule B1 of the NEPM, as such the criterion adopted for Areas of Ecological Significance (EIL-A) is 487 mg/kg and not 470 mg/kg. The EIL-A used for chromium (III) is less conservative (by 30 mg/kg) than that produced from the NEPM EIL calculator as well as nickel (by 5 mg/kg). As the only ecological exceedance within S261 was for arsenic (soils), no implications are present for the SSI. The site acceptance criteria for the RAP and future validation reports will be amended to reflect a revised value for chromium (III).
16	Appendix A A.1.4	It was noted in A.1.4 that the full tabulated results from which these input parameters have been derived was presented in a table at the end of the Appendix, however this was missing.	This erroneous omission will be rectified in the next issue of the SSI.
17	Appendix A	It is noted that Appendix A presented similar information for each of the SSI reports. The Auditor has previously provided comment on the S34, S41, S262 and S265 SSIs and the following comments also relate to S261: - Given the location of MW04, the Auditor considers that it is representative of background conditions for S261. - Appendix A indicated that the site specific Groundwater Investigation Levels (GILs) were developed using the average from 9 samples taken from MW04 and GW10 and the laboratory LOR. - The Auditor notes that Appendix A presented data for both MW04 and GW10 to describe the background groundwater conditions, while the main report text only mentions MW04. The Auditor notes that MW04 was considered for S262 background conditions. Can you confirm if results from MW04 have been used for deriving the GILs for S265 ?	Groundwater quality results from both wells (MW04 and GW10) have been selected for derivation of background conditions at S261 as well as S265 as outlined in Appendix A.
Section 6 provided information on the ground conditions, waste and infrastructure inventory and hazardous			
18	Table 2.3	The report noted that the numerous stockpiles identified around the edge of the formerly cleared area are likely to have originated from the clearing of Area F. No further evaluation was provided of the potential CoPC of Area F (as presented in Table 2.3) and potential impact on Area E of S261.	These stockpiles are located in S262 and are as reported in the S262 SSI.

REGISTER OF DOCUMENT COMMENTS	
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ITEM NO.	TEXT REF.	AUDITOR COMMENT	JACOBS RESPONSE
19	Section 6.3	Section 6.3 stated that soil samples were not collected from each area where suspected ACM was encountered, although no justification was provided. Only soil at Tip Site E-1 was sampled. Where were the service pits encountered ? Where these located at the Tip Site E-1 ?	Soil samples for asbestos analyses were collected from Area A, Area E and Type Site E-1 as reported in Section 7.3. No soil samples were collected from Area C due to the ongoing operation at the site by ACMA. The locations of encountered service pits are presented in Figure 4.
20	Section 6.3	Section 6.3 appeared to still focus on asbestos. Were any other hazardous materials surveyed while on site, including those identified in previous investigations, such as PCB containing material or resinous membrane, reported in the PB hazardous materials register (provided in Appendix D) ?	Section 6.6 now acknowledges the presence of potential PCB and OCP sheathing on underground cabling. Further sampling and of cables for PCBs and OCPs will be undertaken at the Site prior to commencing remedial activities and will be reported in the Validation Report for S261.
21	Section 6 (Table 6.1 and Table 6.2)	Table 6.1 and Table 6.2 would benefit from including a column listing where (Areas) the samples were collected from.	This suggestion has been adopted.
The following requires further clarification in relation to Section 7 and Appendix N. The Auditor notes that Appendix N presented the entire Cox Peninsula Project QA/QC for all areas (S41, S261, S262 and			
22	Appendix N	No daily calibration/bump test records were supplied, only the supplier certificates.	No daily calibration/bump tests were undertaken. Given negligible concentrations were recorded throughout the investigation (0- 3.7 ppm), any possible drift of the analytical precision of VOCs as recorded by the PID is considered to not be significant.
23	Appendix N	A large number of sample batches reported raised sample receipt temperatures by the analysing laboratory for the 2013, 2014 and 2015 laboratory reports. The updated report did not include a discussion on sample receipt temperature.	Despite all reasonable efforts to mitigate temperature elevation, some portable coolers were delayed in transit and consequently recorded elevated temperatures upon receipt by laboratories. A number of measures were undertaken by the laboratories in order to address the potential issue of volatilisation due to elevated temperature and subsequent release of volatile compounds from the sample matrix prior to analysis. These include: • Storage in sealed jars with Teflon lining • Scraped removal of the initial 10 mm – 20 mm of sample material from which release of volatiles may have already occurred. • Sourcing of sampling core for analysis from material at the centre of the sample • Immediate placement of sampling core into solvent to prevent any release of volatile compounds.
24	Appendix N	Appendix I and J contained the laboratory supplied documents. It is noted that sample receipt notifications (SRN) and the some Chain of Custody documents (refer Appendix I) were not included for the 2013, 2014 and 2015 program.	Laboratory records have been re-collated in Appendix A and J for insertion into the revised report.
25	Appendix M	A number of the field sheets were missing information. For example, for the 2014 groundwater sampling, the total depth was not noted for any groundwater monitoring wells sampled. For the 2015 groundwater sampling, observations were omitted for MW09 (sampled on 13/04/2015), MW04 and MW07 (sampled on 15/04/2015). A sampling form was not included for MW12 (sampled on 10/04/2015).	Jacobs acknowledges that total bore depth measurements are missing from the 2014 GME and records of observations were omitted from several bores in the 2015 GME. The omissions are not considered to significantly impact the quality of data base don the following considerations: -The bore depths have since been recorded in later GMEs and has not significantly changed. -Field staff were briefed to contact the project manager if they observed any visual or olfactory indicators of contamination.
26	Appendix M	A “slight putrid odour” was noted at MW14 but this was not discussed in the text of the report.	As MW14 is located within S263/S264, this observation will be reported in the S263/S265 SSI.

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ITEM NO.	TEXT REF.	AUDITOR COMMENT	JACOBS RESPONSE
27	Appendix N	Section 2.5 in Appendix N stated that duplicate samples were not analysed for a comprehensive suite, although there was no discussion on the implications of this. The Auditor has previously commented on this (AECOM, 2014).	As replicate samples are for the purposes of verifying the reproducibility of results obtained by the laboratories, the reduced suite has no implications on such results given that they were scheduled for the main contaminants of concern.
28	Appendix N	The effect of the matrix spike recoveries outside of the limits of reporting (in Table 3.4, Appendix N) were still not discussed in the updated report. The Auditor has previously commented on this (AECOM, 2014).	Potential implications have been included in a revised version of the QA/QC report in Section 3.4 located in Appendix N.
Section 8 and Section 9 provided the assessment of the identified soil and groundwater contamination across the			
29	Section 9	Given the location of MW04, the Auditor considers that it is reasonable to assume that this is representative of background conditions in S261.	No action required.

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2 September 2016

Ross Edwards
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Jacobs
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Dear Ross

Site Auditor Interim Advice - Review of Jacobs Remediation Action Plan - Section 261, Cox Peninsula Remediation Project, NT for Department of Finance

1.0 Introduction

In his role as a Northern Territory Environmental Protection Authority (NT EPA) Accredited Contaminated Site Auditor, Paul Steinwede of AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Finance (Finance) to review documentation relating to the investigation and remediation works being undertaken for the Cox Peninsula Remediation Project, Northern Territory (the Site).

As part of this role, the Auditor has reviewed the documentation listed in Section 2.0 which relates to investigation and remediation planning for Section 261 (S261) of the Site in order to support the future transfer of S261 to the Northern Territory Government (NTG) and ultimately the Larrakia people for future use.

The Environmental Consultant for the Project, Jacobs Group (Australia) Pty Limited (Jacobs) was commissioned by Finance to complete a Supplementary Site Investigation (SSI) and prepare a Remediation Action Plan (RAP) for S261.

This letter should be considered Interim Advice from the Auditor. A copy of this correspondence will be included in the final supporting Site Audit Report for S261.

2.0 Documents Reviewed

For preparation of this letter, the Site Auditor has reviewed the following document:

- Jacobs (2016a), *Cox Peninsula Remediation Project, Remediation Action Plan – Section 261*, March 2016 (Ref. IW102400-0000-NP-RPT-0008). This will hereafter be referred to as the "S261 RAP".

In reviewing the S261 RAP, the Auditor has also referenced the following:

- Jacobs (2016b), *Cox Peninsula Remediation Project, Supplementary Site Investigation – Section 261*, March 2016 (Ref. IW102400-0000-NP-RPT-0003). This will hereafter be referred to as the "S261 SSI".
- AECOM (2016), *Site Auditor Interim Advice - Review of Jacobs Supplementary Investigation Report - Section 261, Cox Peninsula, Northern Territory*, 2 Sept 2016 (Ref. 69443690_L021_S261SSI_2 Sept 2016).

3.0 Technical Review

The Site Auditor has undertaken a technical review of the S261 RAP as outlined below. For ease of reading, the Site Auditor's comments are included within grey shaded text boxes throughout this Interim Advice.

3.1 Executive Summary

The Executive Summary identified that S261 was formerly part of the collective Section 32 which has been divided up into four Sections to support the ultimate transfer to the Traditional Owners. Section 32 is now known as:

- Section 261 (S261) – the Australian Communications and Media Authority (ACMA) sites
- Section 262 (S262) – the area surrounding the ACMA sites and Wagait Shire Tip
- Section 263 (S263) – the western portion of the Wagait Shire Tip
- Section 264 (S264) – the eastern portion of the Wagait Shire Tip

The Executive Summary identified that the RAP relates to S261 and that it is located to the south east of Cox Peninsula and comprises 39.7 hectare (ha). S262 surrounds S261 and is excluded from the RAP.

The S261 investigation, undertaken as part of a wider investigation of S262, identified isolated surficial waste and areas of contamination of aldrin and dieldrin in soils beneath the building slabs in Area A. Conduits and inspection pits associated with underground services have been sampled and reported detections of asbestos. The Executive Summary provided a summary of previous investigations and stated that the RAP draws upon these previous investigations and outlined the strategic plan for remediation.

The Executive Summary noted that in the absence of Northern Territory-specific guidelines, New South Wales Environment Protection Authority (NSW EPA) guidelines have been used as a framework for assessment.

The Executive Summary provided a summary of the preferred remedial and management solutions.

The Auditor considers that the Executive Summary provided a suitable summary which is clear and concise and generally meets the requirements of NSW EPA (2011)[1].

The Auditor has the following additional comments:

- Reference should be made to the Northern Territory (NT) Environment Protection Agency (EPA) *Guidelines for Consultants Reporting on Environmental Issues*. The Auditor notes that the NT EPA guidelines are largely adopted from the NSW Guidelines referred to in the SSI.
- The Executive Summary should clearly state which contaminants exceeded the adopted criteria.
- For completeness the Executive Summary should state the objectives.

The Executive Summary should be updated to reflect any changes associated with the comments presented below.

3.2 Site Identification, Background and Environmental Setting

The Introduction Section (Section 1) provided information on the background and site setting for S261, including the excluded areas (Section 1.3) and the objectives of the RAP (Section 1.4).

The RAP provided an overview of the roles and responsibilities for those responsible for delivery of the project and a summary of the other key stakeholders including the Traditional Owners, local Council and Community, Northern Government Departments, the Australia Maritime Safety Agency (AMSA) (who are responsible for the care and operation of the lighthouse located on S41) and the Australian Communications and Media Authority (ACMA) (who are responsible for the care and operations of the communications infrastructure located on S261).

Section 1.8 included details associated with the scope of the remedial works on S261, in addition to the scope of works for S41, S262, S263, S264 and S265.

The RAP (Section 2) provided an overview of the history of the S261 which identified that the Commonwealth has been actively involved at the Site for many years, having previously operated as a radio broadcasting facility and a World War II radar station. Details were also provided on the existing site conditions and proposed land use. The RAP provided information on temporary demolition works in the 1990s which included removal of asbestos corrugated roofing material, vinyl floor tiles with asbestos backing and tilux (asbestos containing sheeting) from wet areas. The material (anecdotally 15 m^3) was reportedly encapsulated prior to being transported and disposed of at Shoal Bay Landfill, NT. Buildings were removed, leaving concrete slabs in-situ, while reportedly being treated with dieldrin. ASTs and an air-conditioning unit were also reportedly removed. However, no validation report exists.

Section 2.2 identified that two allotments in the centre of S261 have been leased since the late 1990s by the ACMA and operated as a Monitoring Facility and High Frequency Direction Finding (HFDF) Facility. The HFDF infrastructure is understood to be connected by a network of underground cables, however the precise location of these cables is unknown. It is estimated that the majority of the underground services lie within the boundary of the Site, some active, with the majority of them being redundant.

Section 2.3 (proposed land use) identified that Finance intends to transfer S261 to the NTG and ultimately the Traditional Owners. The adopted target remediation goal is the rehabilitation to accommodate use as Public Open Space. In part this would involve consideration of retaining any roads or remnant infrastructure that could support future development. In addition, the NT Planning Scheme 2015 zones the eastern coast adjacent to the Site as Conservation, with the main area zoned as Rural. This is depicted in the zoning plan presented in Figure 5. As such, conservative ecological criteria have also been adopted, where relevant.

[1] NSW EPA (2011) *Contaminated sites: Guidelines for Consultants Reporting on Contaminated sites*.

Section 2.4 indicated that there had been a number of investigations undertaken within S261 between 2011 and 2012 including heritage, flora and fauna and hazardous materials assessment. Appendix A provided a summary of the previous investigations.

The location of the Cox Peninsula Remediation Project and S261 was shown on Figure 1 and Figure 2 provided information on the layout of Section 32 (now S261/S262), Section 34 (now S265/S266) and Section 41. Figure 3 provided the layout of S261 underground services and above ground infrastructure, Figure 4 and 5 provided antenna footings and remnant infrastructure, Figure 6 presented the current town planning zones across the Cox Peninsula Remediation Project, Figure 7 presented the sensitive local environments across the Cox Peninsula Remediation Project, Figure 8 and Figure 9 provided the indicative groundwater contours for the dry season and wet season, respectively, while Figure 10 provided groundwater well locations for S261. Figure 11 to 14 showed sampling locations, including soil, asbestos and miscellaneous waste and stockpiles and site areas of interest. Figure 15 and Figure 16 presented the remediation work areas for S261.

Section 3 provided an overview of the site condition and surrounding environment, with additional information provided in Appendix B. Section 3 also provided an overview of the heritage assessment undertaken for the proposed remediation work area and identified that both Aboriginal and Historic heritage values, including areas that met the Commonwealth Heritage List criterion.

Section 4 provided a summary of the geological and hydrogeological setting, with further details provided in Appendix B.

The Auditor considers that the RAP provided suitable information on the identification of S261, the scope of work, the objectives of the remediation work, the site history and the environmental setting which met the requirements of NSW EPA 2011. In particular, the Auditor considers that the information provided in Sections 1.6 and 1.7 provided a clear summary of the many stakeholders involved, either directly or indirectly, in the remediation project. In addition, the figures, with corresponding photographs, provided a good overview of the site layout and environmental setting.

The Auditor has the following comments:

- The RAP did not provide the geographical coordinates of S261. It is understood that a survey plan of the various sections will be provided at a later date and hence this information can be provided in the form of the survey plans and incorporated into the validation report.
- Section 1.4 (Objectives of the RAP) referred to remediation for the future use but the proposed future land use was not specified in this Section. However, Section 2.3 indicated that the remediation goal is the rehabilitation to accommodate use as Public Open Space across the majority of the site, and more conservative ecological criteria on the eastern coast adjacent to the site where the NT Planning Scheme identifies the area as Conservation. On this basis, the Auditor considers that the future land use has been provided. For clarity it would be useful to refer to this in Section 1.4, but this does not affect the outcome of this review.
- Section 1.8 presented the scope of the proposed remedial works for S261, while Table 1.4 provided a summary of the tasks to be performed at S261 by the RWC. It was noted that redundant cables will be removed. These are anticipated to be cased in asbestos conduits. Soil and asbestos generated from the removal of underground cables will be disposed of off-site. No further information was presented in relation to presence and/absence of PCB and OCPs in relation to these pits and cables.
- Table 1.4 also noted that approximately 3,200 m of cables will be disposed off-site at a suitable recycling facility. Is there confirmation that the cables do not contain hazardous materials (i.e. PCBs)?
- Section 4.2 acknowledged that shallow aquifers are widely distributed across the Cox Peninsula, with seasonal fluctuations in water level in the shallow aquifers ranging from 1.99 m to 6.30 mAHD. As per the comments provided for S261 SSI (AECOM, 2016), the Auditor notes that the investigations to date have not fully considered the shallow aquifer.

3.3 Basis for Assessment Criteria

Section 5 provided the basis for assessment criteria and a summary of the identified contaminants of concern for S261. Section 5 provided a list of references for various guidance documents made by or endorsed by the NSW EPA, a summary of the identified contaminants of concern based on the field investigations spanning both dry and wet seasons and a summary of the identified soil and groundwater contamination, including sampling observations and aesthetics. Section 5.6 and Section 5.7 summarised the hazardous materials (i.e. asbestos) and non-hazardous materials and aesthetics (i.e. redundant services and buildings) associated with the past activities on the site.

The Auditor considers that the adoption of NSW EPA made or endorsed guidance is appropriate; considering the Northern Territory (NT) Environment Protection Agency (EPA) *Guidelines for Consultants Reporting on Environmental Issues* are largely adopted from the NSW EPA guidelines. The Auditor notes that Appendix C of the RAP provided a discussion on the selection of the various assessment criteria, which generally provided a suitable rationale for the selection of the criteria. However, the Auditor has the following comments:

- The Auditor's comments on S261 SSI (AECOM, 2016) in relation to derivation of soil and groundwater criteria should be taken into account and the RAP updated, as appropriate.
- Tables 5.1 presented a summary of exceedances of the adopted soil criteria for the RWA. Table 5.2 and Table 5.3 did not present the groundwater adopted criteria, however it is noted that they are provided in Appendix C. For clarity it would be useful to refer to the relevant criteria within the summary tables, as was provided in Table 5.1 for soils.
- Section 5.4.1 stated the concentration range for Nitrate detected in groundwater, however no explanation was given as to if the concentrations exceeded the adopted assessment criteria. What is the purpose of this comment?
- There is no data for MW20 in Table 5.2, Table 5.3 or Figure 9. MW20 is one of seven groundwater monitoring wells located with S261. The Auditor is unclear why has data for MW20 has been omitted?
- Section 5.4.4 stated that "as potential contamination in groundwater bores within S262 and S263/S264 are considered relevant to consideration of contamination at this Site [S261], the results of these bores have also been included within the summary of true exceedances shown in Table 5.4", however in Section 5.4.2 and 5.4.3 the report stated "it is noted that groundwater at the Site is unlikely to be influenced by sources of contaminants within S263/S264 as it is located approximately 1.5 km north-west of the Site. As such, results from this area have been omitted from the table" referring to Table 5.2 and 5.3 that presented wet and dry season distribution of contaminants in groundwater. Please clarify if groundwater impact identified at 262, S263 and S264 is likely influencing groundwater at S261.
- In Section 5.5.1.1, the report summarised sampling observations in Area B. However, the location of Area B is not clear in the early site features figures nor within the report text. It is not until Figure 15 that the actual location of Area B is shown. For clarity it would be useful to refer to this on Figure 2 and in the report text when first identified, but this does not affect the outcome of this review.
- Furthermore, with regards to Area B and S262, sampling observations and results from these locations are included in this report, including Section 5.5.1.1, Section 5.5.1.2, Section 5.6. If these observations from S262 are relevant to the S261 RAP, clarify why they continue to be referenced.
- Section 5.6 presented general waste and infrastructure identified at the site, including remnant infrastructure and miscellaneous stockpiles. Remnant infrastructure was reported to comprise antenna footings, associated underground utilities and miscellaneous footings, specifically located in S262 – see previous comment regarding continued references to S262. The report stated that Jacobs undertook trenching around these structures to confirm lateral extent of these footings and presence of chemicals associated with termite treatment. Jacobs reported soil analytical results did not indicate presence of chemical termite treatment. References to figures showing locations of these features should be provided, such as reference to Figure 13 for the location of general waste and stockpiles.
- Section 5.7 presented hazardous materials observed across the tip sites, particularly in S262 – see earlier comment regarding continued references to S262. This section does not mention potential for PCB/OCP within underground cables within the antenna field, only that they are partially housed in asbestos conduit. The Auditor would like confirmed why PCB/OCPs in relation to the underground cables are not considered in the RAP?

4.0 Site Characterisation

Section 6 provided a summary of the identified contaminants, associated hazards, exposure pathways and risks to the potential receptors. This was depicted by use of a Conceptual Site Model (CSM) (Section 6.3), including a visual cross section diagram of S261 depicting the Main ACMA Compound (Plate 6.1).

The Auditor considers that the RAP generally provided a good overview of the identified contamination within S261, as well as potential offsite impacts, and provided a clear CSM in both pictorial and table form which was appropriate for the contamination identified in S261.

The following is noted:

- Plate 6.1 does not include an indication of the transect across the site, cardinal points, nor the presence of the Tip Site E-1 or location of the boundary of S261 and S262.
- As a minor note Section 6.4.1 indicated that "underground services and associated conduits" were CoPCs, however technically these are potential sources of CoPC.
- The RAP identified that shallow groundwater levels exist across the site from 1.99 m to 6.30 mAHD, although the shallower depths were not screened. The CSM (Plate 6.1) indicated that the bores do not provide targeted screened intervals (it is noted 6 m screen were installed to capture fluctuating seasonal variability). With the large screen intervals, there is a risk that there has been a loss of detection sensitivity to vertically variable water quality and only provides a gross measure of contamination. Water quality in potential perched shallow aquifer was not defined.
- The CSM (Table 6.1) indicated that Buildings and Structures – pH – "Existing footings not likely to penetrate groundwater". Again the peak wet season groundwater levels (water table elevations) have not been defined as part of the investigations.

5.0 Remediation Action Plan and Validation

The works and staging for the preferred remedial options were provided in Section 1.8.2. The works are proposed to be completed over a two-year period (April to December 2016 and 2017). The Remediation Options Assessment (ROA) was presented in Appendix F and Remediation Contract Specification (RCS) presented in Appendix G. Table 1.4 provided a summary of the key project tasks for the entire Cox Peninsula Remediation Project, with details of the tasks for S261 highlighted in the table.

Section 7 of the RAP provided the remedial action plan, with reference to the ROA. Section 7.2 presented the selected remediation methods that would be required to restore the site to a condition that is compatible with the proposed future use of the site. Section 7.2.1 to Section 7.2.5 described the specific tasks that would be performed and summarised in Table 7.1 including material classifications, volumes and treatment and pre-treatment requirements.

On the basis of the assessment, the following remedial works were considered in the RAP:

- Removal of redundant underground services - with an estimated that approximately 3,600 m (linear) of cable trenches located on S261, of which 25% are estimated to be housed in protective asbestos conduit. The RAP indicated that the asbestos conduit and asbestos contaminated soil will be disposed in the proposed containment cell on S265. It is noted that the cables removed from the trenches will be segregated and placed in a separate skip bin for recycling.
- Removal of remnant surface infrastructure and buildings, including antenna footings and miscellaneous concrete and steel structures. Items will be removed by mechanical excavator before being transported to S265 where concrete will be crushed prior to placement in the containment cell, while steel structures will be segregated for recycling.
- Removal of approximately 240 m^3 OCP contaminated soils and 130 m^3 of contaminated concrete from the demolished building slabs at the Compound on S261. The soils will require thermal treatment prior to disposal to the on-site containment cell. Treatability trials have been undertaken to confirm the process settings of the full scale thermal plant. The RWC will be responsible for undertaking performance testing of the treated material on a frequency of 1 sample per 100 m^3 of treated material. The RAP identified that air emissions from the thermal treatment plant should be managed so they do not exceed the air quality criteria for the Site.
- Removal of general waste and rubbish items including empty drums, pieces of metal, plastic, bottles and other glass and tyres located across the site with inventory presented in Appendix E. These materials are likely to be disposed within the containment cell (i.e. in the case of inert demolition waste such as concrete) or to a suitably licenced off-site disposal and recycling facility.

- Removal of asbestos containing material from 15 service pits, from the ground surface at Area E-1 and the area immediately surrounding the main ACMA compound. In locations where ACM fragments are more abundant (and manual removal is not practicable) removal by targeted mechanical excavation will be undertaken. Excavated soils will be placed in skip bins or other suitable covered receptacles before being transported for disposal at the containment cell at S265. Disturbed areas will be reinstated with clean fill sourced from at the Site itself or from neighbouring S262. An Asbestos Removal Control Plan will be prepared and removal will be undertaken by licenced asbestos removalists, inspected by an Occupational Hygienist, and validation sampling will be conducted.

Section 7.3 presented the Remediation Contract Specification and Section 7.4 the occupation health and safety controls and safety measures that need to be put in place for the works. The guidelines presented the minimum standard procedures required by the RWC. In addition, Section 7.5 presented the environmental management requirements of the work considering the Cox Peninsula area contains significant natural environmental and Indigenous and non-Indigenous heritage values.

Section 8 presented the proposed validation works.

The Auditor considers that overall the RAP and validation works presented suitable information on the proposed remediation methods for the asbestos containing materials and asbestos impacted soil, PCB and OCP contaminated soil. It is noted that majority of asbestos, other contaminated soils (arsenic and zinc) and waste from the concrete footings will be placed in the proposed containment cell. The design of the proposed containment cell is subject to a separate review by the Auditor.

The Auditor has the following comments on the RAP:

- Section 7.2.4 identified that air emissions from the thermal treatment plant should be managed so they do not exceed air quality criteria for the site. The Auditor understands that Jacobs are working with the NT EPA and the remediation contractor to confirm the air emissions requirements and that air modelling has been undertaken. This will be subject to a separate review by the Auditor.
- Section 7.2.3 also mentioned wastewater generated during the thermal treatment process for cooling process, will be treated prior to on-site disposal. How does the RWC intend to manage the waste water? Is there the potential for the water to have a high pH? Will this affect how the waste water is managed and disposed of on-site?
- In accordance with NSW EPA (2011), the RAP should include identification of regulatory compliance requirements such as licences and approvals relevant to the S261 remediation works.
- Analytes for validation testing were not presented in Section 8. It is noted PCBs and OCPs were identified as contaminants of concern (in the S261 SSI) in relation to the removal of redundant underground services. Will PCBs and OCPs be included in the analytical suite for the validation?
- Section 7.5 did not mention specifics regarding the sensitive habitats, including EPBC and Territory Parks and Wildlife Conservation Act listed species (i.e. Cycad) and only identified risks in relation to increased soil and erosion from vegetation clearing. It is noted that Jacobs prepared a Construction Environment and Heritage Plan (CEHMP) for the project.
- Section 8.3.1 stated an additional round of groundwater monitoring would be undertaken during the dry season. As per the Auditor's comment on the S261 SSI (AECOM, 2016), please provide further clarification and/or investigation in relation to the wet season shallow perched aquifer. The Auditor considers that vertical hydraulic gradients have not been fully defined across the entire Site.
- Section 8.5 indicated that all equipment will be calibrated as specified in the relevant operator's manual with PID calibrated before and after fieldwork. This should include daily field bump tests and/or calibration for the PID and groundwater monitoring equipment should be appropriately calibrated in the field.

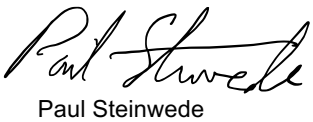
6.0 Auditor Summary and Conclusions

Notwithstanding the specific comments made, clarifications and amendments sought in this letter, the Site Auditor considers that the S261 RAP provided a suitable summary of the proposed remedial approach for S261 and subject to the above clarifications is suitable for use to inform the proposed remediation works.

As stated above, the proposed remediation approach includes placement of material into the proposed containment cell on S265. The design of the proposed containment cell is subject to a separate review by the Auditor.

The Auditor looks forward to any queries and/or clarifications relating to this review.

Yours sincerely



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ITEM NO.	TEXT REF.	AUDITOR COMMENT	JACOBS RESPONSE
The Auditor considers that the Executive Summary provided a suitable summary which is clear and concise and generally meets the requirements of NSW EPA (2011). The Auditor has the following additional comments:			
1	Section 1.5	Reference should be made to the Northern Territory (NT) Environment Protection Agency (EPA) Guidelines for Consultants Reporting on Environmental Issues. The Auditor notes that the NT EPA guidelines are largely adopted from the NSW Guidelines referred to in the SSI.	Reference has been made to NT EPA's Guidelines for Consultants Reporting on Environmental Issues in Section 1.5.
2	Exec. Summ.	The Executive Summary should clearly state which contaminants exceeded the adopted criteria.	The Executive Summary has been revised to clearly summarise the analytes in exceedance of adopted criteria.
3	Exec. Summ.	For completeness the Executive Summary should state the objectives.	The Executive Summary has been revised to summarise the objectives of the RAP.
The Auditor considers that the RAP provided suitable information on the identification of S261, the scope of work, the objectives of the remediation work, the site history and the environmental setting which met the requirements of NSW EPA 2011……the Auditor has the following comments:			
4	General	The RAP did not provide the geographical coordinates of S261. It is understood that a survey plan of the various sections will be provided at a later date and hence this information can be provided in the form of the survey plans and incorporated into the validation report.	The survey plans will be provided in the Validation Report.
5	Section 1.4	Section 1.4 (Objectives of the RAP) referred to remediation for the future use but the proposed future land use was not specified in this Section. However, Section 2.3 indicated that the remediation goal is the rehabilitation to accommodate use as Public Open Space across the majority of the site, and more conservative ecological criteria on the eastern coast adjacent to the site where the NT Planning Scheme identifies the area as Conservation. On this basis, the Auditor considers that the future land use has been provided. For clarity it would be useful to refer to this in Section 1.4, but this does not affect the outcome of this review.	Section 1.4 has been revised to reflect the selected future land use of Public Open Space.
6	Section 1.8	Section 1.8 presented the scope of the proposed remedial works for S261, while Table 1.4 provided a summary of the tasks to be performed at S261 by the RWC. It was noted that redundant cables will be removed. These are anticipated to be cased in asbestos conduits. Soil and asbestos generated from the removal of underground cables will be disposed of off-site. No further information was presented in relation to presence and/absence of PCB and OCPs in relation to these pits and cables.	Information on conduits and cabling is included within Section 5.5 and Section 7.2.1 of the RAP. Further information is provided in the SSI for the Site. Direct sampling of cabling from S262 for PCBs and OCPs analysis will be undertaken as part of remediation works to confirm that they are of the same nature as those detected in S265. These results will be reported in the Validation Report for S261.

REGISTER OF DOCUMENT COMMENTS	
REPORT TITLE:	Remediation Action Plan - Section 261
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7	Table 1.4	Table 1.4 also noted that approximately 3,200 m of cables will be disposed off-site at a suitable recycling facility. Is there confirmation that the cables do not contain hazardous materials (i.e. PCBs)?	An estimated 3,600 m of linear cables are located within S261. Representative samples of cables will be collected and analysed as part of the remedial works to determine whether hazardous materials are present.
8	Section 4.2 (now Section 3.3)	Section 4.2 acknowledged that shallow aquifers are widely distributed across the Cox Peninsula, with seasonal fluctuations in water level in the shallow aquifers ranging from 1.99 m to 6.30 mAHD. As per the comments provided for S261 SSI (AECOM, 2016), the Auditor notes that the investigations to date have not fully considered the shallow aquifer.	There are a number of points to consider in relation to the shallow groundwater use and groundwater levels in S261: - Consistently low pH (range of 3.58 - 5.47 pH units) - Low yield and seasonal characteristics - Identified contamination at the Site was not encountered at depth in the soil profile. In addition to identified soil contamination being reported at concentrations either below the limitof reporting or below the adopted assessment criteria, this suggests that vertical migration of contamination to groundwater is unlikely to have occurred. It is considered that the yield, ephemeral nature and low pH do not make groundwater suitable as a drinking water resource. In relation to the identified contamination at the Site, none has been recorded at depth in the soil profile, indicating that vertical migration of contamination, be it physical migration or leaching has not occurred. On this basis, it is considered unlikely that shallow groundwater has been impacted by the identified soil contamination.
The Auditor considers that the adoption of NSW EPA made or endorsed guidance is appropriate…..the Auditor has the following comments:			
9	Section 5	The Auditor's comments on S261 SSI (AECOM, 2016) in relation to derivation of soil and groundwater criteria should be taken into account and the RAP updated, as appropriate.	Revision and comment with respect to criteria in the S261 SSI have been made in Section 5 of the S261 RAP.
10	Tables 5.2 and 5.3	Tables 5.1 presented a summary of exceedances of the adopted soil criteria for the RWA. Table 5.2 and Table 5.3 did not present the groundwater adopted criteria, however it is noted that they are provided in Appendix C. For clarity it would be useful to refer to the relevant criteria within the summary tables, as was provided in Table 5.1 for soils.	Table 5.2 serves the purpose of presenting the relative concentration ranges for contaminants identified as exceeding adopted criteria presented in Table 5.3 and other analytes of interest. The RAP provides summary tables of exceedances for respective types of criteria, while Appendix A provides a summary of amended criteria. For tables outlining detail with respect to exceedances and values of specific criteria, refer to Section 9.3 of the S261 SSI.
11	Section 5.4.1 (now Section 5.3.1)	Section 5.4.1 stated the concentration range for Nitrate detected in groundwater, however no explanation was given as to if the concentrations exceeded the adopted assessment criteria. What is the purpose of this comment?	Section 5.3.1 provides an outline of what contaminants have been identified, their distribution in specific areas and observed concentration ranges. Discussion of exceedances of the identified contaminants is provided in Section 5.3.4.
12	Tables 5.2 and 5.3 (now Table 5.2)	There is no data for MW20 in Table 5.2, Table 5.3 or Figure 9. MW20 is one of seven groundwater monitoring wells located with S261. The Auditor is unclear why has data for MW20 has been omitted?	MW20 was erroneously omitted from Table 5.2 and is now included. It is noted that one monitoring event was completed at this bore before it was destroyed.

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13	Section 5.4.4 (now Section 5.3)	Section 5.4.4 stated that "as potential contamination in groundwater bores within S262 and S263/S264 are considered relevant to consideration of contamination at this Site [S261], the results of these bores have also been included within the summary of true exceedances shown in Table 5.4", however in Section 5.4.2 and 5.4.3 the report stated "it is noted that groundwater at the Site is unlikely to be influenced by sources of contaminants within S263/S264 as it is located approximately 1.5 km north-west of the Site. As such, results from this area have been omitted from the table" referring to Table 5.2 and 5.3 that presented wet and dry season distribution of contaminants in groundwater. Please clarify if groundwater impact identified at 262, S263 and S264 is likely influencing groundwater at S261.	Inclusion of results from S263/S264 in Table 5.4 (now Table 5.3) was an error and has been corrected accordingly. S263/S264 is not considered to have impacted on S261 based on the following considerations: -S263/S264 is located approximately 1.5 km north-west of S261; and -The inferred groundwater flow direction based on three monitoring events at S263/S264, is towards the east leading to the coast and is thought not to flow south in the direction of S261. Based on the above, it is considered unlikely that S263/S264 is impacting groundwater at S261.
14	Section 5.5.1.1 (now Section 5.4.1.1)	In Section 5.5.1.1, the report summarised sampling observations in Area B. However, the location of Area B is not clear in the early site features figures nor within the report text. It is not until Figure 15 that the actual location of Area B is shown. For clarity it would be useful to refer to this on Figure 2 and in the report text when first identified, but this does not affect the outcome of this review.	Inclusion of this reference was an error and has been removed as the report is only relevant to features S261 with the exception of references to observations and/or features reported in neighbouring study areas to demonstrate relevant regional characteristics of groundwater and/or geology.
15	Section 5.5.1.2 (now Section 5.4.1.1)	Furthermore, with regards to Area B and S262, sampling observations and results from these locations are included in this report, including Section 5.5.1.1, Section 5.5.1.2, Section 5.6. If these observations from S262 are relevant to the S261 RAP, clarify why they continue to be referenced.	See the above response. Observations from S262 included in Section 5.4.1.1 are to demonstrate the characteristics of geology that are related to S261.
16	Section 5.6	Section 5.6 presented general waste and infrastructure identified at the site, including remnant infrastructure and miscellaneous stockpiles. Remnant infrastructure was reported to comprise antenna footings, associated underground utilities and miscellaneous footings, specifically located in S262 – see previous comment regarding continued references to S262. The report stated that Jacobs undertook trenching around these structures to confirm lateral extent of these footings and presence of chemicals associated with termite treatment. Jacobs reported soil analytical results did not indicate presence of chemical termite treatment. References to figures showing locations of these features should be provided, such as reference to Figure 13 for the location of general waste and stockpiles.	Some asbestos conduits that were once located at the site are thought to have been moved to tip sites in S262 .The antenna arrays as they were constructed, inherently cross the boundary between S261 and S262. The two large antenna arrays are almost identical in their construction and type of footings used. On this basis, trenching and sampling activities undertaken on footings that are located in S262 are considered relevant to similar footings that are located within S261. Considering the above, reference to these footings are deemed to be relevant to S261. Figures 4 and 5 provide an overview of the antenna arrays while Figure 11 outlines where soil samples were collected. Soil sample locations shown in Figure 11 with the prefix label S32-Cat were collected from the footings within S262.

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17	Section 5.7 (now Section 5.5	Section 5.7 presented hazardous materials observed across the tip sites, particularly in S262 – see earlier comment regarding continued references to S262. This section does not mention potential for PCB/OCP within underground cables within the antenna field, only that they are partially housed in asbestos conduit. The Auditor would like confirmed why PCB/OCPs in relation to the underground cables are not considered in the RAP?	Section 6.6 now acknowledges the presence of potential PCB and OCP sheathing on underground cabling. Further sampling and of cables for PCBs and OCPs will be undertaken at the Site prior to commencing remedial activities and will be reported in the Validation Report for S261.
The Auditor considers that the RAP generally provided a good overview of the identified contamination within S261….the Auditor notes the following:			
18	Plate 6.1	Plate 6.1 does not include an indication of the transect across the site, cardinal points, nor the presence of the Tip Site E-1 or location of the boundary of S261 and S262.	The CSM has been revised to clarify the location of Tip Site E-1. Due to the extent of the area presented in the CSM, only Section 261 is visible and the boundary of Section 262 is not present. Survey plans will be provided in the Validation Report for S261.
19	Section 6.4	As a minor note Section 6.4.1 indicated that “underground services and associated conduits” were CoPCs, however technically these are potential sources of CoPC.	This has been amended accordingly.
20	Section 7	The RAP identified that shallow groundwater levels exist across the site from 1.99 m to 6.30 mAHD, although the shallower depths were not screened. The CSM (Plate 6.1) indicated that the bores do not provide targeted screened intervals (it is noted 6 m screen were installed to capture fluctuating seasonal variability). With the large screen intervals, there is a risk that there has been a loss of detection sensitivity to vertically variable water quality and only provides a gross measure of contamination. Water quality in potential perched shallow aquifer was not defined.	As noted in the response to comments for the Section 261 SSI, the only exceedances of adopted assessment criteria were limited to four locations within Area A (Former Radio Australia Receiver Station Site). A total of four aldrin+dieldrin exceedances of adopted human health criteria and a single arsenic exceedance of adopted ecological criteria were reported in surface soils (0-0.1 mbgl). The concentration of these contaminants in samples collected at depth are either below adopted criteria or LOR, therefore indicating that vertical migration of contamination is limited. In relation to potential LNAPL associated with hydrocarbons (such as fuels or oils) the following is considered: -No TRH or BTEX were detected in groundwater samples obtained during investigations. -No LNPAL was detected at the site during groundwater sampling. -No visual indicators (oily sheens) were observed during sampling of groundwater. -No olfactory or PID indications of hydrocarbon contamination were recorded during investigations. On the basis of the results of soil and groundwater sample analysis noted above, the vertical migration and therefore the potential for these sites to impact groundwater is considered highly unlikely.

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21	Table 6.1	The CSM (Table 6.1) indicated that Buildings and Structures – pH – "Existing footings not likely to penetrate groundwater". Again the peak wet season groundwater levels (water table elevations) have not been defined as part of the investigations.	Groundwater wells within and around Section 261 were surveyed and gauged in the dry and wet seasons, the latter to capture peak groundwater levels. As such, groundwater level elevations were calculated and are reported in the SSI for Section 261.
The Auditor considers that overall the RAP and validation works presented suitable information on the proposed remediation methods for the asbestos containing materials and asbestos impacted soil, PCB and OCP contaminated soil……..the Auditor has the following comments:			
22	Section 7.2.4	Section 7.2.4 identified that air emissions from the thermal treatment plant should be managed so they do not exceed air quality criteria for the site. The Auditor understands that Jacobs are working with the NT EPA and the remediation contractor to confirm the air emissions requirements and that air modelling has been undertaken. This will be subject to a separate review by the Auditor.	Noted. Jacobs highlights that NSW Air Emissions criteria have been adopted and agreed upon by NT EPA for adoption of emissions related to the Direct Thermal Desorption (DTD) plant. Jacobs have submitted modelling results and related information to AECOM for review and have since received comment.
23	Section 7.2.3	Section 7.2.3 also mentioned wastewater generated during the thermal treatment process for cooling process, will be treated prior to on-site disposal. How does the RWC intend to manage the waste water? Is there the potential for the water to have a high pH? Will this affect how the waste water is managed and disposed of on-site?	Water used for the purposes of cooling in the DTD process will be re-circulated. Upon decommissioning the DTD plant, the contractor will manage any wastewater in accordance with their prepared Environmental Management Plan. Further details will be provided in the S265 Validation report.
24	General	In accordance with NSW EPA (2011), the RAP should include identification of regulatory compliance requirements such as licences and approvals relevant to the S261 remediation works.	Section 7.5 references relevant authorities and regulatory requirements including but not limited to licenses and approvals that are relevant to the remediation works. Further detail is provided in the Remediation Contract Specification (RCS).
25	Section 8	Analytes for validation testing were not presented in Section 8. It is noted PCBs and OCPs were identified as contaminants of concern (in the S261 SSI) in relation to the removal of redundant underground services. Will PCBs and OCPs be included in the analytical suite for the validation?	Validation will be undertaken for relevant contaminants of concern for respective areas identified in the SSI for the Site. PCBs and OCPs will be scheduled for analysis in all relevant areas identified for PCB and OCP remediation at the Site.
26	Section 7.5 (now Section 7.7.2)	Section 7.5 did not mention specifics regarding the sensitive habitats, including EPBC and Territory Parks and Wildlife Conservation Act listed species (i.e. Cycad) and only identified risks in relation to increased soil and erosion from vegetation clearing. It is noted that Jacobs prepared a Construction Environment and Heritage Plan (CEHMP) for the project.	Section 7.7.2 has been amended to reflect consideration of identified EPBC species.

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27	Section 8.3.1	Section 8.3.1 stated an additional round of groundwater monitoring would be undertaken during the dry season. As per the Auditor's comment on the S261 SSI (AECOM, 2016), please provide further clarification and/or investigation in relation to the wet season shallow perched aquifer. The Auditor considers that vertical hydraulic gradients have not been fully defined across the entire Site.	Discussion relating to identified point sources of groundwater contamination in S265 is outlined in response to Item 20. On this basis it is considered that the impact from these sources on shallow groundwater is unlikely and Jacobs considers further investigation works to be unnecessary. No further groundwater sampling will be undertaken at the Site. It is noted that an additional dry season monitoring round at Wagait Shire Tip (S263/S264) was completed mid-2016 and will reported in the S263/S265 SSI.
28	Section 8.5	Section 8.5 indicated that all equipment will be calibrated as specified in the relevant operator's manual with PID calibrated before and after fieldwork. This should include daily field bump tests and/or calibration for the PID and groundwater monitoring equipment should be appropriately calibrated in the field.	Daily calibrations will be undertaken if equipment is used at that frequency and instrument drift will be identified from calibrations before and after field work use.

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24 March 2017

Ross Edwards
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Jacobs
Level 11, 452 Flinders Street
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Dear Ross

Site Auditor Interim Advice - Review of Jacobs Supplementary Site Investigation - Section 261, Cox Peninsula Remediation Project, NT for Department of Finance

1.0 Introduction

In his role as a Northern Territory Environmental Protection Authority (NT EPA) Accredited Contaminated Site Auditor, Paul Steinwede of AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Finance (Finance) to review documentation relating to the investigation and remediation works being undertaken for the Cox Peninsula Remediation Project, Northern Territory (the Site).

As part of this role, the Auditor has reviewed the documentation listed in Section 2.0 which relates to investigation for Section 261 (S261) of the Site in order to support the future transfer of S261 to the Northern Territory Government and ultimately the Larrakia people for future use.

The Environmental Consultant for the Project, Jacobs, was commissioned by Finance to complete a Supplementary Site Investigation (SSI) and prepare a Remediation Action Plan (RAP) for S261.

This letter should be considered Interim Advice from the Auditor. A copy of this correspondence will be included in the final supporting Site Audit Report for S261.

2.0 Documents Reviewed

For preparation of this letter, the Site Auditor has reviewed the following document:

- Jacobs (2016a), *Cox Peninsula Remediation Project, Supplementary Site Investigation – Section 261*, December 2016 (Ref. IW102400-0000-NP-RPT-0003|1). This will hereafter be referred to as the "S261 SSI".
- Jacobs (2016b), *Register of Document Comments, Supplementary Site Investigation – Section 261*, dated December 2016.

In reviewing the S261 SSI, the Auditor has also referenced the following:

- Jacobs (2016b), *Cox Peninsula Remediation Project, Supplementary Site Investigation – Section 261*, March 2016 (Ref. IW102400-0000-NP-RPT-0003).
- AECOM (2016), *Site Auditor Interim Advice - Review of Jacobs Supplementary Investigation Report - Section 261, Cox Peninsula, Northern Territory*, 2 September 2016 (Ref. 69443690_L021_S261SSI_2Sept2016).
- SKM (2014), *Cox Peninsula Supplementary Site Investigation - Section 32*, January 2014 (Ref. VW07225 version V2 Draft).
- AECOM (2014), *Environmental Audit - Provision of Interim Site Auditor Advice, Review of SKM Supplementary Site Investigation Reports for Sections 32, 34 and 41, Cox Peninsula, Northern Territory*, 11 November 2014.

3.0 Technical Review

The Site Auditor has undertaken a technical review of the S261 SSI which has been updated following the Auditors comments (AECOM, 2016) on the previous version of the report and Jacobs (2016b) Register of Document Comments. For ease of reading, the Auditor's comments are included within grey shaded text boxes throughout this Interim Advice.

The Auditor considers that Jacobs has adequately addressed the majority of the Auditor's comments on S261 SSI. The Auditor notes that the Validation Report and Site Management Plan for S261 would provide updated plans and close out on any outstanding data gaps.

4.0 Auditor Summary and Conclusions

The Auditor considers that the responses provided from Jacobs, as well as the amendments to the S261 SSI, adequately address the previous Auditor's comments and as such are suitable for use. It is noted that if validation sampling indicates potential for exceedance of HIL in soils for public open space, further consideration of the shallow ephemeral aquifers at S261 is considered warranted during validation works.

Yours sincerely



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5 September 2017

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Dear Ross

Site Auditor Interim Advice - Review of Jacobs Validation Report and Environmental Care Procedures - Section 261
Cox Peninsula Remediation Project, Northern Territory for the Department of Finance

1.0 Introduction

In his role as a Northern Territory Environment Protection Authority (NT EPA) accredited Contaminated Site Auditor, Paul Steinwede of AECOM Australia Pty Ltd (AECOM) has been engaged by the Department of Finance (Finance) to review documentation relating to the investigation and remediation works being undertaken for the Cox Peninsula Remediation Project, Northern Territory (the Site).

As part of this role, the Auditor has reviewed the documentation listed in Section 2.0 which relates to remediation and validation works for Section 261 (S261) of the Site in order to support the future transfer of S261 to the Northern Territory Government and ultimately the Larrakia people for future use.

The Assessment Consultant for the Project is Jacobs Group (Australia) Pty Ltd (Jacobs). Jacobs has also been engaged to perform the role of Project Manager/Contract Administrator (PMCA) with the primary responsibility of managing the Remediation Works Contractor, Ventia Utility Services Pty Ltd (Ventia).

This letter should be considered Interim Advice from the Auditor. A copy of this correspondence will be included in the final supporting Site Audit Report for S261.

2.0 Documents Reviewed

For preparation of this letter, the Site Auditor has reviewed the following document:

- Jacobs (2017a), *Cox Peninsula Remediation Project, Validation Report – Section 261*, 15 August 2017 (Ref. IW102400-0000-NP-RPT-0016|1). This will hereafter be referred to as the "S261 Validation Report".
- Jacobs (2017b), *Cox Peninsula Remediation Project, Environmental Care Procedures – Section 261*, dated July 2017 (Ref. IW102400-000-NP-RPT-0024|2). This will hereafter be referred to as the "S261 ECP".
- Department of Finance (2017), *Environmental Care Procedures Information Sheet – Section 261 Cox Peninsula, NT.* This will hereafter be referred to as the "S261 ECPIS".

In reviewing the S261 Validation Report, the Auditor has also referenced the following:

- AECOM (2016), *Site Auditor Interim Advice - Review of Jacobs Supplementary Investigation Report - Section 261, Cox Peninsula Remediation Project, Northern Territory for Department of Finance*, 2 September 2016 (Ref. 60443690_L021_S261 SSI_24 September 2016).
- AECOM (2017a), *Site Auditor Interim Advice - Review of Jacobs Remediation Action Plan - Section 261, Cox Peninsula Remediation Project, Northern Territory for Department of Finance*, 2 September 2016 (Ref. 69443690_L022_S261RAP_2 Sept 2016).

- AECOM (2017b), *Site Auditor Interim Advice - Review of Jacobs Supplementary Investigation Report and Remediation Action Plan - Section 261, Cox Peninsula*, 24 March 2017 (Ref. 60443690_L025_S261 SSI and RAP_24 March 2017).
- Jacobs (2016), *Cox Peninsula Remediation Project Supplementary Site Investigation - Section 261*, December 2016 (Ref. IW102400-0000-NP-RPT-0003|1). This will hereafter be referred to as the "S261 SSI".
- Jacobs (2017c), *Cox Peninsula Remediation Project Remediation Action Plan - Section 261*, dated February 2017 (Ref. IW102400-0000-NP-RPT-0008). This will hereafter be referred to as the "S261 RAP".

3.0 Technical Review – S261 Validation Report

The Site Auditor has undertaken a technical review of the S261 Validation Report as outlined below. For ease of reading, the Auditor's comments are included within grey shaded text boxes throughout this Interim Advice.

3.1 Executive Summary

The Executive Summary provided an overview of the background of S261, the objectives of the report, a summary of the scope of works for the remediation and validation works and the findings of the validation works.

As per comments previously presented for S262, please ensure the Executive Summary for the S261 Validation Report is updated to provide a standalone summary of the site or the activities carried out. The Auditor would like the Executive Summary to be updated to provide a clear and concise summary of the project to meet the requirements of NSW EPA (OEH, 2011[1]).

The following is noted:

- The second paragraph under "Background" is the overarching objectives of the project and should be located under the "Objectives" heading.
- Within the background provide context of S261's previous use and contaminants of concern.
- In Table E1, the report section should not be included.
- First paragraph of the "Summary of conclusions" please confirm date of Remediation works for S261?
- Dot point 3 in the "Summary of conclusions" please expand on what minor pre-treatment activities were undertaken on the stockpiles.
- Dot point 6 in the "Summary of conclusions" please expand on **how many** identified underground cables were partially protected by asbestos conduits?
- Dot point 8 in the "Summary of conclusions" define/spell out AF/FA.
- Dot point 13 in the "Summary of conclusions" last sentence should read, "These requirements are discussed in the Summary of recommendations, detailed below."
- In addition, please update the Abbreviations and acronyms list to ensure all acronyms and abbreviations used with the document text are captured in the list (i.e. AMCA, HFDF etc.). Where used for the first time in the document text please ensure they are spelt out in full (e.g. Australian Communications and Media Authority (AMCA)).

It is noted that the Executive Summary should be further updated to reflect any changes associated with the comments below, where applicable.

3.2 Scope of Work and Objectives

Sections 1.2 and 1.3 presented the objectives of the validation report and a summary of the scope of the remediation and validation works.

[1] NSW OEH (2011) *Contaminated sites: Guidelines for Consultants Reporting on Contaminated Sites*.

It is noted that in order to meet the objectives, remediation and validation works at S261 included work at 14 discrete areas referred to as Remediation Work Areas (RWAs). These are detailed in Table 1.1 of the S261 Validation Report.

It also noted that the Risk Mitigation Works (RMW) undertaken in 2014 were excluded from this section, but are documented in Section 5.2 and Appendix B of the S261 Validation Report.

The Auditor considers that the Validation Report provided a clear statement of the scope of work and the objectives. The objective clearly stated the proposed future use to be Public Open Space.

3.3 Site Identification, Background and Environmental Setting

The Introduction (Section 1), Site details (Section 2) and Site characterisation (Section 3) provided information on the background and site setting for S261, including a brief site description and overview of the history of S261. For further detail on the site setting and history, the Validation Report referred to the SSI and RAP for S261. The location and layout of S261 was presented on Figures 1 and 2 respectively.

The Auditor considers that the Validation Report provided suitable information on the identification of the RWAs and S261, and the site history, with appropriate reference to documents which presented further details.

However, the Auditor has the following comments:

- Table 2-1 should be revised to say "*part of Section 32 Hundred of Bray*" instead of TBA[1]. It is understood that S261 will not be formally recognised on the Certificate of Title until land is handed over to the Northern Territory Government. It is noted Appendix F presents the site survey plan.

3.4 Remediation guidelines

The Validation Report (Section 4) provided a summary of the standards and methodologies referenced for the remediation works at S261.

The Auditor considers that the summary of the standards and methodologies was appropriate for S261.

The Auditor notes that the asbestos remediation and validation assessors were suitably competent personnel and that the asbestos removalist, Kaefer Integrated Services Pty Ltd and independent licenced occupation hygienist, Agon Environmental were licenced to carry out the works.

The Auditor has the following comments on Section 4:

- In Section 4.1 reference should be made to the Northern Territory (NT) Environment Protection Agency (EPA) newly released *Contaminated Land Guidelines (2017)*. The Auditor notes that the NT EPA guidelines are largely adopted from the NSW Guidelines referred to in the Validation Report.
- In addition, reference should be made to the NT *Waste Management and Pollution Control Act* and the *National Environment Protection Council Act* which are the key pieces of legislation for the assessment of contaminated sites in the Northern Territory.

3.5 Remediation Works

Section 5 (Remediation Works) of the Validation Report presented a summary of the overall remediation program, including a summary of the Risk Mitigation Works (RMW) undertaken during late 2014, as it related to S261 and presented the scope, extent and remediation methodology for the 14 RWAs.

The Auditor considers that the Validation Report generally provided a suitable summary of the remediation works, which was undertaken in accordance with the RAP.

The Auditor has the following comments:

- Deviations and/or adjustments to the RAP (Jacobs, 2017b) were summarised in Table 5.9. The table provided the original intention of the RAP and reasons for the change. Jacobs also provided a statement for each variation/adjustment that the change did not alter the outcome of the remediation project.
- The Auditor acknowledges the additional requirements for decommissioning of two tanks associated with the ACMA Compound. Based on details provided in the Validation Report, the tanks were removed in accordance with general industry accepted practice. Jacobs also provided a statement that they were satisfied the remedial works were performed in accordance with the general requirements of the RAP and relevant guidelines.

3.6 Validation Works

The validation of remediation works was described in Section 6 of the Validation Report including the strategy, assessment and validation criteria and the sampling methodology and laboratory analysis.

The Auditor considers that the Validation Report provided a suitable summary of the validation works. Table 6.1 provided a good summary of the remediation activities and validation strategy for each RWA.

3.7 Quality Assurance and Quality Control

Section 6.2 presented a summary of the quality assurance and quality control for the remediation and validation works. A report of S261 QA/QC requirements for the validation report was presented in Appendix K.

The Auditor considers that the Validation Report generally provided a suitable summary of QA/QC and the suitability of the analytical data for use in the assessment.

However, the following should be clarified:

Analytical Tables:

- Table E replicate samples ‘Sample Type’ is listed as normal and the split duplicate ‘Laboratory Report Number’ is listed as the primary laboratory report number, not secondary batch numbers (should be EM1608106 and EM1608494), please correct. Furthermore, replicate samples S261_ACMA_V_QA02 and S261_ACMA_V_QA10 were not located next to primary sample in the table.
- Table M-2 footer is labelled ‘Table L-2’, please update. Furthermore, sample S261_UST_SP08_3 laboratory report number is listed as ‘31/01/3301’, please correct.
- Replicate samples S262-B-QA3 and S262-B-QA4 were listed as being analysed for ‘General site area – RWA G – Three clean fill stockpiles’ in Table 6.7. These samples were not presented in analytical Table C. Please present in Table C. Also, see comment for Table O below with regards to these samples.
- Table O presented results for replicate samples S262-B-QA1 and S262-B-QA2 compared to S262-ECA-B-A-10, however then also compared a replicate sample entitled ‘S262-B-QA2’ as well as replicate sample S262-B-QA4 to another sample entitled ‘S262-ECA-B-A-10’. Please clarify primary samples and corresponding replicate samples for the above. Please discuss any changes to RPD exceedances in Appendix L and Section 6.2 in report accordingly.
- Rinsate sample S262-RB3 was listed as being analysed for ‘General site area – RWA G – Three clean fill stockpiles’ on 13/04/2016 in Table 6.7. No laboratory reports were provided for this date in Appendix I. This sample was not presented in analytical Table P. Please present in Table P and discuss results in Appendix L and Section 6.2 in report accordingly.

- Overall, it is noted replicate samples were generally presented to the right of the primary sample throughout the analytical tables, with the exception replicate samples which were presented on the left of primary sample in Table C.
- The site specific EIL soil validation criteria presented in Appendix C.1 for metals were different to those presented in the RAP. It appears the criteria presented in the RAP were incorrect. This should be checked and clarified.

Appendix I:

- Laboratory reports for samples collected on 20/05/16 (505248) and 13/04/2016 (496923) were missing from Appendix I. Please add and discuss any issues highlighted in the reports as such in Appendix L.
- Laboratory reports 506802, 511583, 512718, 521348, 506933 and 507269 were presented in Appendix I; however results for respective samples were not reported in analytical tables.
- Laboratory reports 515285 and EM1608495 were presented in Appendix I, however results for respective samples were not reported in analytical tables. Samples reported within this batch look to have been collected from S265, rather than S261.

Appendix L:

- Table L.1 indicated COC were presented in Appendix F, this should be Appendix I.
- Appendix L did not provide an assessment of laboratory holding times. The Auditor's review of the laboratory certificates indicated that holding times were not met for the moisture content in laboratory batch 511583 (exceeded holding times by 11 days) and naphthalene in laboratory batch 509103 (exceeded holding time by 3 days). These non-conformances were not presented nor discussed in Appendix L, please address as such, and discuss implications.
- Please confirm if equipment calibration was completed and certificates provided.
- A review of laboratory reports in Appendix I indicated samples were not correctly preserved for laboratory batches 508414 and 512718, nor were appropriate sample containers utilised for laboratory batches 512718 and 514449. It is also noted that the Eurofin laboratory certificates stated if attempt to chill samples was evident but did not provide details of the sample temperatures. The report should include a description of the sampling preservation and holding procedures between sampling and arrival at the laboratory, especially in instances where time between sample dispatch and sample arrival to the laboratory is a couple of days, and discuss implications of any non-conformances.
- No replicate samples were analysed for Phthalate Esters, Volatile Organics Phenols, CN/ CN Free/Fluoride and Herbicides. Furthermore, based on the sample quantity for each analyte over the entire S261 validation sampling program, insufficient replicate samples were analysed for TRH, BTEXN, PAHs, OCPs, OPPs, PCBs and Semi Volatile Organics. On the basis of the information presented, it appears that replicate samples were not analysed as per the validation sample suite at the required rates (1 in 20 samples) as required by the RAP. The information provided in Appendix L – Section L.2.1 does not match these issues identified above, nor the number of total primary samples for each analyte and replicate samples analysed, please address as such, and discuss implications of these issues.
- The RAP indicated that for duplicate samples the acceptance criteria for relative percentage differences (RPD) would be 50%. The Auditor considers that RPD limits should be consistent with the requirements of the *National Environment Protection (Assessment of Site Contamination) Measure* 1999 (as amended 2013) (ASC NEPM).
- Aldrin + Dieldrin RPD exceedances were reported for blind and split duplicate samples reported in analytical Table E. It is noted some samples in this table reported concentrations of Aldrin + Dieldrin close to (marginally above or below) the assessment criteria. Please provide more detail as to how these RPD exceedances reported may affect interpretation of these results.

- On the basis of the information presented in Table P, it appears that rinsate samples were not collected for every day of sampling as required by the RAP (results not currently presented for 13/04/2016, 20/05/2016, 28/05/2016, 24/06/2016, 28/06/2016, 13/07/2016, 28/07/2016, 3/08/2016, 10/08/2016 and 9/09/2016 in Table P). In addition, rinsate blank samples were not analysed for the full suite of analytes sampled on respective dates, specifically rinsate samples from 15/07/2016 and 20/10/2016 were missing analysis for TRH, BTEXN, PAHs, OPPs, PCBs, Semi volatile Organics and Chlorinated Hydrocarbons, 20/10/2016 was also missing Metals and OCP, and 8/11/2016 was missing PCBs and PAHs. If the reason for these missing rinsate samples/analysis is due to no reusable equipment used for sampling activities on these dates, please state this clearly in Appendix L, otherwise please discuss the implications of not collecting rinsate samples for these dates/analytes in Appendix L.
- The following non-conformance with regards to lab QAQC frequency where noted in the laboratory reports provided in Appendix I: laboratory control spikes were not reported for soil in laboratory batches 507271 and 515285, matrix spikes were not reported for soil in laboratory batch 515643 and method blanks were not reported for soil in laboratory batch 515285. These non-conformances were not presented nor discussed in Appendix L, please address as such, and discuss implications of these issues.

Validation Report Section 6.4

- Matrix spikes exceedances presented in Appendix L were not discussed in Section 6.4. Please provide evidence of why the matrix spikes exceedances do not effect outcome of the investigation.
- Please update Section 6. 4 in report accordingly based on changes to Appendix L required above.

3.8 Validation Results and Discussion

Section 7 presented the validation results including analytical results, asbestos clearance and aesthetics for each of the RWAs within the general site area (Section 7.1) and within the ACMA compound (Section 7.2).

The following is noted:

- The RWA validation samples returned analytical results from the validation sampling event in accordance with S261 validation criteria, with some areas requiring additional remediation works to achieve this result. These were identified for each RWA as a new stage of validation activity.
- Visible ACM fragments identified on the ground surface in a number of RWAs were removed by suitably qualified personnel and validated through the issue of Asbestos Clearance Certificates that are provided in Appendix J of the Validation Report.

Overall the Auditor considers that the Validation Report provided a suitable summary of the validation results.

3.9 Conclusions and Recommendations

On the basis of the validation assessment, Jacobs concluded that the site (i.e. S261) had reached an adequate level of clean-up and the remediation goals for the site had been achieved. Jacobs concluded that the site (i.e. S261) is suitable for the proposed future use.

Jacobs recommended that for the proposed Public Open Space Land use an Environmental Care Procedure (ECP) be developed. The ECP would address the potential for ACM to remain in subsurface soils at the site, which may become exposed over time due to erosion processes. The ECP would also include potential for chance finds and/or waste dumping in the future.

The Auditor considers that the Validation Report provided appropriate conclusions and that the development of an ECP is appropriate to address ongoing unexpected finds within S261.

However, the following should be included in the Conclusions (Section 8.1):

- Section 8.1 only specified that validation sampling confirmed that residual pesticide contamination was successfully removed. Based on the results section of the report, other contaminants of concern were also identified. The Auditor considers that commentary should be included in the conclusion for other contaminants of concern applicable to S261, e.g. validation samples for hydrocarbon contamination at RWA G, and asbestos in soil results.

4.0 Technical Review – ECP and ECPIS

The Site Auditor has undertaken a technical review of the S261 ECP and ECPIS as outlined below.

The Auditor notes the S261 ECP is a precautionary control measure to manage bonded ACM fragments in the shallow subsurface soils.

The Auditor notes that the ECP does not include protection of Aboriginal heritage.

The Auditor has the following comments on S261 ECP:

- The ECP should include reference to the newly released NT Contaminated Land Guideline 2017 in Section 1.8.
- The reference to Appendix C training register in Section 2.2 should actually refer to Appendix D.

The Auditor notes the following observation in relation to S261 ECPIS:

- Ensure reference to the ECP is updated in the revised S261 ECPIS accordingly.

5.0 Auditor Summary and Conclusions

Notwithstanding the specific comments made, clarifications and amendments sought in this letter, the Site Auditor considers that the S261 Validation Report provided a suitable summary of the remediation and validation works undertaken for S261.

The Auditor considers that the S261 ECP and ECPIS are suitable for use to manage potential for chance finds and/or waste dumping in the future.

The Auditor notes that the containment cell at S265 is subject to a separate review by the Auditor.

The Auditor looks forward to any queries and/or clarifications relating to this review.

Yours sincerely



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cc: Ross Stevens, Lauren MacInnes and Emma Tod - Dept of Finance
Matthew Nation and Chris Duesterberg - Nation Partners
Debbie Midwinter and Alana Court - AECOM

REGISTER OF DOCUMENT COMMENTS	
REPORT TITLE:	Validation Report - S261
DOCUMENT NUMBER:	IW102400-0000-NP-RPT-0016
REVISION:	1
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AUDITOR REF:	Letter 60443690_L031_S261 Validation_5 September 2017

JACOBS

Australian Government
Department of Finance

ITEM NO.	TEXT REF.	AUDITOR COMMENT	JACOBS RESPONSE
1	Executive Summary	The second paragraph under “Background” is the overarching objectives of the project and should be located under the “Objectives” heading.	Amended
2	Executive Summary	Within the background provide context of S261 previous use and contaminants of concern.	Additional information provided.
3	Executive Summary	In Table E1, the report section shouldn’t be included.	Amended. The relevant sections of the report where specific information relating to each task can be found has been moved to Table 1.1.
4	Executive Summary	First paragraph of the “Summary of conclusions” please confirm date of Remediation works for S261?	This should read '2016 Dry Season'. Amended.
5	Executive Summary	Dot point 3 in the “Summary of conclusions” please expand on what minor pre-treatment activities were undertaken on the stockpiles.	Clarification provided.
6	Executive Summary	Dot point 6 in the “Summary of conclusions” please expand on how many identified underground cables were partially protected by asbestos conduits?	Additional details provided.
7	Executive Summary	Dot point 8 in the “Summary of conclusions” define/spell out AF/FA.	Amended.
8	Executive Summary	Dot point 13 in the “Summary of conclusions” last sentence should read, “These requirements are discussed in the Summary of recommendations, detailed below.”	Amended.
9	Executive Summary	In addition, please update the Abbreviations and acronyms list to ensure all acronyms and abbreviations used with the document text are captured in the list (i.e. AMCA, HFDF etc.). Where used for the first time in the document text please ensure they are spelt out in full (e.g. Australian Communications and Media Authority (AMCA)).	Amended.
10	Executive Summary	It is noted that the Executive Summary should be further updated to reflect any changes associated with the comments below, where applicable	Amended.
11	Section 2	Table 2-1 should be revised to say “part of Section 32 Hundred of Bray” instead of TBA. It is understood that S261 will not be formally recognised on the Certificate of Title until land is handed over to the Northern Territory Government. It is noted Appendix F presents the site survey plan.	Amended. The footnote text has also been amended to reflect this change.
12	Section 4	In Section 4.1 reference should be made to the Northern Territory (NT) Environment Protection Agency (EPA) newly released *Contaminated Land Guidelines (2017)* . The Auditor notes that the NT EPA guidelines are largely adopted from the NSW Guidelines referred to in the Validation Report.	Amended.
13	Section 4	In addition, reference should be made to the NT *Waste Management and Pollution Control Act* and the *National Environment Protection Council Act* which are the key pieces of legislation for the assessment of contaminated sites in the Northern Territory.	Amended.
14	Section 5	Deviations and/or adjustments to the RAP (Jacobs, 2017b) have been summarised in Table 5.9. The table provides the original intention of the RAP and reasons for the change. Jacobs also provided a statement for each variation/adjustment that the change did not alter the outcome of the remediation project.	Noted.
15	Section 5	The Auditor acknowledges the additional requirements for decommissioning of two tanks associated with the ACMA Compound. Based on details provided in the Validation Report, the tanks were removed in accordance with general industry accepted practice. Jacobs also provided a statement that they were satisfied the remedial works were performed in accordance with the general requirements of the RAP and relevant guidelines.	Noted.
16	Section 8	Section 8.1 only specified that validation sampling confirmed that residual pesticide contamination was successfully removed. Based on the results section of the report, other contaminants of concern were also identified. The Auditor considers that commentary should be included in the conclusion for other contaminants of concern applicable to S261, e.g. validation samples for hydrocarbon contamination at RWA G, and asbestos in soil results.	Additional dot points have been included for hydrocarbons as well as asbestos in soils.
17	QA/QC (Analytical Tables)	Table E replicate samples ‘Sample Type’ is listed as normal and the split duplicate ‘Laboratory Report Number’ is listed as the primary laboratory report number, not secondary batch numbers (should be EM1608106 and EM1608494), please correct. Furthermore, replicate samples S261_ACMA_V_QA02 and S261_ACMA_V_QA10 were not located next to primary sample in the table.	Amended.
18	QA/QC (Analytical Tables)	Table M-2 footer is labelled ‘Table L-2’, please update. Furthermore, sample S261_UST_SP08_3 laboratory report number is listed as ‘31/01/3301’, please correct.	Amended
19	QA/QC (Analytical Tables)	Replicate samples S262-B-QA3 and S262-B-QA4 were listed as being analysed for ‘General site area – RWA G – Three clean fill stockpiles’ in Table 6.7. These samples were not presented in analytical Table C. Please present in Table C. Also, see comment for Table O below with regards to these samples.	Replicate samples S262-B-QA3 and S262-B-QA4 were erroneously included in Table 6.7. A total of 11 clean fill stockpiles were located across S261 and S262. Three of these were located within S261 with eight in S262. The two replicate samples above were collected from stockpile SP_E_L in S262 while replicate samples S262-B-QA1 and S262-B-QA2 were collected from stockpile SP_F_A in S261. Table 6.7 has been amended accordingly.
20	QA/QC (Analytical Tables)	Table O presented results for replicate samples S262-B-QA1 and S262-B-QA2 compared to S262-ECA-B-A-10, however then also compared a replicate sample entitled ‘S262-B-QA2’ as well as replicate sample S262-B-QA4 to another sample entitled ‘S262-ECA-B-A-10’. Please clarify primary samples and corresponding replicate samples for the above. Please discuss any changes to RPD exceedances in Appendix L and Section 6.2 in report accordingly.	These samples were included in error and have been removed from the data table. Relevant commentary in Appendix L and Section 6.4 has been updated accordingly.
21	QA/QC (Analytical Tables)	Rinsate sample S262-RB3 was listed as being analysed for ‘General site area – RWA G – Three clean fill stockpiles’ on 13/04/2016 in Table 6.7. No laboratory reports were provided for this date in Appendix I. This sample was not presented in analytical Table P. Please present in Table P and discuss results in Appendix L and Section 6.2 in report accordingly.	These results were reported in lab report 496923 and have now been included in Appendix I (refer related item 24 below). These results have also been added to Table P with Appendix L and Section 6.4 updated as required.
22	QA/QC (Analytical Tables)	Overall, it is noted replicate samples were generally presented to the right of the primary sample throughout the analytical tables, with the exception replicate samples which were presented on the left of primary sample in Table C.	Table C has been amended.
23	QA/QC (Analytical Tables)	The site specific EIL soil validation criteria presented in Appendix C.1 for metals were different to those presented in the RAP. It appears the criteria presented in the RAP were incorrect. This should be checked and clarified.	The criteria presented in the RAP were incorrect. The criteria presented in Appendix C.1 are correct.
24	QA/QC (Appendix I)	Laboratory reports for samples collected on 20/05/16 (505248) and 13/04/2016 (496923) were missing from Appendix I. Please add and discuss any issues highlighted in the reports as such in Appendix L.	These reports have been added.
25	QA/QC (Appendix I)	Laboratory reports 506802, 511583, 512718, 521348, 506933 and 507269 were presented in Appendix I; however results for respective samples were not reported in analytical tables.	The following amendments have been made: 506802 : Results represented additional analysis for 506802 sample S261_ACMA_BS_01. Results were included in data table D but reference to the additional lab report has now also been included. 511583 : Results represented additional metals analysis for 508439 sample S261_UST_NDD. These samples were collected during NDD around the USTs. Ultimately, the results were not required and excluded from the data tables. Both 511583 and 508439 have been removed from Appendix I. 512718 : These samples were collected during NDD around the USTs. Ultimately, the results were not required and excluded from the data tables. These lab certificates have been removed from Appendix I. 521348 : These samples were erroneously omitted. They relate to three samples collected from the footprint of the small ACM stockpile removed from the ACMA compound (RWA C). A new analytical table has been included (table Q) as well as relevant changes in Section 5.4.8, Table 6.1, Table 6.2, Table 6.4, Table 7.7 and Figure 10. 506933 : These results related to DTD feedstock material testing performed on soils from the ACMA compound. There results are not relevant for the S261 validation report (they are relevant to the S265 validation report instead). These results have been removed from Appendix I. 507269 : These results relate to a water sample collected from the USTs collected during removal. Additional data table R has been included. It was also noted that the fingerprint analysis had been omitted from Appendix I - this has now been included.
26	QA/QC (Appendix I)	Laboratory reports 515285 and EM1608495 were presented in Appendix I, however results for respective samples were not reported in analytical tables. Samples reported within this batch look to have been collected from S265, rather than S261.	The ALS report (EM1608495) was erroneously included. This has been removed. The Eurofins report (515285) does relate to samples collected from S261 (stockpile footprint samples from the ACMA compound). However, the samples were incorrectly named using the 'S265' prefix. This relates to samples identified as S265_ACMA_SP_001_01 to S265_ACMA_SP_001_10 as well as S265_ACMA_SP_002_01 to S265_ACMA_SP_002_04.

ITEM NO.	TEXT REF.	AUDITOR COMMENT	JACOBS RESPONSE
27	QA/QC (Appendix L)	Table L.1 indicated COC were presented in Appendix F, this should be Appendix I.	Amended.
28	QA/QC (Appendix L)	Appendix L did not provide an assessment of laboratory holding times. The Auditor's review of the laboratory certificates indicated that holding times were not met for the moisture content in laboratory batch 511583 (exceeded holding times by 11 days) and naphthalene in laboratory batch 509103 (exceeded holding time by 3 days). These non-conformances were not presented nor discussed in Appendix L, please address as such, and discuss implications.	511583: Laboratory results reported under 511583 were not utilised. It is also noted that these results related to additional analysis requested for 508439. Moisture content was reported for 508439 (within the holding time) and therefore this secondary result is not relevant. It is also noted that moisture content is reported by the laboratory regardless of whether the analysis is requested or not - in this case moisture content was not requested for either batch of samples. 509103 : While it is noted that naphthalene analysis was performed out with the recommended holding time, the results indicated that the material was unsuitable to remain on site and that off-site disposal was required. Commentary to this effect is now included in Appendix L.
29	QA/QC (Appendix L)	Please confirm if equipment calibration was completed and certificates provided.	Calibration certificates were provided for the PID utilised on site. These certificates are provided in Appendix M with commentary also added to Table L.1.
30	QA/QC (Appendix L)	A review of laboratory reports in Appendix I indicated samples were not correctly preserved for laboratory batches 508414 and 512718, nor were appropriate sample containers utilised for laboratory batches 512718 and 514449. It is also noted that the Eurofin laboratory certificates stated if attempt to chill samples was evident but did not provide details of the sample temperatures. The report should include a description of the sampling preservation and holding procedures between sampling and arrival at the laboratory, especially in instances where time between sample dispatch and sample arrival to the laboratory is a couple of days, and discuss implications of any non-conformances.	508414 : As per item 28 above, the samples for which this non-compliance relates is three stockpile classification samples associated with the UST excavation process. This stockpile was removed from site on the basis that it failed to meet the site acceptance criteria. On this basis, there is no adverse consequence of the breaches reported. Additional commentary to this effect has been included in Appendix L. 512718 : As per item 25 above, these results were not required and therefore the preservation and samples container breaches are no longer relevant. 514449 : No vials were submitted for a single rinsate sample submitted for analysis for volatile organics. All other analytes in the rinsate sample reported concentrations below the LOR, indicating adequate decontamination processes have been adopted. Further, all soil samples collected during this batch of sampling reported volatile organic results below the LOR. Additional commentary to this effect has been included in Appendix L.
31	QA/QC (Appendix L)	No replicate samples were analysed for Phthalate Esters, Volatile Organics Phenols, CN/ CN Free/Fluoride and Herbicides. Furthermore, based on the sample quantity for each analyte over the entire S261 validation sampling program, insufficient replicate samples were analysed for TRH, BTEXN, PAHs, OCPs, OPPs, PCBs and Semi Volatile Organics. On the basis of the information presented, it appears that replicate samples were not analysed as per the validation sample suite at the required rates (1 in 20 samples) as required by the RAP. The information provided in Appendix L – Section L.2.1 does not match these issues identified above, nor the number of total primary samples for each analyte and replicate samples analysed, please address as such, and discuss implications of these issues.	Sampling frequencies have been broken down by chemical group to provide greater detail. In relation to specific analytes, duplicate sample analysis was generally confined to key contaminants of concern identified as part of previous investigations at the site (pesticides and metals) or analytes detected as part of the remedial works (TRH / BTEXN). While this does represent a deviation from the RAP, this is considered to be an appropriate approach. Replicate sampling frequencies for S261 sampling are below the 1 in 20 frequency nominated in AS4482.1 however, for key analytes of interest (i.e. those that reported exceedances of the site acceptance criteria) the sampling frequency was only marginally below the requisite frequency. Further, when sampling across the entire Cox Peninsula Remediation Project is taken into consideration, frequencies generally meet the 1 in 20 frequency required. On this basis, Jacobs does not believe that this is a significant non-compliance with the DQOs nominated in the RAP.
32	QA/QC (Appendix L)	The RAP indicated that for duplicate samples the acceptance criteria for relative percentage differences (RPD) would be 50%. The Auditor considers that RPD limits should be consistent with the requirements of the National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) (ASC NEPM).	Jacobs notes that the ASC NEPM nominates an acceptance criteria for RPDs of 30% as the preliminary trigger for further data review. Jacobs has revised Table O accordingly (which has resulted in additional exceedances of the RPD criteria). These additional exceedances are discussed in Section L.2.1. Despite these exceedances, Jacobs is satisfied that the results obtained are sufficiently reliable for the use for which they were obtained.
33	QA/QC (Appendix L)	Aldrin + Dieldrin RPD exceedances were reported for blind and split duplicate samples reported in analytical Table E. It is noted some samples in this table reported concentrations of Aldrin + Dieldrin close to (marginally above or below) the assessment criteria. Please provide more detail as to how these RPD exceedances reported may affect interpretation of these results.	The RPD exceedances for duplicate samples for pesticides in Table E generally relate to samples that reported low concentrations of these analytes in soil. This is the case for all results except for dieldrin (and by default aldrin + dieldrin) in samples S261_ACMA_V_023 (4 mg/kg) and the corresponding blind duplicate sample S261_ACMA_V_QA01 (1.77 mg/kg) which reported an RPD of 77%. Given the heterogeneity of the soil, coupled with the fact that these are organic contaminants (all factors that the NEPM recognises can give rise to higher RPD results) the overall results are considered to be acceptable. In relation to the interpretation of sample results that are either marginally below or above the assessment criteria, non-compliant RPD results could conceivably indicate a risk of: - Unnecessary excavation of soil (i.e. where results indicate an exceedance of the site acceptance criteria, but the true contaminant concentration is below the assessment criteria) - No excavation performed in an area where it should have been (i.e. where results indicate no exceedance of the site acceptance criteria, but the true contaminant concentration is above the assessment criteria) Jacobs notes that there is inherent uncertainty associated with any assessment of this nature, particularly given the heterogeneity of the soils present. However, we do not believe that the non-compliances reported above are likely to result in a misrepresentation of the suitability of the site for its proposed future use. This is further noted through the adoption of a validation criteria (2 mg/kg) that is significantly less than the generic (and conservative) NEPM HIL criteria (10 mg/kg).
34	QA/QC (Appendix L)	On the basis of the information presented in Table P, it appears that rinsate samples were not collected for every day of sampling as required by the RAP (results not currently presented for 13/04/2016, 20/05/2016, 28/05/2016, 24/06/2016, 28/06/2016, 13/07/2016, 28/07/2016, 3/08/2016, 10/08/2016 and 9/09/2016 in Table P). In addition, rinsate blank samples were not analysed for the full suite of analytes sampled on respective dates, specifically rinsate samples from 15/07/2016 and 20/10/2016 were missing analysis for TRH, BTEXN, PAHs, OPPs, PCBs, Semi volatile Organics and Chlorinated Hydrocarbons, 20/10/2016 was also missing Metals and OCP, and 8/11/2016 was missing PCBs and PAHs. If the reason for these missing rinsate samples/analysis is due to no reusable equipment used for sampling activities on these dates, please state this clearly in Appendix L, otherwise please discuss the implications of not collecting rinsate samples for these dates/analytes in Appendix L.	In relation the first part of the comment regarding sampling days with missing rinsates, the following clarifications are provided: - 13/04/2016: Rinsate sample S262-RB3 was collected on this date (batch 496923) - 20/05/2016: Lab batch 505248 relates to cable samples therefore no rinsate sample was collected. - 28/05/2016: No record of samples collected on this day - 24/06/2016: No reusable equipment utilised for sampling - 28/06/2016: Rinsate not collected due to oversight - 13/07/2016: No reusable equipment utilised for sampling - 28/07/2016: No reusable equipment utilised for sampling - 03/08/2016: No reusable equipment utilised for sampling - 10/08/2016: Rinsate not collected due to oversight - 09/09/2016: No reusable equipment utilised for sampling Typically if stockpile sampling was being performed (i.e. loose soil) sampling was performed without the need for reusable equipment (such as a trowel). This also applied in some instances during footprint validation sampling. On this basis, the majority of the above sampling days did not require rinsates. However, on two occasions rinsate samples were not collected due to an oversight. Rinsate samples collected during the validation works reported no exceedances of the laboratory LORs and on this basis the decontamination procedures adopted throughout the project appear to have been effective. As such, these omissions are not considered to impact upon the reliability of the results obtained. In relation to the second part of the comment regarding anaysis suites selected: - Sample batch 508406 (15/07/2016): Soil samples were only tested for OCPs therefore rinsate samples were not tested for an extended analysis suite- only OCPs - Sample batch 509241 (21/07/2016 - assumed to be the batch that was intended to be queried, not 20/10/2016 for which a full extended analysis suite was conducted): Soil samples were only tested for OCPs therefore rinsate samples were not tested for an extended analysis suite- only OCPs - Sample batch 523070 (8/11/2016): PCBs and PAHs analysis were erroneously omitted from the analysis suite. However, primary samples tested for PAHs and PCBs reported no detections for these analytes. As a general rule, rinsate samples were tested for the same analysis suite as the primary samples from the batch (batch 523070 discussed above being the exception). Appendix L has been updated accordingly.
35	QA/QC (Appendix L)	The following non-conformance with regards to lab QAQC frequency where noted in the laboratory reports provided in Appendix I: laboratory control spikes were not reported for soil in laboratory batches 507271 and 515285, matrix spikes were not reported for soil in laboratory batch 515643 and method blanks were not reported for soil in laboratory batch 515285. These non-conformances were not presented nor discussed in Appendix L, please address as such, and discuss implications of these issues.	These results have now been discussed in Appendix L.
36	QA/QC (Appendix L)	Matrix spikes exceedances presented in Appendix L were not discussed in Section 6.4. Please provide evidence of why the matrix spikes exceedances do not effect outcome of the investigation.	These results are now discussed in Section 6.4. It is noted that the overall proportion of failed results is small relative to the overall number of results reported. These non-compliances are generally attributable to matrix interference with analytes exceeding the criteria correlating with those that reported elevated concentrations within the sample batch.
37	QA/QC (Appendix L)	Please update Section 6. 4 in report accordingly based on changes to Appendix L required above.	Amended.

REGISTER OF DOCUMENT COMMENTS	
REPORT TITLE:	Environmental Care Procedures - S261
DOCUMENT NUMBER:	IW102400-0000-NP-RPT-0024
REVISION:	2
DOCUMENT DATE:	15 August 2017
AUDITOR REF:	Letter 60443690_L031_S261 Validation_5 September 2017

ITEM NO.	TEXT REF.	AUDITOR COMMENT	JACOBS RESPONSE
1	ECP	The ECP should include reference to the newly released NT Contaminated Land Guideline 2017 in Section 1.8.	This reference has been added.
2	ECP	The reference to Appendix C training register in Section 2.2 should actually refer to Appendix D.	This has been amended.
3	ECPIS	Ensure reference to the ECP is updated in the revised S261 ECPIS accordingly.	Amended

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ABN 20 093 846 925

27 September 2017

Ross Edwards
Section Leader - Contaminated Land & Acoustic
Jacobs
Level 11, 452 Flinders Street
Melbourne, VIC 3000

Dear Ross

Site Auditor Interim Advice - Review of Jacobs Supplementary Site Investigation, Remediation Action Plan, Validation Report and Environmental Care Management Procedures - Section 261, Cox Peninsula Remediation Project, NT for Department of Finance

1.0 Introduction

In his role as a Northern Territory Environmental Protection Authority (NT EPA) Accredited Contaminated Site Auditor, Paul Steinwede of AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Finance (Finance) to review documentation relating to the investigation and remediation works being undertaken for the Cox Peninsula Remediation Project, Northern Territory (the Site).

As part of this role, the Auditor has reviewed the documentation listed in Section 2.0 which relates to investigation and remediation works for Section 261 (S261) of the Site in order to support the future transfer of S261 to the Northern Territory Government and ultimately the Larrakia people for future use.

The Environmental Consultant for the Project, Jacobs, was commissioned by Finance to complete a Supplementary Site Investigation (SSI) and prepare a Remediation Action Plan (RAP) for S261. Following completion of remediation and validation works, Jacobs prepared a Validation Report and an Environmental Care Procedures (ECP) to provide a general framework to ensure the continued protection of site users and the environment following the completion of remediation works.

This letter should be considered Interim Advice from the Auditor. A copy of this correspondence will be included in the final supporting Site Audit Report for S261.

2.0 Documents Reviewed

For preparation of this letter, the Site Auditor has reviewed the following documents:

- Jacobs (2016), *Cox Peninsula Remediation Project, Supplementary Site Investigation – Section 261*, December 2016 (Ref. IW102400-0000-NP-RPT-0003|1). This will hereafter be referred to as the “S261 SSI Report”.
- Jacobs (2017a), *Cox Peninsula Remediation Project, Remediation Action Plan – Section 261,* February 2017 (Ref. IW102400-0000-NP-RPT-0008|1). This will hereafter be referred to as the “S261 RAP”.
- Jacobs (2017b), *Cox Peninsula Remediation Project, Environmental Care Procedures – Section 261,* 14 September 2017 (Ref. IW102400-000-NP-RPT-0024|3). This will hereafter be referred to as the “S261 ECP”.
- Jacobs (2017c), *Cox Peninsula Remediation Project, Environmental Care Procedures Information Sheet – Section 261*, September 2017.
- Jacobs (2017d), *Cox Peninsula Remediation Project, Validation Report - Section 261,* 14 September 2017 (Ref. IW102400-0000-NP-RPT-0016|2). This will hereafter be referred to as the “Validation Report”.
- Jacobs (2017e), *Register of Document Comments, Validation Report S261 Revision 1,* 14 September 2017.
- Jacobs (2017f), *Register of Document Comments, S261 Environmental Care Procedures Revision 2,* 14 September 2017.

In reviewing the above documents, the Auditor has referenced the follow interim advice letters which provided comment on previous versions of the reports listed above:

- AECOM (2016a), *Site Auditor Interim Advice - Review of Jacobs Supplementary Investigation Report - Section 261, Cox Peninsula Remediation Project, Northern Territory for Department of Finance,* 2 September 2016 (Ref. 60443690_L021_S261SSI_2 Sept 2016).
- AECOM (2016b), *Site Auditor Interim Advice - Review of Jacobs Remediation Action Plan - Section 261, Cox Peninsula Remediation Project, Northern Territory for the Department of Finance*, 2 September 2016 (Ref. 60443690_L022_S261RAP_2 Sept 2016).
- AECOM (2017a), *Site Auditor Interim Advice - Review of Jacobs Supplementary Investigation Report - Section 261, Cox Peninsula Remediation Project, Northern Territory for the Department of Finance*, 9 December 2016 (Ref. 60443690_L025_S261SSI_24 March 2017).
- AECOM (2017b), *Site Auditor Interim Advice - Review of Jacobs Validation Report and Environmental Control Procedures - Section 261, Cox Peninsula Remediation Project, Northern Territory for the Department of Finance*, 5 September 2017 (Ref. 60443690_L031_5 September 2017).

3.0 Technical Review

The Site Auditor has undertaken a technical review of the S261 RAP, ECP and Validation Report which have been updated following the Auditor's comments (AECOM, 2016b, 2017a and 2017b) on previous versions of the reports and Jacobs Register of Document Comments (Jacobs, 2017e and 2017f).

The Auditor considers that Jacobs has adequately addressed the Auditor's comments on the S261 RAP, ECP and Validation Reports. In addition, outstanding data gaps from the SSI have either been closed out by the RAP and/or the Validation Report.

4.0 Auditor Summary and Conclusions

The Auditor considers that the responses provided from Jacobs, as well as the amendments to the S261 SSI, RAP, ECP and Validation Reports, adequately address the previous Auditor's comments and as such are suitable for use.

Yours sincerely



Paul Steinwede
NSW EPA Accredited Contaminated Site Auditor
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Direct Fax: +61 2 8934 0001

cc: Ross Stevens, Lauren MacInnes and Emma Tod - Dept of Finance

Matthew Nation and Chris Duesterberg - Nation Partners

Debbie Midwinter and Alana Court - AECOM

Australian Government

Department of Finance

Mr Paul Steinwede
Managing Director,
Australia New Zealand
AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000

Dear Mr Steinwede,

In accordance with the settlement of the Kenbi Land Claim, Section 261 will be transferred to the Northern Territory Government (NTG) with subsequent transfer to the Larrakia Development Corporation (LDC).

Section 261 has been remediated and poses only a minor risk of any ongoing legacy issues. This has been confirmed by an asbestos walkover conducted by an occupational hygienist following completion of the project.

The NTG and the LDC have been provided with the draft Environmental Care Procedures (ECP) that outlines the process in the event that unexpected or unidentified items are found. The LDC are a mature Indigenous business who have the land management and environmental experience and the capability to follow the management procedures outlined in the ECP.

Finance will provide the NTG and the LDC copies of all documentation and reports including the Asbestos Clearance Certificate and Summary Report and the Environmental Site Auditor Report documenting the works performed.

Yours sincerely,

Emma Tod, Project Manager
31 August 2017

Signed on behalf of:
Ross Stevens, Director
Property Capital Works Branch

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7 November 2017

Ross Edwards
Section Leader - Contaminated Land & Acoustic
Jacobs
Level 11, 452 Flinders Street
Melbourne, VIC 3000

Dear Ross

Site Auditor Interim Advice - Review of Jacobs Supplementary Site Investigation Validation Report - Section 261, Cox Peninsula Remediation Project, NT for Department of Finance

1.0 Introduction

In his role as a Northern Territory Environmental Protection Authority (NT EPA) accredited Contaminated Site Auditor, Paul Steinwede of AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Finance (Finance) to review documentation relating to the investigation and remediation works being undertaken for the Cox Peninsula Remediation Project, Northern Territory (the Site).

As part of this role, the Auditor has reviewed the documentation listed in Section 2.0 which relates to investigation and remediation works for Section 261 (S261) of the Site in order to support the future transfer of S261 to the Northern Territory Government and ultimately the Larrakia people for future use.

The Environmental Consultant for the Project, Jacobs, was commissioned by Finance to complete remediation and validation of Section 261. A revision to the Validation Report was required following additional questions raised by the Auditor in relation to handling and tracking of wastes removed from S261.

This letter should be considered Interim Advice from the Auditor. A copy of this correspondence will be included in the final supporting Site Audit Report for S261.

2.0 Documents Reviewed

For preparation of this letter, the Site Auditor has reviewed the following documents:

- Jacobs (2017a), *Cox Peninsula Remediation Project, Validation Report - Section 261,* 25 October 2017 (Ref. IW102400-0000-NP-RPT-0016|3). This will hereafter be referred to as the "Validation Report".
- Jacobs (2017b), *Waste Handling and Disposal – Supporting Information*, 25 October 2017 (Ref. IW102400 - Append G.3 Supporting Information)

3.0 Technical Review

The Site Auditor has undertaken a technical review of the revised S261 Validation Report (Jacobs, 2017a) and supporting letter (Jacobs, 2017b) which have been reissued following the Auditor's request for clarification regarding the waste handling and tracking details presented in Appendix G (material tracking) version 2 of S261 Validation Report.

Following request for clarification, Jacob's undertook a review of the information previously provided and updated Appendix G (material tracking) and Sections of the S261 Validation report with the following details:

- G.1 Material tracking register – updated the Ventia material tracking register that was previously included in Appendix G of the S261 Validation Report with missing waste tracking information. The additional information included by Jacobs is highlighted green to show that was not part of Ventia tracking. The details missing were associated with the asbestos conduits (special waste) and plastic conduits (general waste) internal transfers between S261 and S265.

- G.2 Waste dockets for off-site disposal – additional detail provided by Jacobs in Appendix G that provides a summary of waste dockets for materials that were disposed off-site, including recycled materials (cooper and steel), landfill general waste (plastic conduits, bitumen) and landfill special waste (asbestos conduit, hydrocarbon and pesticide contaminated soil) and the inclusion of the associated waste dockets.
- G.3 Supporting Information – presents a formal letter addressed to AECOM that provides clarifications in relation to the queries raised in relation to handling and transport of waste materials at S261.
- Amended errors associated with the volume of pesticide contaminated soil transported to S265.

4.0 Auditor Summary and Conclusions

The Auditor considers that the responses provided from Jacobs, as well as the amendments to the S261 Validation Report, adequately address the Auditor's comments in relation to tracking and handling of waste materials during the remediation and validation program on S261.

Yours sincerely



Paul Steinwede
NSW EPA Accredited Contaminated Site Auditor
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Direct Fax: +61 2 8934 0001

cc: Ross Stevens, Lauren MacInnes and Emma Tod - Dept of Finance

Matthew Nation and Chris Duesterberg - Nation Partners

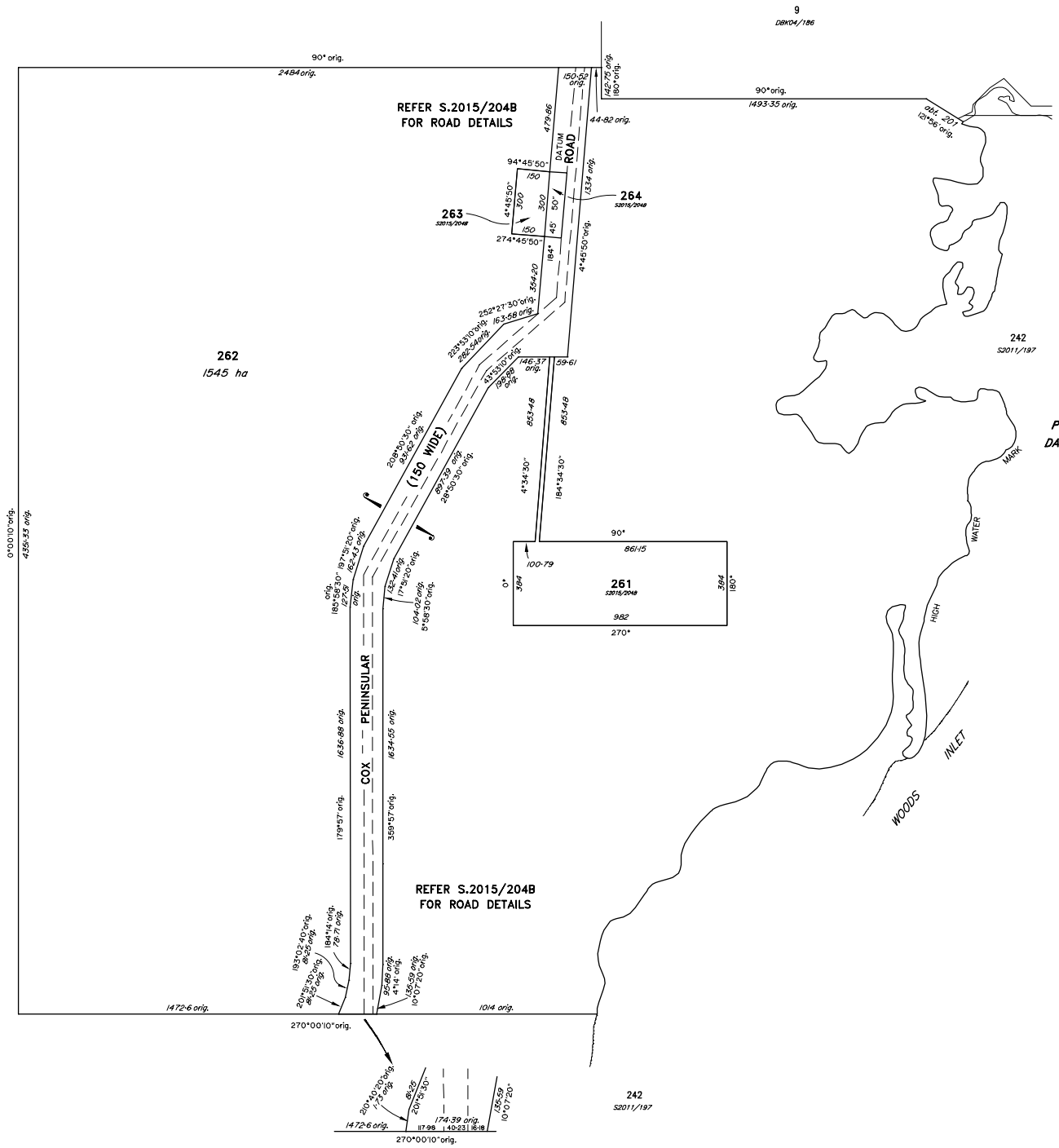
Debbie Midwinter and Alana Court - AECOM

Appendix C

Certificate of Title and
Site Survey

Appendix C Certificate of Title and Site Survey

SUPERSEDES OP1510



I, Alan William Thorpe hereby certify that the survey represented on this plan was carried out by me or under my supervision and was completed on 22 September 2015 and that this survey has been executed in accordance with the Licensed Surveyors Act and the Directions thereunder.

Licensed Surveyor — 24 September 2015 — Date

Northern Territory Government

SURVEY APPROVED

Surveyor-General — 26 October 2015 — Date

NOTE:

All dimensions longer than 100m are calculated.

GNSS measurements were used on this survey to determine boundaries longer than 100m.

This plan is Version 1.

Field Book	
Drawn	DTA 24.09.2015 – IW075600
Examined	Jacobs Group Aust. Pty Ltd (30.09.2015)
Map Reference	

True Mid ..... Bearings

AZIMUTH

Assumed from S2012/198

Observed at .....

LEGEND

Concrete Post .....
Concrete Block .....
Peg or Wooden Post. .o
Reference Mark .....
Lockspit .....
Fence Post .....

SECTIONS 261 TO 264

HUNDRED OF BRAY

SCALE 1:10000 at A1

200 0 200 400 600 metres

S.2015/204A

SHEET 1 OF 2

WARNING – Damaged or creased plan will be rejected.

Date Registered: 24/01/2012 **Volume** 763 **Folio** 203

Duplicate Certificate as to Title issued? No

SEARCH CERTIFICATE

Section 32 Hundred of Bray from plan(s) OP 001510
Area under title is 16 square kilometres 19 hectares

Owner:
Commonwealth of Australia
of Assistant Secretary, Property Branch, Property & Construction Division, Department of Finance and Deregulation, John Gorton Building, King Edward Terrace, Parkes ACT 2600

Registered Date	Dealing Number	Description
24/01/2012	764373	Application to register Statutory Vesting or Grant - Pursuant to section 70(4) of the Northern Territory (Self-Government) Act 1978(Cth)

End of Dealings

NORTHERN TERRITORY OF AUSTRALIA

Record of Administrative Interests and Information

Record of Administrative Interests and Information
The information contained in this record of Administrative Interests only relates to the below parcel reference.

Parcel Reference: Section 00032 Hundred of Bray plan(s) OP 001510

(See section 38 of the Land Title Act)

Note: The Record of Administrative Interests and Information is not part of the Land Register and is not guaranteed by the Northern Territory of Australia, and the NT Government accepts no Liability for any omission, misstatement or inaccuracy contained in this statement.

Registrar General

Government Land Register
(none found)

Custodian - Registrar General (+61 8 8999 6252)

Current Title
CUFT 763 203 (order 1)

Tenure Type
ESTATE IN FEE SIMPLE

Tenure Status
Current

Area Under Title
16 square kilometres 19 hectares

Owners
Commonwealth of Australia
Assistant Secretary, Property Branch, Property & Construction Division, Department of Finance and Deregulation, John Gorton Building, King Edward Terrace, Parkes ACT 2600

Easements
(none found)

Scheme Name
(none found)

Scheme Body Corporate Name
(none found)

Reserved Name(s)
(none found)

Unit Entitlements
(none found)

Transfers
(none found)

Tenure Comments
(none found)

Historic Titles
(none found)
Visit the website http://www.nt.gov.au/justice/bdm/land_title_office/

Custodian - Surveyor General (+61 8 8995 5362)

Address
7411 COX PENINSULA RD, COX PENINSULA

Survey Plan
OP 001510

Survey Status
Approved

Parcel Status
CURRENT

Parcel Area
16 square kilometres, 19 hectares

Map Reference
Code 200 Scale 10000 Sheet 07.06
Code 503 Scale 10000 Sheet 06.10
Code 503 Scale 10000 Sheet 07.10
Code 200 Scale 10000 Sheet 06.06

Parent Parcels
(none found)

Parcel Comments
PROCLAIMED UNDER SEC 103 CLO AS RES 1352 FOR RADIO AUST BOOSTER STN SITE CG60 17/6/1971, NTG25 23/6/1971. ACQ BY C OF A (NT SELF GOVT ACT 1978) FOR TELECOMMUNICATIONS PURPOSES CG 50 19/12/1978 P 10 ITEM 46. SUBJECT TO LAND CLAIM 131. SECTION 243(A) OVER PART - S2011/222. TO BE SUBDIVIDED INTO SECTION 247 AND PROPOSED ROAD OPENING - S2012/198. TO BE SUBDIVIDED INTO SECTIONS 260 TO 261 - S2015/204.

Survey Comments
EXAMINATION OF PLAN ON FILE S.96/162.

Proposed Easements
(none found)

Municipality
UN-INCORPORATED

Region
DARWIN

Custodian - Valuer General (+61 8 8943 9193)

Owner's Last Known Address
Commonwealth of Australia, ASSISTANT SECRETARY, PROPERTY BRANCH, PROPERTY & CONSTRUCTION DIVISION, DEPARTMENT OF FINANCE AND DEREGULATION, JOHN GORTON BUILDING, KING EDWARD TERRACE, PARKES ACT 2600

Parcels in Valuation
Section 00032 Hundred of Bray

Unimproved Capital Value
$100,000 on 01/07/1997
$50,000 on 01/07/1991
$40,000 on 01/05/1979

Valuation Improvements
(none found)

Custodian - Property Purchasing (+61 8 8999 6631)

Acquisitions
(none found)

Custodian - Building Advisory Service (+61 8 8999 8965)

Building Control Areas
BBDAR001 - Building Control Area DARWIN BUILDING AREA

Building Permits
(none found)

Visit the website http://www.nt.gov.au/lands/building/

Custodian - Town Planning and Development Assessment Services (+61 8 8999 8965)

Planning Scheme Zone
R (Rural)

Interim Development Control Orders
(none found)

Planning Notes
(none found)

Planning Applications

File Number
PA2011/0777

Type
Subdivision

Date Received
25/10/2011

Application Purpose
Subdivision for purpose of a lease in excess of 12 years

Application Status
Approved

Other Affected Parcels
(none found)

Instrument Signed
22/11/2011

Instrument Number
DP11/0825

Instrument Issued
Signed

Instrument Status
Current

Custodian - Power and Water Corporation (1800 245 092)

Meters on Parcel

Power Water - Electricity	(none found)
Power Water - Water	(none found)

For Account balances, contact the Power and Water Corporation.

Custodian - Pool Fencing Unit (+61 8 8924 3641)

Swimming Pool/Spa Status
(none found)

For more information, contact the Pool Fencing Unit (+61 8 8924 3641).

Custodian - Mines and Energy (+61 8 8999 5322)

For information on possible Exploration Licences, contact Mines & Energy or visit the website http://www.nt.gov.au/d/Minerals_Energy/

For information on possible Petroleum Titles, contact Mines & Energy for further details.

Custodian - NT Environment Protection Authority (+61 8 8924 4218)

Results of site contamination assessment
(none found)

For further information contact Environment Protection Agency or visit the website http://www.ntepa.nt.gov.au/waste-pollution/compliance/audits/contamination

Custodian - Heritage Branch (+61 8 8999 5039)

Heritage Listing:
(none found)

For further information on heritage places contact Heritage Branch or visit the website http://www.dlpe.nt.gov.au/heritage

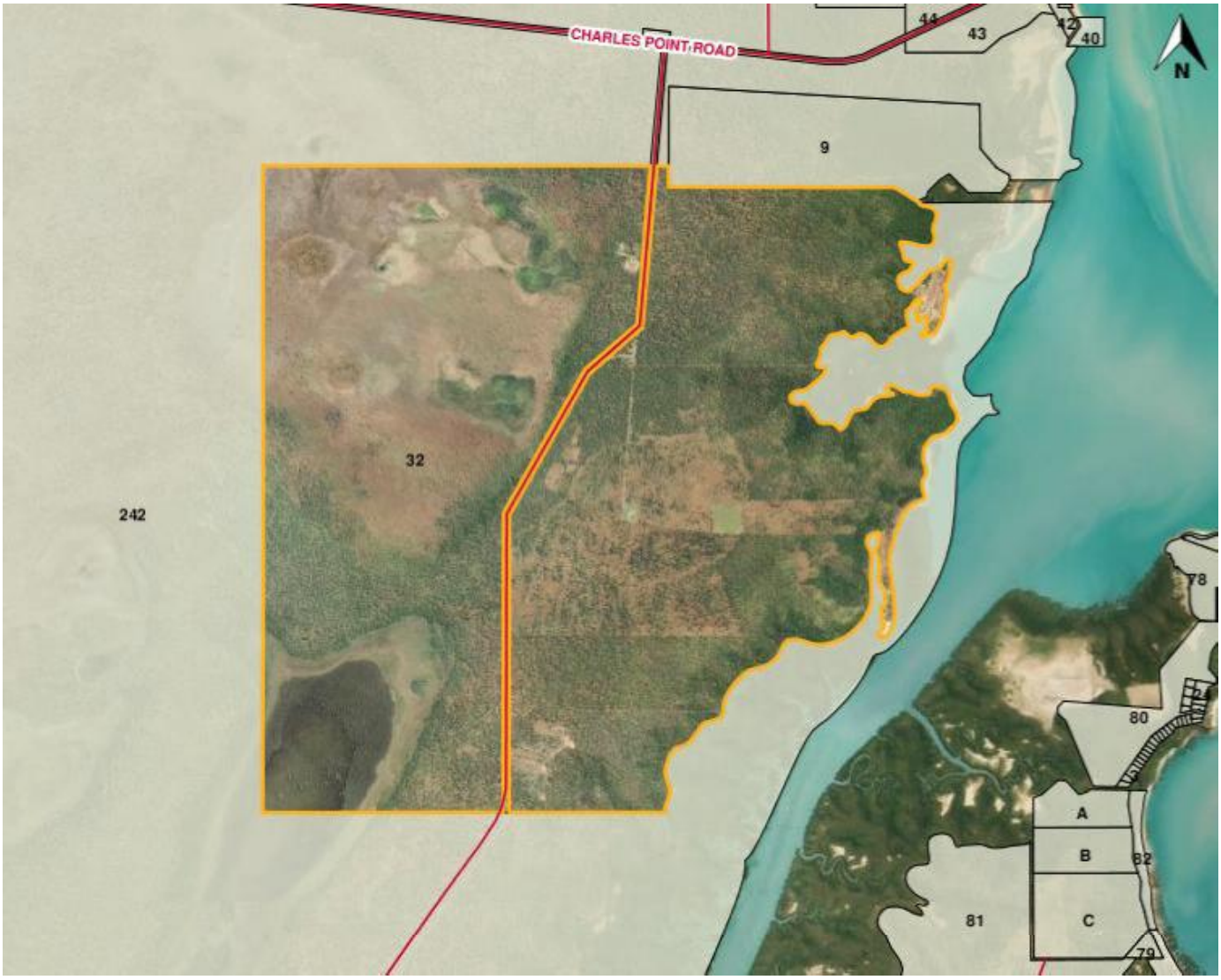
Other Interests

For Account balances, contact none

Aboriginal Land Claim. Contact Land Administration on 8999 6827.

Storm Surge: This lot is within a primary surge zone. For more information contact Lands Planning on 8999 8963.

Storm Surge: This lot is within a secondary surge zone. For more information contact Lands Planning on 8999 8963.



Appendix D

Analytical Results Tables

Appendix D Analytical Results Tables

Analytical Results tables from Jacobs Validation Report (Jacobs, 2017d).

- Data Table A: S261 General site area RWA A – underground services
- Data Table B: S261 General site area RWA F – bitumen access road
- Data Table C: S261 General site area RWA G – clean fill stockpiles with concrete and steel
- Data Table D: S261 ACMA compounds RWA A – minor slab
- Data Table E: S261 ACMA compounds RWA A – major slab
- Data Table F: S261 ACMA compounds RWA A – water tank stand and materials storage bay
- Data Table G: S261 ACMA compounds RWA A – stockpile classification
- Data Table H: S261 ACMA compounds RWA A – stockpile footprint
- Data Table I: S261 ACMA compounds RWA D – concrete footings in Area C
- Data Table J: S261 General site area RWA F – bitumen access road
- Data Table K: S261 ACMA compounds RWA G – UST service lines
- Data Table L: S261 ACMA compounds RWA G – UST excavation pit
- Data Table M: S261 ACMA compounds RWA G – stockpile classification
- Data Table N: S261 ACMA compounds RWA G – UST stockpile footprint
- Data Table Q: S261 ACMA compounds RWA C – ACM stockpile footprint validation
- Data Table R: S261 ACMA compounds RWA G – UST liquid waste sample

TABLE A - S261 General site area RWA A underground services

Description	Four copper bundle cables within outer steel cable within orange plastic sheath approx 50 mm diameter	Copper cable within black plastic sheath approx 20 mm diameter	Copper cable within black plastic sheath approx 30 mm diameter	Intertwined steel cable approx. 30 mm diameter	Copper cable within black plastic sheath approx 10 mm diameter	Copper cable within black plastic sheath approx 15 mm diameter	Copper cable within black plastic sheath approx 10 mm diameter	Copper cable within black plastic sheath approx 15 mm diameter
Location Code	C1	C2	C3	C4	C5	C6	C7	C8
Field ID	C1	C2	C3	C4	C5	C6	C7	C8
Sample Date	20/05/2016	20/05/2016	20/05/2016	20/05/2016	20/05/2016	20/05/2016	20/05/2016	20/05/2016
Lab Report No.	505248	505248	505248	505248	505248	505248	505248	505248
Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal

Chemical Name	Units	EQL								
Polychlorinated Biphenyls										
Arochlor 1016	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arochlor 1221	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arochlor 1232	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arochlor 1242	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arochlor 1248	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arochlor 1254	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arochlor 1260	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PCBs (Sum of total)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5
Organochlorine Pesticides										
4,4-DDE	mg/kg	0.05	<0.05	<0.1	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05	<0.05	<0.1	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg		0[#1]	0[#1]	0[#1]	0[#1]	0[#1]	0[#1]	0[#1]	0[#1]
b-BHC	mg/kg	0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
d-BHC	mg/kg	0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	<0.05	<0.1	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Dieldrin	mg/kg	0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg	0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05	<0.05	<0.1	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05	<0.05	<0.1	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05	<0.05	<0.1	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05	<0.05	<0.1	<0.05	<0.2	<0.05	<0.1	<0.05	<0.05
Methoxychlor	mg/kg	0.05	<0.05	<0.1	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons										
Hexachlorobenzene	mg/kg	0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Data Comments

#1 ESDAT Combined with Non-Detect Multiplier of 0

TABLE A - S261 General site area RWA A underground services

Description	
Location Code	
Field ID	
Sample Date	
Lab Report No.	
Sample Type	

Chemical Name	Units	EQL
Polychlorinated Biphenyls		
Arochlor 1016	mg/kg	0.5
Arochlor 1221	mg/kg	0.5
Arochlor 1232	mg/kg	0.5
Arochlor 1242	mg/kg	0.5
Arochlor 1248	mg/kg	0.5
Arochlor 1254	mg/kg	0.5
Arochlor 1260	mg/kg	0.5
PCBs (Sum of total)	mg/kg	0.5
Organochlorine Pesticides		
4,4-DDE	mg/kg	0.05
a-BHC	mg/kg	0.05
Aldrin	mg/kg	0.05
Aldrin + Dieldrin	mg/kg	
b-BHC	mg/kg	0.05
chlordane	mg/kg	0.1
d-BHC	mg/kg	0.05
DDD	mg/kg	0.05
DDT	mg/kg	0.05
Dieldrin	mg/kg	0.05
Endosulfan I	mg/kg	0.05
Endosulfan II	mg/kg	0.05
Endosulfan sulphate	mg/kg	0.05
Endrin	mg/kg	0.05
Endrin aldehyde	mg/kg	0.05
Endrin ketone	mg/kg	0.05
g-BHC (Lindane)	mg/kg	0.05
Heptachlor	mg/kg	0.05
Heptachlor epoxide	mg/kg	0.05
Methoxychlor	mg/kg	0.05
Toxaphene	mg/kg	1
Chlorinated Hydrocarbons		
Hexachlorobenzene	mg/kg	0.05

Data Comments

#1 ESDAT Combined with Non-Detect Multiplier of 0

Data Table B - S261 General site area RWA F – bitumen access road

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space EILs (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space								
Monitoring Zone							S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road
Location Code							S261_BAR_V_001	S261_BAR_V_001	S261_BAR_V_001	S261_BAR_V_002	S261_BAR_V_003	S261_BAR_V_004	S261_BAR_V_005	S261_BAR_V_006
Field ID							S261_BAR_V_001	S261_BAR_V_QA01	S261_BAR_V_QA02	S261_BAR_V_002	S261_BAR_V_003	S261_BAR_V_004	S261_BAR_V_005	S261_BAR_V_006
Location Type							Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid
Sample Date							20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016
Lab report no.							520739	520739	EM1612573	520739	520739	520739	520739	520739
Sample Type							Normal	Field_D	Interlab_D	Normal	Normal	Normal	Normal	Normal
Metals														
Arsenic	mg/kg	2	100	300			46	29	7	36	29	36	30	28
Barium	mg/kg	10					12	18	20	11	12	12	11	10
Beryllium	mg/kg	2		90			<2	<2	<1	<2	<2	<2	<2	<2
Cadmium	mg/kg	0.4		90			<0.4	<0.4	<1	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (III+VI)	mg/kg	5					310	270	91	280	230	270	220	200
Cobalt	mg/kg	5		300			<5	<5	<2	<5	<5	<5	<5	<5
Copper	mg/kg	5	200	17000			<5	<5	<5	<5	<5	<5	<5	<5
Lead	mg/kg	5	1117	600			23	21	8	19	17	19	16	16
Manganese	mg/kg	5		19000			100	85	69	110	100	120	94	93
Mercury	mg/kg	0.1		80			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	190	1200			6.1	6.6	3	5.9	5.2	5.1	5.8	<5
Vanadium	mg/kg	10					350	370	109	300	230	280	280	240
Zinc	mg/kg	5	470	30000			<5	<5	<5	<5	<5	<5	<5	5.4
TRH - NEPM 2013 Fractions														
TRH >C6 - C10	mg/kg	20					<20	<20	<10	<20	<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100				300	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100				2800	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	<50	-	-	-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	<20	<20	<10	<20	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	<50	<50	<50	<50	<50	<50	<50	<50
TPH - NEPM 1999 Fractions														
TPH C6 - C9	mg/kg	20					<20	<20	<10	<20	<20	<20	<20	<20
TPH C10 - C14	mg/kg	20					<20	<20	<50	<20	<20	<20	<20	<20
TPH C15 - C28	mg/kg	50					<50	<50	<100	<50	<50	<50	<50	<50
TPH C29 - C36	mg/kg	50					<50	<50	<100	<50	<50	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50
BTEXN														
Naphthalene	mg/kg	0.5	170		3		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	50	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1			160	85	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1			55	70	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1					<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2					<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3			40	105	<0.3	<0.3	<0.5	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.2					-	-	<0.2	-	-	-	-	-
PAHs														
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					-	0.6	0.6	0.6	-	-	-	0.6
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5					-	-	<0.5	-	-	-	-	-
Acenaphthene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Acenaphthylene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Anthracene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Benz(a)anthracene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Benzo(a) pyrene	mg/kg	0.5				0.7	-	<0.5	<0.5	<0.5	-	-	-	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					-	<0.5	-	<0.5	-	-	-	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					-	1.2	1.2	1.2	-	-	-	1.2
Benzo(a)pyrene TEQ (zero)	µg/kg	500					-	-	<500	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Benzo(k)fluoranthene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Chrysene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Fluoranthene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Fluorene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Phenanthrene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
Pyrene	mg/kg	0.5					-	<0.5	<0.5	<0.5	-	-	-	<0.5
PAHs (Sum of total)	mg/kg	0.5		300			-	<0.5	-	<0.5	-	-	-	<0.5
Polychlorinated Biphenyls														
Arochlor 1016	mg/kg	0.1					-	<0.1	-	<0.1	-	-	-	<0.1
Arochlor 1221	mg/kg	0.1					-	<0.1	-	<0.1	-	-	-	<0.1
Arochlor 1232	mg/kg	0.1					-	<0.1	-	<0.1	-	-	-	<0.1
Arochlor 1242	mg/kg	0.1					-	<0.1	-	<0.1	-	-	-	<0.1
Arochlor 1248	mg/kg	0.1					-	<0.1	-	<0.1	-	-	-	<0.1
Arochlor 1254	mg/kg	0.1					-	<0.1	-	<0.1	-	-	-	<0.1
Arochlor 1260	mg/kg	0.1					-	<0.1	-	<0.1	-	-	-	<0.1
PCBs (Sum of total)	mg/kg	0.1		1			-	<0.1	<0.1	<0.1	-	-	-	<0.1

Data Table B - S261 General site area RWA F – bitumen access road

Monitoring Zone	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road
Location Code	S261_BAR_V_001	S261_BAR_V_001	S261_BAR_V_001	S261_BAR_V_002	S261_BAR_V_003	S261_BAR_V_004	S261_BAR_V_005	S261_BAR_V_006
Field ID	S261_BAR_V_001	S261_BAR_V_QA01	S261_BAR_V_QA02	S261_BAR_V_002	S261_BAR_V_003	S261_BAR_V_004	S261_BAR_V_005	S261_BAR_V_006
Location Type	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid
Sample Date	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016
Lab report no.	520739	520739	EM1612573	520739	520739	520739	520739	520739
Sample Type	Normal	Field_D	Interlab_D	Normal	Normal	Normal	Normal	Normal

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space EILs (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space							
Organochlorine Pesticides													
4,4-DDE	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
a-BHC	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Aldrin	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2			-	0	<0.05	0	-	0	-	0
b-BHC	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
chlordane	mg/kg	0.1		70			-	<0.1	<0.05	<0.1	-	<0.1	-	<0.1
Chlordane (cis)	mg/kg	0.05					-	-	<0.05	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	<0.05	-	-	-	-	-
d-BHC	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
DDD	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
DDT	mg/kg	0.05	180				-	<0.05	<0.2	<0.05	-	<0.05	-	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			-	-	<0.05	-	-	-	-	-
Dieldrin	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Endosulfan	mg/kg	0.05		340			-	-	<0.05	-	-	-	-	-
Endosulfan I	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Endosulfan II	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Endosulfan sulphate	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Endrin	mg/kg	0.05		20			-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Endrin aldehyde	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Endrin ketone	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
g-BHC (Lindane)	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Heptachlor	mg/kg	0.05		10			-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Heptachlor epoxide	mg/kg	0.05					-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Methoxychlor	mg/kg	0.05		400			-	<0.05	<0.2	<0.05	-	<0.05	-	<0.05
Toxaphene	mg/kg	1		30			-	<1	-	<1	-	<1	-	<1
Organophosphorous Pesticides														
Azinophos methyl	mg/kg	0.2					-	<0.2	<0.05	<0.2	-	<0.2	-	<0.2
Bolstar (Sulprofos)	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Bromophos-ethyl	mg/kg	0.05					-	-	<0.05	-	-	-	-	-
Carbophenothion	mg/kg	0.05					-	-	<0.05	-	-	-	-	-
Chlorfenvinphos	mg/kg	0.2					-	<0.2	<0.05	<0.2	-	<0.2	-	<0.2
Chlorpyrifos	mg/kg	0.2		250			-	<0.2	<0.05	<0.2	-	<0.2	-	<0.2
Chlorpyrifos-methyl	mg/kg	0.2					-	<0.2	<0.05	<0.2	-	<0.2	-	<0.2
Demeton-S	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Demeton-S-methyl	mg/kg	0.05					-	-	<0.05	-	-	-	-	-
Diazinon	mg/kg	0.2					-	<0.2	<0.05	<0.2	-	<0.2	-	<0.2
Dichlorvos	mg/kg	0.2					-	<0.2	<0.05	<0.2	-	<0.2	-	<0.2
Dimethoate	mg/kg	0.2					-	<0.2	<0.05	<0.2	-	<0.2	-	<0.2
Disulfoton	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Ethion	mg/kg	0.2					-	<0.2	<0.05	<0.2	-	<0.2	-	<0.2
Fenamiphos	mg/kg	0.05					-	-	<0.05	-	-	-	-	-
Fenitrothion	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Fenthion	mg/kg	0.2					-	<0.2	<0.05	<0.2	-	<0.2	-	<0.2
Malathion	mg/kg	0.2					-	<0.2	<0.05	<0.2	-	<0.2	-	<0.2
Merphos	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Methyl parathion	mg/kg	0.2					-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2
Monocrotophos	mg/kg	2					-	<2	<0.2	<2	-	<2	-	<2
Omethoate	mg/kg	2					-	<2	-	<2	-	<2	-	<2
Parathion	mg/kg	0.2					-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2
Phorate	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Pirimiphos-methyl	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Pirimphos-ethyl	mg/kg	0.05					-	-	<0.05	-	-	-	-	-
Prothiofos	mg/kg	0.05					-	-	<0.05	-	-	-	-	-
Pyrazophos	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Ronnel	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Terbufos	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Tetrachlorvinphos	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Chlorinated Hydrocarbons														
Hexachlorobenzene	mg/kg	0.05		10			-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05
Semivolatile Organics														
Tokuthion	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Coumaphos	mg/kg	2					-	<2	-	<2	-	<2	-	<2
Demeton-O	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
EPN	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Ethoprop	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Fensulfothion	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Mevinphos (Phosdrin)	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Naled (Dibrom)	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Trichloronate	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Inorganics														
Moisture	%	1					-	-	5.3	-	-	-	-	-
Moisture Content (dried @ 103°C)	%	1					1.9	4.2	-	1.8	2.2	2.5	1.6	1.6

Data Table B - S261 General site area RWA F – bitumen access road

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space EILs (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space								
Monitoring Zone							S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road
Location Code							S261_BAR_V_001	S261_BAR_V_001	S261_BAR_V_001	S261_BAR_V_002	S261_BAR_V_003	S261_BAR_V_004	S261_BAR_V_005	S261_BAR_V_006
Field ID							S261_BAR_V_001	S261_BAR_V_QA01	S261_BAR_V_QA02	S261_BAR_V_002	S261_BAR_V_003	S261_BAR_V_004	S261_BAR_V_005	S261_BAR_V_006
Location Type							Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid
Sample Date							20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016
Lab report no.							520739	520739	EM1612573	520739	520739	520739	520739	520739
Sample Type							Normal	Field_D	Interlab_D	Normal	Normal	Normal	Normal	Normal
Asbestos														
FA- Comment	Comment						1	-	-	1	1	1	1	1
Approximate Sample Mass	g						1065	-	-	1395	1146	1211	1163	1106
ACM - Comment	Comment						1	-	-	1	1	1	1	1
Asbestos from ACM in Soil	%w/w						0	-	-	0	0	0	0	0
Asbestos from FA & AF in Soil	%w/w						0	-	-	0	0	0	0	0
AF - Comment	Comment						1	-	-	1	1	1	1	1
Organic Fibres - Comment	Comment						1	-	-	1	1	1	1	1
Respirable Fibres - Comment	Comment						1	-	-	1	1	1	1	1
Synthetic Fibres - Comment	Comment						1	-	-	1	1	1	1	1
Mass ACM	g						0	-	-	0	0	0	0	0
Mass AF	g						0	-	-	0	0	0	0	0
Mass Asbestos in AF	g						0	-	-	0	0	0	0	0
Mass Asbestos in FA & AF	g						0	-	-	0	0	0	0	0
Mass Asbestos in ACM	g						0	-	-	0	0	0	0	0
Mass Asbestos in FA	g						0	-	-	0	0	0	0	0
Mass FA	g						0	-	-	0	0	0	0	0

Data Table B - S261 General site area RWA F – bitumen access road

Monitoring Zone	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	
Location Code	S261_BAR_V_007	S261_BAR_V_008	S261_BAR_V_009	S261_BAR_V_010	S261_BAR_V_011	S261_BAR_V_012	S261_BAR_V_013	S261_BAR_V_014	
Field ID	S261_BAR_V_007	S261_BAR_V_008	S261_BAR_V_009	S261_BAR_V_010	S261_BAR_V_011	S261_BAR_V_012	S261_BAR_V_013	S261_BAR_V_014	
Location Type	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	
Sample Date	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	
Lab report no.	520739	520739	520739	520739	520739	520739	520739	520739	
Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space EILs (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space								
Metals														
Arsenic	mg/kg	2	100	300			31	27	20	22	28	26	22	18
Barium	mg/kg	10					12	11	<10	11	11	14	11	12
Beryllium	mg/kg	2		90			<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	mg/kg	0.4		90			<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (III+VI)	mg/kg	5					240	210	180	190	210	190	180	110
Cobalt	mg/kg	5		300			<5	<5	<5	<5	<5	<5	<5	<5
Copper	mg/kg	5	200	17000			<5	<5	<5	<5	<5	<5	<5	<5
Lead	mg/kg	5	1117	600			17	15	12	14	15	16	15	14
Manganese	mg/kg	5		19000			120	120	92	100	100	98	85	54
Mercury	mg/kg	0.1		80			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	190	1200			<5	<5	<5	<5	<5	<5	5.4	<5
Vanadium	mg/kg	10					290	200	190	200	230	220	200	200
Zinc	mg/kg	5	470	30000			<5	<5	<5	<5	<5	<5	<5	<5
TRH - NEPM 2013 Fractions														
TRH >C6 - C10	mg/kg	20					<20	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100				300	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100				2800	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-	-	-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	<20	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	<50	<50	<50	<50	<50	<50	<50	<50
TPH - NEPM 1999 Fractions														
TPH C6 - C9	mg/kg	20					<20	<20	<20	<20	<20	<20	<20	<20
TPH C10 - C14	mg/kg	20					<20	<20	<20	<20	<20	<20	<20	<20
TPH C15 - C28	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50
TPH C29 - C36	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50
BTEXN														
Naphthalene	mg/kg	0.5	170		3		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1			160	85	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1			55	70	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3			40	105	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.2					-	-	-	-	-	-	-	-
PAHs														
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					-	-	-	0.6	-	-	-	0.6
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5					-	-	-	-	-	-	-	-
Acenaphthene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Acenaphthylene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Anthracene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Benz(a)anthracene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Benzo(a) pyrene	mg/kg	0.5				0.7	-	-	-	<0.5	-	-	-	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					-	-	-	1.2	-	-	-	1.2
Benzo(a)pyrene TEQ (zero)	µg/kg	500					-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Benzo(k)fluoranthene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Chrysene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Fluoranthene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Fluorene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Phenanthrene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
Pyrene	mg/kg	0.5					-	-	-	<0.5	-	-	-	<0.5
PAHs (Sum of total)	mg/kg	0.5		300			-	-	-	<0.5	-	-	-	<0.5
Polychlorinated Biphenyls														
Arochlor 1016	mg/kg	0.1					-	-	-	<0.1	-	-	-	<0.1
Arochlor 1221	mg/kg	0.1					-	-	-	<0.1	-	-	-	<0.1
Arochlor 1232	mg/kg	0.1					-	-	-	<0.1	-	-	-	<0.1
Arochlor 1242	mg/kg	0.1					-	-	-	<0.1	-	-	-	<0.1
Arochlor 1248	mg/kg	0.1					-	-	-	<0.1	-	-	-	<0.1
Arochlor 1254	mg/kg	0.1					-	-	-	<0.1	-	-	-	<0.1
Arochlor 1260	mg/kg	0.1					-	-	-	<0.1	-	-	-	<0.1
PCBs (Sum of total)	mg/kg	0.1		1			-	-	-	<0.1	-	-	-	<0.1

Data Table B - S261 General site area RWA F – bitumen access road

Monitoring Zone	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road
Location Code	S261_BAR_V_007	S261_BAR_V_008	S261_BAR_V_009	S261_BAR_V_010	S261_BAR_V_011	S261_BAR_V_012	S261_BAR_V_013	S261_BAR_V_014
Field ID	S261_BAR_V_007	S261_BAR_V_008	S261_BAR_V_009	S261_BAR_V_010	S261_BAR_V_011	S261_BAR_V_012	S261_BAR_V_013	S261_BAR_V_014
Location Type	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid
Sample Date	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016
Lab report no.	520739	520739	520739	520739	520739	520739	520739	520739
Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space EILs (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space							
Organochlorine Pesticides													
4,4-DDE	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
a-BHC	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
Aldrin	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2			-	0	-	0	-	0	-	0
b-BHC	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
chlordane	mg/kg	0.1		70			-	<0.1	-	<0.1	-	<0.1	-	<0.1
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
DDD	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
DDT	mg/kg	0.05	180				-	<0.05	-	<0.05	-	<0.05	-	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
Endosulfan II	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
Endosulfan sulphate	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
Endrin	mg/kg	0.05		20			-	<0.05	-	<0.05	-	<0.05	-	<0.05
Endrin aldehyde	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
Endrin ketone	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
g-BHC (Lindane)	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
Heptachlor	mg/kg	0.05		10			-	<0.05	-	<0.05	-	<0.05	-	<0.05
Heptachlor epoxide	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	-	<0.05
Methoxychlor	mg/kg	0.05		400			-	<0.05	-	<0.05	-	<0.05	-	<0.05
Toxaphene	mg/kg	1		30			-	<1	-	<1	-	<1	-	<1
Organophosphorous Pesticides														
Azinophos methyl	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Bolstar (Sulprofos)	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Bromophos-ethyl	mg/kg	0.05					-	-	-	-	-	-	-	-
Carbophenothion	mg/kg	0.05					-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Chlorpyrifos	mg/kg	0.2		250			-	<0.2	-	<0.2	-	<0.2	-	<0.2
Chlorpyrifos-methyl	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Demeton-S	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Demeton-S-methyl	mg/kg	0.05					-	-	-	-	-	-	-	-
Diazinon	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Dichlorvos	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Dimethoate	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Disulfoton	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Ethion	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Fenamiphos	mg/kg	0.05					-	-	-	-	-	-	-	-
Fenitrothion	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Fenthion	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Malathion	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Merphos	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Methyl parathion	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Monocrotophos	mg/kg	2					-	<2	-	<2	-	<2	-	<2
Omethoate	mg/kg	2					-	<2	-	<2	-	<2	-	<2
Parathion	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Phorate	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Pirimiphos-methyl	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Pirimphos-ethyl	mg/kg	0.05					-	-	-	-	-	-	-	-
Prothiofos	mg/kg	0.05					-	-	-	-	-	-	-	-
Pyrazophos	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Ronnel	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Terbufos	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Tetrachlorvinphos	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Chlorinated Hydrocarbons														
Hexachlorobenzene	mg/kg	0.05		10			-	<0.05	-	<0.05	-	<0.05	-	<0.05
Semivolatile Organics														
Tokuthion	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Coumaphos	mg/kg	2					-	<2	-	<2	-	<2	-	<2
Demeton-O	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
EPN	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Ethoprop	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Fensulfothion	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Mevinphos (Phosdrin)	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Naled (Dibrom)	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Trichloronate	mg/kg	0.2					-	<0.2	-	<0.2	-	<0.2	-	<0.2
Inorganics														
Moisture	%	1					-	-	-	-	-	-	-	-
Moisture Content (dried @ 103°C)	%	1					2.1	1.9	1.6	1.4	1.3	1.5	2.2	2.8

Data Table B - S261 General site area RWA F – bitumen access road

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space EILs (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space								
Monitoring Zone							S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road
Location Code							S261_BAR_V_007	S261_BAR_V_008	S261_BAR_V_009	S261_BAR_V_010	S261_BAR_V_011	S261_BAR_V_012	S261_BAR_V_013	S261_BAR_V_014
Field ID							S261_BAR_V_007	S261_BAR_V_008	S261_BAR_V_009	S261_BAR_V_010	S261_BAR_V_011	S261_BAR_V_012	S261_BAR_V_013	S261_BAR_V_014
Location Type							Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid
Sample Date							20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016	20/10/2016
Lab report no.							520739	520739	520739	520739	520739	520739	520739	520739
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Asbestos														
FA- Comment	Comment						1	-	1	1	1	-	1	1
Approximate Sample Mass	g						1137	-	1202	1193	1261	-	1184	914
ACM - Comment	Comment						1	-	1	1	1	-	1	1
Asbestos from ACM in Soil	%w/w						0	-	0	0	0	-	0	0
Asbestos from FA & AF in Soil	%w/w						0	-	0	0	0	-	0	0
AF - Comment	Comment						1	-	1	1	1	-	1	1
Organic Fibres - Comment	Comment						1	-	1	1	1	-	1	1
Respirable Fibres - Comment	Comment						1	-	1	1	1	-	1	1
Synthetic Fibres - Comment	Comment						1	-	1	1	1	-	1	1
Mass ACM	g						0	-	0	0	0	-	0	0
Mass AF	g						0	-	0	0	0	-	0	0
Mass Asbestos in AF	g						0	-	0	0	0	-	0	0
Mass Asbestos in FA & AF	g						0	-	0	0	0	-	0	0
Mass Asbestos in ACM	g						0	-	0	0	0	-	0	0
Mass Asbestos in FA	g						0	-	0	0	0	-	0	0
Mass FA	g						0	-	0	0	0	-	0	0

Data Table B - S261 General site area RWA F – bitumen access road

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space EILs (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space				
Monitoring Zone							S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road
Location Code							S261_BAR_V_015	S261_BAR_V_016	S261_BAR_V_017	S261_BAR_V_021
Field ID							S261_BAR_V_015	S261_BAR_V_016	S261_BAR_V_017	S261_BAR_V_021
Location Type							Grid	Grid	Grid	Grid
Sample Date							20/10/2016	20/10/2016	20/10/2016	20/10/2016
Lab report no.							520739	520739	520739	520739
Sample Type							Normal	Normal	Normal	Normal
Metals										
Arsenic	mg/kg	2	100	300			25	26	24	38
Barium	mg/kg	10					14	13	14	13
Beryllium	mg/kg	2		90			<2	<2	<2	<2
Cadmium	mg/kg	0.4		90			<0.4	<0.4	<0.4	<0.4
Chromium (III+VI)	mg/kg	5					200	160	190	380
Cobalt	mg/kg	5		300			<5	<5	<5	<5
Copper	mg/kg	5	200	17000			<5	<5	<5	<5
Lead	mg/kg	5	1117	600			15	18	16	26
Manganese	mg/kg	5		19000			86	77	64	110
Mercury	mg/kg	0.1		80			<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	190	1200			5.3	5.4	6.6	8.5
Vanadium	mg/kg	10					220	210	220	390
Zinc	mg/kg	5	470	30000			<5	11	16	<5
TRH - NEPM 2013 Fractions										
TRH >C6 - C10	mg/kg	20					<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50					<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100				300	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100				2800	<100	<100	<100	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	<50	<50	<50	<50
TPH - NEPM 1999 Fractions										
TPH C6 - C9	mg/kg	20					<20	<20	<20	<20
TPH C10 - C14	mg/kg	20					<20	<20	<20	<20
TPH C15 - C28	mg/kg	50					<50	<50	<50	<50
TPH C29 - C36	mg/kg	50					<50	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50					<50	<50	<50	<50
BTEXN										
Naphthalene	mg/kg	0.5	170		3		<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	50	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1			160	85	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1			55	70	<0.1	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3			40	105	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.2					-	-	-	-
PAHs										
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					-	-	-	0.6
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5					-	-	-	-
Acenaphthene	mg/kg	0.5					-	-	-	<0.5
Acenaphthylene	mg/kg	0.5					-	-	-	<0.5
Anthracene	mg/kg	0.5					-	-	-	<0.5
Benz(a)anthracene	mg/kg	0.5					-	-	-	<0.5
Benzo(a) pyrene	mg/kg	0.5				0.7	-	-	-	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					-	-	-	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					-	-	-	1.2
Benzo(a)pyrene TEQ (zero)	µg/kg	500					-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.5					-	-	-	<0.5
Benzo(k)fluoranthene	mg/kg	0.5					-	-	-	<0.5
Chrysene	mg/kg	0.5					-	-	-	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5					-	-	-	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5					-	-	-	<0.5
Fluoranthene	mg/kg	0.5					-	-	-	<0.5
Fluorene	mg/kg	0.5					-	-	-	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					-	-	-	<0.5
Phenanthrene	mg/kg	0.5					-	-	-	<0.5
Pyrene	mg/kg	0.5					-	-	-	<0.5
PAHs (Sum of total)	mg/kg	0.5		300			-	-	-	<0.5
Polychlorinated Biphenyls										
Arochlor 1016	mg/kg	0.1					-	-	-	<0.1
Arochlor 1221	mg/kg	0.1					-	-	-	<0.1
Arochlor 1232	mg/kg	0.1					-	-	-	<0.1
Arochlor 1242	mg/kg	0.1					-	-	-	<0.1
Arochlor 1248	mg/kg	0.1					-	-	-	<0.1
Arochlor 1254	mg/kg	0.1					-	-	-	<0.1
Arochlor 1260	mg/kg	0.1					-	-	-	<0.1
PCBs (Sum of total)	mg/kg	0.1		1			-	-	-	<0.1

Data Table B - S261 General site area RWA F – bitumen access road

			Site Specific Urban Residential and Public Open Space EILs (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space				
Monitoring Zone							S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road
Location Code							S261_BAR_V_015	S261_BAR_V_016	S261_BAR_V_017	S261_BAR_V_021
Field ID							S261_BAR_V_015	S261_BAR_V_016	S261_BAR_V_017	S261_BAR_V_021
Location Type							Grid	Grid	Grid	Grid
Sample Date							20/10/2016	20/10/2016	20/10/2016	20/10/2016
Lab report no.							520739	520739	520739	520739
Sample Type							Normal	Normal	Normal	Normal
Chem name	Units	EQL								
Organochlorine Pesticides										
4,4-DDE	mg/kg	0.05					-	<0.05	-	<0.05
a-BHC	mg/kg	0.05					-	<0.05	-	<0.05
Aldrin	mg/kg	0.05					-	<0.05	-	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2			-	0	-	0
b-BHC	mg/kg	0.05					-	<0.05	-	<0.05
chlordane	mg/kg	0.1		70			-	<0.1	-	<0.1
Chlordane (cis)	mg/kg	0.05					-	-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-
d-BHC	mg/kg	0.05					-	<0.05	-	<0.05
DDD	mg/kg	0.05					-	<0.05	-	<0.05
DDT	mg/kg	0.05	180				-	<0.05	-	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-
Dieldrin	mg/kg	0.05					-	<0.05	-	<0.05
Endosulfan	mg/kg	0.05		340			-	-	-	-
Endosulfan I	mg/kg	0.05					-	<0.05	-	<0.05
Endosulfan II	mg/kg	0.05					-	<0.05	-	<0.05
Endosulfan sulphate	mg/kg	0.05					-	<0.05	-	<0.05
Endrin	mg/kg	0.05		20			-	<0.05	-	<0.05
Endrin aldehyde	mg/kg	0.05					-	<0.05	-	<0.05
Endrin ketone	mg/kg	0.05					-	<0.05	-	<0.05
g-BHC (Lindane)	mg/kg	0.05					-	<0.05	-	<0.05
Heptachlor	mg/kg	0.05		10			-	<0.05	-	<0.05
Heptachlor epoxide	mg/kg	0.05					-	<0.05	-	<0.05
Methoxychlor	mg/kg	0.05		400			-	<0.05	-	<0.05
Toxaphene	mg/kg	1		30			-	<1	-	<1
Organophosphorous Pesticides										
Azinophos methyl	mg/kg	0.2					-	<0.2	-	<0.2
Bolstar (Sulprofos)	mg/kg	0.2					-	<0.2	-	<0.2
Bromophos-ethyl	mg/kg	0.05					-	-	-	-
Carbophenothion	mg/kg	0.05					-	-	-	-
Chlorfenvinphos	mg/kg	0.2					-	<0.2	-	<0.2
Chlorpyrifos	mg/kg	0.2		250			-	<0.2	-	<0.2
Chlorpyrifos-methyl	mg/kg	0.2					-	<0.2	-	<0.2
Demeton-S	mg/kg	0.2					-	<0.2	-	<0.2
Demeton-S-methyl	mg/kg	0.05					-	-	-	-
Diazinon	mg/kg	0.2					-	<0.2	-	<0.2
Dichlorvos	mg/kg	0.2					-	<0.2	-	<0.2
Dimethoate	mg/kg	0.2					-	<0.2	-	<0.2
Disulfoton	mg/kg	0.2					-	<0.2	-	<0.2
Ethion	mg/kg	0.2					-	<0.2	-	<0.2
Fenamiphos	mg/kg	0.05					-	-	-	-
Fenitrothion	mg/kg	0.2					-	<0.2	-	<0.2
Fenthion	mg/kg	0.2					-	<0.2	-	<0.2
Malathion	mg/kg	0.2					-	<0.2	-	<0.2
Merphos	mg/kg	0.2					-	<0.2	-	<0.2
Methyl parathion	mg/kg	0.2					-	<0.2	-	<0.2
Monocrotophos	mg/kg	2					-	<2	-	<2
Omethoate	mg/kg	2					-	<2	-	<2
Parathion	mg/kg	0.2					-	<0.2	-	<0.2
Phorate	mg/kg	0.2					-	<0.2	-	<0.2
Pirimiphos-methyl	mg/kg	0.2					-	<0.2	-	<0.2
Pirimphos-ethyl	mg/kg	0.05					-	-	-	-
Prothiofos	mg/kg	0.05					-	-	-	-
Pyrazophos	mg/kg	0.2					-	<0.2	-	<0.2
Ronnel	mg/kg	0.2					-	<0.2	-	<0.2
Terbufos	mg/kg	0.2					-	<0.2	-	<0.2
Tetrachlorvinphos	mg/kg	0.2					-	<0.2	-	<0.2
Chlorinated Hydrocarbons										
Hexachlorobenzene	mg/kg	0.05		10			-	<0.05	-	<0.05
Semivolatile Organics										
Tokuthion	mg/kg	0.2					-	<0.2	-	<0.2
Coumaphos	mg/kg	2					-	<2	-	<2
Demeton-O	mg/kg	0.2					-	<0.2	-	<0.2
EPN	mg/kg	0.2					-	<0.2	-	<0.2
Ethoprop	mg/kg	0.2					-	<0.2	-	<0.2
Fensulfothion	mg/kg	0.2					-	<0.2	-	<0.2
Mevinphos (Phosdrin)	mg/kg	0.2					-	<0.2	-	<0.2
Naled (Dibrom)	mg/kg	0.2					-	<0.2	-	<0.2
Trichloronate	mg/kg	0.2					-	<0.2	-	<0.2
Inorganics										
Moisture	%	1					-	-	-	-
Moisture Content (dried @ 103°C)	%	1					1.4	<1	2.1	1.5

Data Table B - S261 General site area RWA F – bitumen access road

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space EILs (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space				
Monitoring Zone							S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road
Location Code							S261_BAR_V_015	S261_BAR_V_016	S261_BAR_V_017	S261_BAR_V_021
Field ID							S261_BAR_V_015	S261_BAR_V_016	S261_BAR_V_017	S261_BAR_V_021
Location Type							Grid	Grid	Grid	Grid
Sample Date							20/10/2016	20/10/2016	20/10/2016	20/10/2016
Lab report no.							520739	520739	520739	520739
Sample Type							Normal	Normal	Normal	Normal
Asbestos										
FA- Comment	Comment						1	-	1	-
Approximate Sample Mass	g						1162	-	1010	-
ACM - Comment	Comment						1	-	1	-
Asbestos from ACM in Soil	%w/w						0	-	0	-
Asbestos from FA & AF in Soil	%w/w						0	-	0	-
AF - Comment	Comment						1	-	1	-
Organic Fibres - Comment	Comment						1	-	1	-
Respirable Fibres - Comment	Comment						1	-	1	-
Synthetic Fibres - Comment	Comment						1	-	1	-
Mass ACM	g						0	-	0	-
Mass AF	g						0	-	0	-
Mass Asbestos in AF	g						0	-	0	-
Mass Asbestos in FA & AF	g						0	-	0	-
Mass Asbestos in ACM	g						0	-	0	-
Mass Asbestos in FA	g						0	-	0	-
Mass FA	g						0	-	0	-

TABLE C - S261 General site area RWA G – clean fill stockpiles with concrete and steel

Chemical Name	Units	EQL	Site Specific EIL - Urban Residential and Public Open Space (NEPM 2013)	HIL C - Urban Residential and Public Open Space (NEPM 2013)	HSL A/B Sand for Vapour Intrusion (NEPM 2013) 0-1m	ESL, Coarse Soil, Ecological significance (NEPM 2013)										
Monitoring Zone							S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B
Location Code							S262-ECA-B-A-01	S262-ECA-B-A-02	S262-ECA-B-A-03	S262-ECA-B-A-04	S262-ECA-B-A-05	S262-ECA-B-A-06	S262-ECA-B-A-07	S262-ECA-B-A-08	S262-ECA-B-A-09	S262-ECA-B-A-10
Field ID							S262-ECA-B-A-01	S262-ECA-B-A-02	S262-ECA-B-A-03	S262-ECA-B-A-04	S262-ECA-B-A-05	S262-ECA-B-A-06	S262-ECA-B-A-07	S262-ECA-B-A-08	S262-ECA-B-A-09	S262-ECA-B-A-10
Location Type							Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile
Sample Date							13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016
Lab report No.							496923	496923	496923	496923	496923	496923	496923	496923	496923	496923
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Metals																
Arsenic	mg/kg	2	100	300			36	23	43	41	37	45	25	37	23	29
Barium	mg/kg	10					60	-	34	25	33	25	-	26	-	32
Beryllium	mg/kg	1		90			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	mg/kg	0.4		90			<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	1		300			-	<1	-	-	-	-	<1	-	<1	-
Chromium (III+VI)	mg/kg	2					110	-	180	130	150	170	-	130	-	100
Cobalt	mg/kg	2		300			<5	-	<5	<5	<5	<5	-	<5	-	<5
Copper	mg/kg	5	200	17000			<5	-	<5	<5	<5	<5	-	<5	-	<5
Lead	mg/kg	5	1117	600			10	31	13	9.3	12	12	37	11	30	9.1
Manganese	mg/kg	5		19000			160	-	140	96	110	86	-	120	-	150
Mercury	mg/kg	0.1		80			<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	10					-	<10	-	-	-	-	<10	-	<10	-
Nickel	mg/kg	2	190	1200			5.6	6.4	7.3	<5	5.2	5.3	8.2	<5	8.2	5.4
Selenium	mg/kg	2		700			-	<2	-	-	-	-	<2	-	<2	-
Silver	mg/kg	5					-	<5	-	-	-	-	<5	-	<5	-
Vanadium	mg/kg	5					200	-	280	230	260	240	-	200	-	190
Zinc	mg/kg	5	470	30000			<5	-	<5	<5	<5	<5	-	<5	-	<5
TRH - NEPM 2013 Fractions																
TRH >C6 - C10	mg/kg	10					-	<20	-	-	-	-	<20	-	<20	-
TRH >C10 - C16	mg/kg	50					-	<50	-	-	-	-	<50	-	<50	-
TRH >C16 - C34	mg/kg	100				300	-	<100	-	-	-	-	<100	-	<100	-
TRH >C34 - C40	mg/kg	100				2800	-	<100	-	-	-	-	<100	-	<100	-
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-	-	-	-	-	-	-
TPH C6 - C10 less BTEX (F1)	mg/kg	10			45	125	-	<20	-	-	-	-	<20	-	<20	-
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	25	-	<50	-	-	-	-	<50	-	<50	-
TPH - NEPM 1999 Fractions																
TPH C6 - C9	mg/kg	10					-	<20	-	-	-	-	<20	-	<20	-
TPH C10 - C14	mg/kg	20					-	<20	-	-	-	-	<20	-	<20	-
TPH C15 - C28	mg/kg	50					-	<50	-	-	-	-	<50	-	<50	-
TPH C29 - C36	mg/kg	50					-	<50	-	-	-	-	<50	-	<50	-
TPH C10 - C36 (Sum of total)	mg/kg	50					-	<50	-	-	-	-	<50	-	<50	-
BTEXN																
Naphthalene	mg/kg	0.5	170		3		-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Benzene	mg/kg	0.1			0.5	10	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	0.1			160	10	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.1			55	1.5	-	-	-	-	-	-	-	-	-	-
Xylene (o)	mg/kg	0.1					-	-	-	-	-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.2					-	-	-	-	-	-	-	-	-	-
Xylene Total	mg/kg	0.3			40	10	-	-	-	-	-	-	-	-	-	-
Total BTEX	mg/kg	0.2					-	-	-	-	-	-	-	-	-	-
PAHs																
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					-	0.6	-	-	-	-	0.6	-	0.6	-
Acenaphthene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Acenaphthylene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Anthracene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Benz(a)anthracene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Benzo(a) pyrene	mg/kg	0.5				0.7	-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					-	1.2	-	-	-	-	1.2	-	1.2	-
Benzo(g,h,i)perylene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Benzo(k)fluoranthene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Chrysene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Benzo[b+j]fluoranthene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Dibenz(a,h)anthracene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Fluoranthene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Fluorene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Phenanthrene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Pyrene	mg/kg	0.5					-	<0.5	-	-	-	-	<0.5	-	<0.5	-
PAHs (Sum of total)	mg/kg	0.5		300			-	<0.5	-	-	-	-	<0.5	-	<0.5	-
Polychlorinated Biphenyls																
Arochlor 1016	mg/kg	0.1					-	<0.1	-	-	-	-	<0.1	-	<0.1	-
Arochlor 1221	mg/kg	0.1					-	<0.1	-	-	-	-	<0.1	-	<0.1	-
Arochlor 1232	mg/kg	0.1					-	<0.1	-	-	-	-	<0.1	-	<0.1	-
Arochlor 1242	mg/kg	0.1					-	<0.1	-	-	-	-	<0.1	-	<0.1	-
Arochlor 1248	mg/kg	0.1					-	<0.1	-	-	-	-	<0.1	-	<0.1	-
Arochlor 1254	mg/kg	0.1					-	<0.1	-	-	-	-	<0.1	-	<0.1	-
Arochlor 1260	mg/kg	0.1					-	<0.1	-	-	-	-	<0.1	-	<0.1	-

TABLE C - S261 General site area RWA G – clean fill stockpiles with concrete and steel

Chemical Name	Units	EQL	Site Specific EIL - Urban Residential and Public Open Space (NEPM 2013)	HIL C - Urban Residential and Public Open Space (NEPM 2013)	HSL A/B Sand for Vapour Intrusion (NEPM 2013) 0-1m	ESL, Coarse Soil, Ecological significance (NEPM 2013)
PCBs (Sum of total)	mg/kg	0.1		1		
Organochlorine Pesticides						
4,4-DDE	mg/kg	0.05				
a-BHC	mg/kg	0.05				
Aldrin	mg/kg	0.05				
Aldrin + Dieldrin	mg/kg			2		
b-BHC	mg/kg	0.05				
chlordane	mg/kg	0.1		70		
d-BHC	mg/kg	0.05				
DDD	mg/kg	0.05				
DDT	mg/kg	0.05	180			
Dieldrin	mg/kg	0.05				
Endosulfan I	mg/kg	0.05				
Endosulfan II	mg/kg	0.05				
Endosulfan sulphate	mg/kg	0.05				
Endrin	mg/kg	0.05		20		
Endrin aldehyde	mg/kg	0.05				
Endrin ketone	mg/kg	0.05				
g-BHC (Lindane)	mg/kg	0.05				
Heptachlor	mg/kg	0.05		10		
Heptachlor epoxide	mg/kg	0.05				
Methoxychlor	mg/kg	0.05		400		
Toxaphene	mg/kg	1		30		
Organophosphorous Pesticides						
Azinophos methyl	mg/kg	0.2				
Bolstar (Sulprofos)	mg/kg	0.2				
Chlorfenvinphos	mg/kg	0.2				
Chlorpyrifos	mg/kg	0.2		250		
Chlorpyrifos-methyl	mg/kg	0.2				
Demeton-S	mg/kg	0.2				
Diazinon	mg/kg	0.2				
Dichlorvos	mg/kg	0.2				
Dimethoate	mg/kg	0.2				
Disulfoton	mg/kg	0.2				
Ethion	mg/kg	0.2				
Fenitrothion	mg/kg	0.2				
Fenthion	mg/kg	0.2				
Malathion	mg/kg	0.2				
Merphos	mg/kg	0.2				
Methyl parathion	mg/kg	0.2				
Monocrotophos	mg/kg	2				
Omethoate	mg/kg	2				
Parathion	mg/kg	0.2				
Phorate	mg/kg	0.2				
Pirimiphos-methyl	mg/kg	0.2				
Pyrazophos	mg/kg	0.2				
Ronnel	mg/kg	0.2				
Terbufos	mg/kg	0.2				
Tetrachlorvinphos	mg/kg	0.2				
Chlorinated Hydrocarbons						
Hexachlorobenzene	mg/kg	0.05		10		
Semivolatile Organics						
Tokuthion	mg/kg	0.2				
Coumaphos	mg/kg	2				
Demeton-O	mg/kg	0.2				
EPN	mg/kg	0.2				
Ethoprop	mg/kg	0.2				
Fensulfothion	mg/kg	0.2				
Mevinphos (Phosdrin)	mg/kg	0.2				
Naled (Dibrom)	mg/kg	0.2				
Trichloronate	mg/kg	0.2				
Inorganics						
Moisture	%	1				
Moisture Content (dried @ 103°C)	%	1				

Monitoring Zone	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B
Location Code	S262-ECA-B-A-01	S262-ECA-B-A-02	S262-ECA-B-A-03	S262-ECA-B-A-04	S262-ECA-B-A-05	S262-ECA-B-A-06	S262-ECA-B-A-07	S262-ECA-B-A-08	S262-ECA-B-A-09	S262-ECA-B-A-10
Field ID	S262-ECA-B-A-01	S262-ECA-B-A-02	S262-ECA-B-A-03	S262-ECA-B-A-04	S262-ECA-B-A-05	S262-ECA-B-A-06	S262-ECA-B-A-07	S262-ECA-B-A-08	S262-ECA-B-A-09	S262-ECA-B-A-10
Location Type	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile
Sample Date	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016
Lab report No.	496923	496923	496923	496923	496923	496923	496923	496923	496923	496923
Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
PCBs (Sum of total)	-	<0.1	-	-	-	-	<0.1	-	<0.1	-
Organochlorine Pesticides										
4,4-DDE	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
a-BHC	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Aldrin	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Aldrin + Dieldrin	-	0	-	-	-	-	0	-	0	-
b-BHC	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
chlordane	-	<0.1	-	-	-	-	<0.1	-	<0.1	-
d-BHC	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
DDD	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
DDT	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Dieldrin	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Endosulfan I	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Endosulfan II	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Endosulfan sulphate	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Endrin	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Endrin aldehyde	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Endrin ketone	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
g-BHC (Lindane)	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Heptachlor	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Heptachlor epoxide	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Methoxychlor	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Toxaphene	-	<1	-	-	-	-	<1	-	<1	-
Organophosphorous Pesticides										
Azinophos methyl	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Bolstar (Sulprofos)	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Chlorfenvinphos	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Chlorpyrifos	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Chlorpyrifos-methyl	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Demeton-S	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Diazinon	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Dichlorvos	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Dimethoate	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Disulfoton	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Ethion	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Fenitrothion	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Fenthion	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Malathion	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Merphos	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Methyl parathion	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Monocrotophos	-	<2	-	-	-	-	<2	-	<2	-
Omethoate	-	<2	-	-	-	-	<2	-	<2	-
Parathion	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Phorate	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Pirimiphos-methyl	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Pyrazophos	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Ronnel	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Terbufos	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Tetrachlorvinphos	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Chlorinated Hydrocarbons										
Hexachlorobenzene	-	<0.05	-	-	-	-	<0.05	-	<0.05	-
Semivolatile Organics										
Tokuthion	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Coumaphos	-	<2	-	-	-	-	<2	-	<2	-
Demeton-O	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
EPN	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Ethoprop	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Fensulfothion	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Mevinphos (Phosdrin)	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Naled (Dibrom)	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Trichloronate	-	<0.2	-	-	-	-	<0.2	-	<0.2	-
Inorganics										
Moisture	-	-	-	-	-	-	-	-	-	-
Moisture Content (dried @ 103°C)	13	8.5	9.3	12	8.3	9.1	15	12	11	12

TABLE C - S261 General site area RWA G – clean fill stockpiles with concrete and steel

Chemical Name	Units	EQL	Site Specific EIL - Urban Residential and Public Open Space (NEPM 2013)	HIL C - Urban Residential and Public Open Space (NEPM 2013)	HSL A/B Sand for Vapour Intrusion (NEPM 2013) 0-1m	ESL, Coarse Soil, Ecological significance (NEPM 2013)								
Monitoring Zone							S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B
Location Code							S262-ECA-B-A-10	S262-ECA-B-A-10	S262-ECA-B-D-01	S262-ECA-B-D-02	S262-ECA-B-D-03	S262-GEN-B-N-01	S262-GEN-B-N-02	S262-GEN-B-N-03
Field ID							S262-B-QA1	S262-B-QA2	S262-ECA-B-D-01	S262-ECA-B-D-02	S262-ECA-B-D-03	S262-GEN-B-N-01	S262-GEN-B-N-02	S262-GEN-B-N-03
Location Type							Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile
Sample Date							13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016
Lab report No.							496923	EM1604202	496923	496923	496923	496923	496923	496923
Sample Type							Field_D	Interlab_D	Normal	Normal	Normal	Normal	Normal	Normal
Metals														
Arsenic	mg/kg	2	100	300			39	10	24	14	20	31	14	24
Barium	mg/kg	10					30	30	30	35	-	25	-	27
Beryllium	mg/kg	1		90			<2	<1	<2	<2	<2	<2	<2	<2
Cadmium	mg/kg	0.4		90			<0.4	<1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	1		300			-	-	-	-	<1	-	<1	-
Chromium (III+VI)	mg/kg	2					140	99	100	61	-	150	-	88
Cobalt	mg/kg	2		300			<5	2	<5	<5	-	<5	-	<5
Copper	mg/kg	5	200	17000			<5	<5	<5	<5	-	<5	-	<5
Lead	mg/kg	5	1117	600			13	11	8.6	6.1	23	8.5	20	9.3
Manganese	mg/kg	5		19000			140	153	110	110	-	100	-	110
Mercury	mg/kg	0.1		80			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	10					-	-	-	-	<10	-	<10	-
Nickel	mg/kg	2	190	1200			6	5	6.9	6.5	9	6.7	8.7	7.7
Selenium	mg/kg	2		700			-	-	-	-	<2	-	<2	-
Silver	mg/kg	5					-	-	-	-	<5	-	<5	-
Vanadium	mg/kg	5					270	155	160	110	-	170	-	130
Zinc	mg/kg	5	470	30000			<5	<5	<5	<5	-	<5	-	<5
TRH - NEPM 2013 Fractions														
TRH >C6 - C10	mg/kg	10					-	-	-	-	<20	-	<20	-
TRH >C10 - C16	mg/kg	50					-	-	-	-	<50	-	<50	-
TRH >C16 - C34	mg/kg	100				300	-	-	-	-	<100	-	<100	-
TRH >C34 - C40	mg/kg	100				2800	-	-	-	-	<100	-	<100	-
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-	-	-	-	-
TPH C6 - C10 less BTEX (F1)	mg/kg	10			45	125	-	-	-	-	<20	-	<20	-
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	25	-	-	-	-	<50	-	<50	-
TPH - NEPM 1999 Fractions														
TPH C6 - C9	mg/kg	10					-	-	-	-	<20	-	<20	-
TPH C10 - C14	mg/kg	20					-	-	-	-	<20	-	<20	-
TPH C15 - C28	mg/kg	50					-	-	-	-	<50	-	<50	-
TPH C29 - C36	mg/kg	50					-	-	-	-	<50	-	<50	-
TPH C10 - C36 (Sum of total)	mg/kg	50					-	-	-	-	<50	-	<50	-
BTEXN														
Naphthalene	mg/kg	0.5	170		3		-	-	-	-	<0.5	-	<0.5	-
Benzene	mg/kg	0.1			0.5	10	-	-	-	-	-	-	-	-
Toluene	mg/kg	0.1			160	10	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.1			55	1.5	-	-	-	-	-	-	-	-
Xylene (o)	mg/kg	0.1					-	-	-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.2					-	-	-	-	-	-	-	-
Xylene Total	mg/kg	0.3			40	10	-	-	-	-	-	-	-	-
Total BTEX	mg/kg	0.2					-	-	-	-	-	-	-	-
PAHs														
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					-	-	-	-	0.6	-	0.6	-
Acenaphthene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Acenaphthylene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Anthracene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Benz(a)anthracene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Benzo(a) pyrene	mg/kg	0.5				0.7	-	-	-	-	<0.5	-	<0.5	-
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					-	-	-	-	1.2	-	1.2	-
Benzo(g,h,i)perylene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Benzo(k)fluoranthene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Chrysene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Benzo[b+j]fluoranthene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Dibenz(a,h)anthracene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Fluoranthene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Fluorene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Phenanthrene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
Pyrene	mg/kg	0.5					-	-	-	-	<0.5	-	<0.5	-
PAHs (Sum of total)	mg/kg	0.5		300			-	-	-	-	<0.5	-	<0.5	-
Polychlorinated Biphenyls														
Arochlor 1016	mg/kg	0.1					-	-	-	-	<0.1	-	<0.1	-
Arochlor 1221	mg/kg	0.1					-	-	-	-	<0.1	-	<0.1	-
Arochlor 1232	mg/kg	0.1					-	-	-	-	<0.1	-	<0.1	-
Arochlor 1242	mg/kg	0.1					-	-	-	-	<0.1	-	<0.1	-
Arochlor 1248	mg/kg	0.1					-	-	-	-	<0.1	-	<0.1	-
Arochlor 1254	mg/kg	0.1					-	-	-	-	<0.1	-	<0.1	-
Arochlor 1260	mg/kg	0.1					-	-	-	-	<0.1	-	<0.1	-

TABLE C - S261 General site area RWA G – clean fill stockpiles with concrete and steel

Chemical Name	Units	EQL	Site Specific EIL - Urban Residential and Public Open Space (NEPM 2013)	HIL C - Urban Residential and Public Open Space (NEPM 2013)	HSL A/B Sand for Vapour Intrusion (NEPM 2013) 0-1m	ESL, Coarse Soil, Ecological significance (NEPM 2013)								
Monitoring Zone							S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B	S262 - General RWA B
Location Code							S262-ECA-B-A-10	S262-ECA-B-A-10	S262-ECA-B-D-01	S262-ECA-B-D-02	S262-ECA-B-D-03	S262-GEN-B-N-01	S262-GEN-B-N-02	S262-GEN-B-N-03
Field ID							S262-B-QA1	S262-B-QA2	S262-ECA-B-D-01	S262-ECA-B-D-02	S262-ECA-B-D-03	S262-GEN-B-N-01	S262-GEN-B-N-02	S262-GEN-B-N-03
Location Type							Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile
Sample Date							13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016
Lab report No.							496923	EM1604202	496923	496923	496923	496923	496923	496923
Sample Type							Field_D	Interlab_D	Normal	Normal	Normal	Normal	Normal	Normal
PCBs (Sum of total)	mg/kg	0.1		1			-	-	-	-	<0.1	-	<0.1	-
Organochlorine Pesticides														
4,4-DDE	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
a-BHC	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
Aldrin	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
Aldrin + Dieldrin	mg/kg			2			-	-	-	-	0	-	0	-
b-BHC	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
chlordane	mg/kg	0.1		70			-	-	-	-	<0.1	-	<0.1	-
d-BHC	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
DDD	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
DDT	mg/kg	0.05	180				-	-	-	-	<0.05	-	<0.05	-
Dieldrin	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
Endosulfan I	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
Endosulfan II	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
Endosulfan sulphate	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
Endrin	mg/kg	0.05		20			-	-	-	-	<0.05	-	<0.05	-
Endrin aldehyde	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
Endrin ketone	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
g-BHC (Lindane)	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
Heptachlor	mg/kg	0.05		10			-	-	-	-	<0.05	-	<0.05	-
Heptachlor epoxide	mg/kg	0.05					-	-	-	-	<0.05	-	<0.05	-
Methoxychlor	mg/kg	0.05		400			-	-	-	-	<0.05	-	<0.05	-
Toxaphene	mg/kg	1		30			-	-	-	-	<1	-	<1	-
Organophosphorous Pesticides														
Azinophos methyl	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Bolstar (Sulprofos)	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Chlorfenvinphos	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Chlorpyrifos	mg/kg	0.2		250			-	-	-	-	<0.2	-	<0.2	-
Chlorpyrifos-methyl	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Demeton-S	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Diazinon	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Dichlorvos	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Dimethoate	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Disulfoton	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Ethion	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Fenitrothion	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Fenthion	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Malathion	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Merphos	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Methyl parathion	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Monocrotophos	mg/kg	2					-	-	-	-	<2	-	<2	-
Omethoate	mg/kg	2					-	-	-	-	<2	-	<2	-
Parathion	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Phorate	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Pirimiphos-methyl	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Pyrazophos	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Ronnel	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Terbufos	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Tetrachlorvinphos	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Chlorinated Hydrocarbons														
Hexachlorobenzene	mg/kg	0.05		10			-	-	-	-	<0.05	-	<0.05	-
Semivolatile Organics														
Tokuthion	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Coumaphos	mg/kg	2					-	-	-	-	<2	-	<2	-
Demeton-O	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
EPN	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Ethoprop	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Fensulfothion	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Mevinphos (Phosdrin)	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Naled (Dibrom)	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Trichloronate	mg/kg	0.2					-	-	-	-	<0.2	-	<0.2	-
Inorganics														
Moisture	%	1					-	9.9	-	-	-	-	-	-
Moisture Content (dried @ 103°C)	%	1					12	-	12	10	16	12	15	15

Data Table D : S261 ACMA compounds RWA A – minor slab

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space						
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_BS	S261_ACMA_BS	S261_ACMA_BS	S261_ACMA_BSV_01	S261_ACMA_BSV_01	S261_ACMA_BSV_01
Field ID							S261_ACMA_BS_01	S261_ACMA_BS_02	S261_ACMA_BS_03	S261_ACMA_BSV_01	S261_ACMA_BSV_QA01	S261_ACMA_BSV_QA02
Sample Date							28/06/2016	28/06/2016	28/06/2016	6/07/2016	6/07/2016	6/07/2016
Lab report No.							506263 / 506802	506263	506263	507271	507271	EM1608107
Sample Type							Normal	Normal	Normal	Normal	Field_D	Interlab_D
TRH - NEPM 2013 Fractions												
TRH >C6 - C10	mg/kg	20					<20	-	-	-	-	-
TRH >C10 - C16	mg/kg	50					<50	-	-	-	-	-
TRH >C16 - C34	mg/kg	100				300	250	-	-	-	-	-
TRH >C34 - C40	mg/kg	100				2800	170	-	-	-	-	-
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	<20	-	-	-	-	-
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	<50	-	-	-	-	-
TPH - NEPM 1999 Fractions												
TPH C6 - C9	mg/kg	20					<20	-	-	-	-	-
TPH C10 - C14	mg/kg	20					<20	-	-	-	-	-
TPH C15 - C28	mg/kg	50					100	-	-	-	-	-
TPH C29 - C36	mg/kg	50					210	-	-	-	-	-
TPH C10 - C36 (Sum of total)	mg/kg	50					310	-	-	-	-	-
BTEXN												
Naphthalene	mg/kg	0.5	170		3		<0.5	-	-	-	-	-
Benzene	mg/kg	0.1			0.5	50	-	-	-	-	-	-
Toluene	mg/kg	0.1			160	85	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.1			55	70	-	-	-	-	-	-
Xylene (o)	mg/kg	0.1					-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.2					-	-	-	-	-	-
Xylene Total	mg/kg	0.3			40	105	-	-	-	-	-	-
Total BTEX	mg/kg	0.2					-	-	-	-	-	-
PAHs												
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					0.6	-	-	-	-	-
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5					-	-	-	-	-	-
Acenaphthene	mg/kg	0.5					<0.5	-	-	-	-	-
Acenaphthylene	mg/kg	0.5					<0.5	-	-	-	-	-
Anthracene	mg/kg	0.5					<0.5	-	-	-	-	-
Benz(a)anthracene	mg/kg	0.5					<0.5	-	-	-	-	-
Benzo(a) pyrene	mg/kg	0.5				0.7	<0.5	-	-	-	-	-
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					<0.5	-	-	-	-	-
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					1.2	-	-	-	-	-
Benzo(a)pyrene TEQ (zero)	µg/kg	500					-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.5					<0.5	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.5					<0.5	-	-	-	-	-
Chrysene	mg/kg	0.5					<0.5	-	-	-	-	-
Benzo[b+j]fluoranthene	mg/kg	0.5					<0.5	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.5					<0.5	-	-	-	-	-
Fluoranthene	mg/kg	0.5					<0.5	-	-	-	-	-
Fluorene	mg/kg	0.5					<0.5	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					<0.5	-	-	-	-	-
Phenanthrene	mg/kg	0.5					<0.5	-	-	-	-	-
Pyrene	mg/kg	0.5					<0.5	-	-	-	-	-
PAHs (Sum of total)	mg/kg	0.5		300			<0.5	-	-	-	-	-

Data Table D : S261 ACMA compounds RWA A – minor slab

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_BS	S261_ACMA_BS	S261_ACMA_BS	S261_ACMA_BSV_01	S261_ACMA_BSV_01	S261_ACMA_BSV_01
Field ID							S261_ACMA_BS_01	S261_ACMA_BS_02	S261_ACMA_BS_03	S261_ACMA_BSV_01	S261_ACMA_BSV_QA01	S261_ACMA_BSV_QA02
Sample Date							28/06/2016	28/06/2016	28/06/2016	6/07/2016	6/07/2016	6/07/2016
Lab report No.							506263 / 506802	506263	506263	507271	507271	EM1608107
Sample Type							Normal	Normal	Normal	Normal	Field_D	Interlab_D
Organochlorine Pesticides												
4,4-DDE	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05					0.17	0.1	<0.05	0.12	0.18	0.13
Aldrin + Dieldrin	mg/kg	0.05		2			130.17	13.1	6.1	0.82	1.38	0.55
b-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70			<0.1	<0.1	<0.1	<0.1	<0.1	<0.05
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	<0.05
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	<0.05
d-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180				<0.05	<0.05	<0.05	<0.05	<0.05	<0.2
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	<0.05
Dieldrin	mg/kg	0.05					130	13	6.1	0.7	1.2	0.42
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	<0.05
Endosulfan I	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20			2.8	0.35	0.14	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05					1.2	0.15	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400			<0.05	<0.05	<0.05	<0.05	<0.05	<0.2
Toxaphene	mg/kg	1		30			<1	<1	<1	<1	<1	-
Chlorinated Hydrocarbons												
Hexachlorobenzene	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics												
Moisture Content (dried @ 103°C)	%	1					<1	3.1	3.3	13	14	-

Data Table D : S261 ACMA compounds RWA A – minor slab

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space						
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_BSV_02	S261_ACMA_BSV_03	S261_ACMA_BSV_04	S261_ACMA_BSV_05	S261_ACMA_BSV_06	S261_ACMA_BSV_07
Field ID							S261_ACMA_BSV_02	S261_ACMA_BSV_03	S261_ACMA_BSV_04	S261_ACMA_BSV_05	S261_ACMA_BSV_06	S261_ACMA_BSV_07
Sample Date							6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	15/07/2016
Lab report No.							507271	507271	507271	507271	507271	508406
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal
TRH - NEPM 2013 Fractions												
TRH >C6 - C10	mg/kg	20					-	-	-	-	-	-
TRH >C10 - C16	mg/kg	50					-	-	-	-	-	-
TRH >C16 - C34	mg/kg	100				300	-	-	-	-	-	-
TRH >C34 - C40	mg/kg	100				2800	-	-	-	-	-	-
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	-	-	-	-	-	-
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	-	-	-	-	-	-
TPH - NEPM 1999 Fractions												
TPH C6 - C9	mg/kg	20					-	-	-	-	-	-
TPH C10 - C14	mg/kg	20					-	-	-	-	-	-
TPH C15 - C28	mg/kg	50					-	-	-	-	-	-
TPH C29 - C36	mg/kg	50					-	-	-	-	-	-
TPH C10 - C36 (Sum of total)	mg/kg	50					-	-	-	-	-	-
BTEXN												
Naphthalene	mg/kg	0.5	170		3		-	-	-	-	-	-
Benzene	mg/kg	0.1			0.5	50	-	-	-	-	-	-
Toluene	mg/kg	0.1			160	85	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.1			55	70	-	-	-	-	-	-
Xylene (o)	mg/kg	0.1					-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.2					-	-	-	-	-	-
Xylene Total	mg/kg	0.3			40	105	-	-	-	-	-	-
Total BTEX	mg/kg	0.2					-	-	-	-	-	-
PAHs												
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					-	-	-	-	-	-
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5					-	-	-	-	-	-
Acenaphthene	mg/kg	0.5					-	-	-	-	-	-
Acenaphthylene	mg/kg	0.5					-	-	-	-	-	-
Anthracene	mg/kg	0.5					-	-	-	-	-	-
Benz(a)anthracene	mg/kg	0.5					-	-	-	-	-	-
Benzo(a) pyrene	mg/kg	0.5				0.7	-	-	-	-	-	-
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					-	-	-	-	-	-
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					-	-	-	-	-	-
Benzo(a)pyrene TEQ (zero)	µg/kg	500					-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.5					-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.5					-	-	-	-	-	-
Chrysene	mg/kg	0.5					-	-	-	-	-	-
Benzo[b+j]fluoranthene	mg/kg	0.5					-	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.5					-	-	-	-	-	-
Fluoranthene	mg/kg	0.5					-	-	-	-	-	-
Fluorene	mg/kg	0.5					-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					-	-	-	-	-	-
Phenanthrene	mg/kg	0.5					-	-	-	-	-	-
Pyrene	mg/kg	0.5					-	-	-	-	-	-
PAHs (Sum of total)	mg/kg	0.5		300			-	-	-	-	-	-

Data Table D : S261 ACMA compounds RWA A – minor slab

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space						
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_BSV_02	S261_ACMA_BSV_03	S261_ACMA_BSV_04	S261_ACMA_BSV_05	S261_ACMA_BSV_06	S261_ACMA_BSV_07
Field ID							S261_ACMA_BSV_02	S261_ACMA_BSV_03	S261_ACMA_BSV_04	S261_ACMA_BSV_05	S261_ACMA_BSV_06	S261_ACMA_BSV_07
Sample Date							6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	15/07/2016
Lab report No.							507271	507271	507271	507271	507271	508406
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal
Organochlorine Pesticides												
4,4-DDE	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2			2.6	0.08	0.19	0	0.12	1.2
b-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	-
d-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	-
Dieldrin	mg/kg	0.05					2.6	0.08	0.19	<0.05	0.12	1.2
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	-
Endosulfan I	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30			<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons												
Hexachlorobenzene	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics												
Moisture Content (dried @ 103°C)	%	1					12	9.7	8.2	8.4	9.9	6.6

Data Table E - S261 ACMA compounds RWA A – major slab

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space	Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
							Location Code	S261_ACMA_V_001	S261_ACMA_V_002	S261_ACMA_V_003	S261_ACMA_V_004	S261_ACMA_V_005	S261_ACMA_V_006	S261_ACMA_V_007	S261_ACMA_V_008	S261_ACMA_V_009	S261_ACMA_V_010	S261_ACMA_V_011	S261_ACMA_V_012
							Field ID	S261_ACMA_V_001	S261_ACMA_V_002	S261_ACMA_V_003	S261_ACMA_V_004	S261_ACMA_V_005	S261_ACMA_V_006	S261_ACMA_V_007	S261_ACMA_V_008	S261_ACMA_V_009	S261_ACMA_V_010	S261_ACMA_V_011	S261_ACMA_V_012
							Sample Date	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016
							Lab report No.	507268	507268	507268	507268	507268	507268	507268	507268	507268	507268	507268	507268
							Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Organochlorine Pesticides																			
4,4-DDE	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	0.05	<0.05	0.75	<0.05	<0.05	<0.05	0.39	0.22
Aldrin + Dieldrin	mg/kg	0.05		2				0	0	0	0	0.12	0	2.45	0	0	0	1.04	0.34
b-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400				-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	0.07	<0.05	1.7	<0.05	<0.05	<0.05	0.65	0.12
Endosulfan	mg/kg	0.05		340				-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30				<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons																			
Hexachlorobenzene	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics																			
Moisture Content (dried @ 103°C)	%	1						6.8	7.6	6.7	6.7	9.6	5.5	6.8	6.5	5.2	7.8	7.6	9.4

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space	Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
							Location Code	S261_ACMA_V_013	S261_ACMA_V_014	S261_ACMA_V_015	S261_ACMA_V_016	S261_ACMA_V_017	S261_ACMA_V_018	S261_ACMA_V_019	S261_ACMA_V_020	S261_ACMA_V_021	S261_ACMA_V_022	S261_ACMA_V_023	S261_ACMA_V_023
							Field ID	S261_ACMA_V_013	S261_ACMA_V_014	S261_ACMA_V_015	S261_ACMA_V_016	S261_ACMA_V_017	S261_ACMA_V_018	S261_ACMA_V_019	S261_ACMA_V_020	S261_ACMA_V_021	S261_ACMA_V_022	S261_ACMA_V_023	S261_ACMA_V_QA01
							Sample Date	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016
							Location_Type	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid
							Lab report No.	507268	507268	507268	507268	507268	507268	507268	507268	507268	507268	507268	507268
							Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Field_D
Organochlorine Pesticides																			
4,4-DDE	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	0.07
Aldrin + Dieldrin	mg/kg	0.05		2				0	0	0	0.21	0.21	0	0.79	18	0	0.3	4	1.77
b-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400				-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05						<0.05	<0.05	<0.05	0.21	0.21	<0.05	0.79	18	<0.05	0.23	4	1.7
Endosulfan	mg/kg	0.05		340				-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30				<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons																			
Hexachlorobenzene	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics																			
Moisture Content (dried @ 103°C)	%	1						9.3	11	8.1	4.8	7.3	8.6	10	13	6.3	9.6	9.6	10

Data Table E - S261 ACMA compounds RWA A – major slab

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space	Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
							Location Code	S261_ACMA_V_023	S261_ACMA_V_024	S261_ACMA_V_024	S261_ACMA_V_024	S261_ACMA_V_025	S261_ACMA_V_025	S261_ACMA_V_025	S261_ACMA_V_026	S261_ACMA_V_027	S261_ACMA_V_028	S261_ACMA_V_029	S261_ACMA_V_030
							Field ID	S261_ACMA_V_QA02	S261_ACMA_V_024	S261_ACMA_V_QA03	S261_ACMA_V_QA04	S261_ACMA_V_025	S261_ACMA_V_QA05	S261_ACMA_V_QA06	S261_ACMA_V_026	S261_ACMA_V_027	S261_ACMA_V_028	S261_ACMA_V_029	S261_ACMA_V_030
							Sample Date	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016
							Lab report No.	EM1608106	507268	507268	EM1608106	507268	507268	EM1608106	507268	507268	507268	507268	507268
							Sample Type	Interlab_D	Normal	Field_D	Interlab_D	Normal	Field_D	Interlab_D	Normal	Normal	Normal	Normal	Normal
Organochlorine Pesticides																			
4,4-DDE	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2				3.33	0.37	0	0.57	0.18	0.87	0.07	1	0	0	2.9	0.08
b-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70				<0.05	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05						<0.05	-	-	<0.05	-	-	<0.05	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05						<0.05	-	-	<0.05	-	-	<0.05	-	-	-	-	-
d-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180					<0.2	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400				<0.05	-	-	<0.05	-	-	<0.05	-	-	-	-	-
Dieldrin	mg/kg	0.05						3.33	0.37	<0.05	0.57	0.18	0.87	0.07	1	<0.05	<0.05	2.9	0.08
Endosulfan	mg/kg	0.05		340				<0.05	-	-	<0.05	-	-	<0.05	-	-	-	-	-
Endosulfan I	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400				<0.2	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30				-	<1	<1	-	<1	<1	-	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons																			
Hexachlorobenzene	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics																			
Moisture Content (dried @ 103°C)	%	1						-	10	11	-	8.8	8.9	-	6.1	6.3	4.7	7	9

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space	Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
							Location Code	S261_ACMA_V_031	S261_ACMA_V_032	S261_ACMA_V_033	S261_ACMA_V_033	S261_ACMA_V_033	S261_ACMA_V_034	S261_ACMA_V_034	S261_ACMA_V_035	S261_ACMA_V_036	S261_ACMA_V_037	S261_ACMA_V_038	S261_ACMA_V_039	S261_ACMA_V_040
							Field ID	S261_ACMA_V_031	S261_ACMA_V_032	S261_ACMA_V_033	S261_ACMA_V_QA07	S261_ACMA_V_QA08	S261_ACMA_V_034	S261_ACMA_V_035	S261_ACMA_V_036	S261_ACMA_V_037	S261_ACMA_V_038	S261_ACMA_V_039	S261_ACMA_V_040
							Sample Date	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016
							Location_Type	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid
							Lab report No.	507268	507268	507268	507268	EM1608106	507268	507268	507268	507268	507268	507268	507268	507268
							Sample Type	Normal	Normal	Normal	Field_D	Interlab_D	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Organochlorine Pesticides																			
4,4-DDE	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2				1.8	0	0	0.07	0.06	2.4	0	0.07	0.07	0.14	110	21
b-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70				<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05						-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05						-	-	-	-	<0.05	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180					<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400				-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05						1.8	<0.05	<0.05	0.07	0.06	2.4	<0.05	0.07	0.07	0.14	110	21	
Endosulfan	mg/kg	0.05		340				-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.5	0.09	
Endrin aldehyde	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.53	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400				<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30				<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons																			
Hexachlorobenzene	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics																			
Moisture Content (dried @ 103°C)	%	1						6.5	8.8	7.5	10	-	11	13	9.1	10	13	17	8.8	

Data Table E - S261 ACMA compounds RWA A – major slab

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space												
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_V_041	S261_ACMA_V_042	S261_ACMA_V_043	S261_ACMA_V_044	S261_ACMA_V_045	S261_ACMA_V_046	S261_ACMA_V_047	S261_ACMA_V_048	S261_ACMA_V_049	S261_ACMA_V_050	S261_ACMA_V_051	S261_ACMA_V_052
Field ID							S261_ACMA_V_041	S261_ACMA_V_042	S261_ACMA_V_043	S261_ACMA_V_044	S261_ACMA_V_045	S261_ACMA_V_046	S261_ACMA_V_047	S261_ACMA_V_048	S261_ACMA_V_049	S261_ACMA_V_050	S261_ACMA_V_051	S261_ACMA_V_052
Sample Date							6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016	6/07/2016
Lab report No.							507268	507268	507268	507268	507268	507268	507268	507268	507268	507268	507268	507268
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Organochlorine Pesticides																		
4,4-DDE	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	1.5	0.54
Aldrin + Dieldrin	mg/kg	0.05		2			1.9	0.15	17	2.2	10	55.08	2.1	0	0.19	0.15	18.5	17.54
b-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70			<0.1	<0.1	<0.1	<0.1	1.7	1.6	0.3	<0.1	<0.1	<0.1	0.3	<0.1
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05					1.9	0.15	17	2.2	10	55	2.1	<0.05	0.19	0.15	17	17
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20			<0.05	<0.05	0.05	<0.05	0.06	0.39	<0.05	<0.05	<0.05	<0.05	0.22	0.19
Endrin aldehyde	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	0.1	0.79	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons																		
Hexachlorobenzene	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics																		
Moisture Content (dried @ 103°C)	%	1					8.7	6.6	9.3	7.6	14	5.4	7.6	8.3	5.1	9.2	8.4	8.7

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space												
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_V_053	S261_ACMA_V_054	S261_ACMA_V_055	S261_ACMA_V_056	S261_ACMA_V_057	S261_ACMA_V_058	S261_ACMA_V_059	S261_ACMA_V_060	S261_ACMA_V_061	S261_ACMA_V_062	S261_ACMA_V_063	S261_ACMA_V_064
Field ID							S261_ACMA_V_053	S261_ACMA_V_054	S261_ACMA_V_055	S261_ACMA_V_056	S261_ACMA_V_057	S261_ACMA_V_058	S261_ACMA_V_059	S261_ACMA_V_060	S261_ACMA_V_061	S261_ACMA_V_062	S261_ACMA_V_063	S261_ACMA_V_064
Sample Date							6/07/2016	6/07/2016	6/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016
Location_Type							Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid
Lab report No.							507268	507268	507268	508406	508406	508406	508406	508406	508406	508406	508406	508406
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Organochlorine Pesticides																		
4,4-DDE	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05					0.06	0.82	<0.05	<0.05	<0.05	0.26	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2			2.36	12.82	5.4	0	0	1.19	0	0	1.4	0	0	1.5
b-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70			<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180				<0.05	<0.05	0.11	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05					2.3	12	5.4	<0.05	<0.05	0.93	<0.05	<0.05	1.4	<0.05	<0.05	1.5
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20			<0.05	0.14	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons																		
Hexachlorobenzene	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics																		
Moisture Content (dried @ 103°C)	%	1					7.5	8.5	3.9	8	4.3	7.8	7.5	5.6	6.8	7.7	6.9	7.6

Data Table E - S261 ACMA compounds RWA A – major slab

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space												
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_V_065	S261_ACMA_V_066	S261_ACMA_V_067	S261_ACMA_V_068	S261_ACMA_V_069	S261_ACMA_V_070	S261_ACMA_V_071	S261_ACMA_V_072	S261_ACMA_V_073	S261_ACMA_V_074	S261_ACMA_V_075	S261_ACMA_V_075
Field ID							S261_ACMA_V_065	S261_ACMA_V_066	S261_ACMA_V_067	S261_ACMA_V_068	S261_ACMA_V_069	S261_ACMA_V_070	S261_ACMA_V_071	S261_ACMA_V_072	S261_ACMA_V_073	S261_ACMA_V_074	S261_ACMA_V_075	S261_ACMA_V_QA09
Sample Date							15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016
Lab report No.							508406	508406	508406	508406	508406	508406	508406	508406	508406	508406	508406	508406
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Field_D
Organochlorine Pesticides																		
4,4-DDE	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	0.77	<0.05	<0.1	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2			0.89	0	2.5	0	0	13.07	0	39.77	5.9	0	0	0
b-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05					0.89	<0.05	2.5	<0.05	<0.05	13	<0.05	39	5.9	<0.05	<0.05	<0.05
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20			<0.05	<0.05	<0.05	<0.05	<0.05	0.12	<0.05	0.88	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	0.52	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons																		
Hexachlorobenzene	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics																		
Moisture Content (dried @ 103°C)	%	1					5.3	8.2	10	7.3	6.7	8	2.4	6.8	10	5.5	6.1	7.5

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space												
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_V_075	S261_ACMA_V_076	S261_ACMA_V_077	S261_ACMA_V_078	S261_ACMA_V_079	S261_ACMA_V_080	S261_ACMA_V_081	S261_ACMA_V_082	S261_ACMA_V_083	S261_ACMA_V_084	S261_ACMA_V_085	S261_ACMA_V_086
Field ID							S261_ACMA_V_QA10	S261_ACMA_V_076	S261_ACMA_V_077	S261_ACMA_V_078	S261_ACMA_V_079	S261_ACMA_V_080	S261_ACMA_V_081	S261_ACMA_V_082	S261_ACMA_V_083	S261_ACMA_V_084	S261_ACMA_V_085	S261_ACMA_V_086
Sample Date							15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016	15/07/2016
Location_Type							Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid	Grid
Lab report No.							EM1608494	508406	508406	508406	508406	508406	508406	508406	508406	508406	508406	508406
Sample Type							Interlab_D	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Organochlorine Pesticides																		
4,4-DDE	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2			<0.05	0.94	0.15	0	10	0.09	0.07	0	0	0.28	0	0
b-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70			<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05					<0.05	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05					<0.05	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180				<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			<0.05	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05					<0.05	0.94	0.15	<0.05	10	0.09	0.07	<0.05	<0.05	0.28	<0.05	<0.05
Endosulfan	mg/kg	0.05		340			<0.05	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20			<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400			<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30			-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons																		
Hexachlorobenzene	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics																		
Moisture Content (dried @ 103°C)	%	1					-	2.4	6.9	7.6	8.7	9.3	5.3	7.5	14	8.5	6.3	2.9

Data Table E - S261 ACMA compounds RWA A – major slab

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Data Table F - ACMA compounds RWA A – water tank stand and materials storage bay

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space						
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Area							Material storage bay	Material storage bay	Water tank stand	Water tank stand	Water tank stand	Water tank stand
Location Code							S261_ACMA_MSB	S261_ACMA_MSB	S261_ACMA_WTS_01	S261_ACMA_WTS_02	S261_ACMA_WTS_03	S261_ACMA_WTS_04
Field ID							S261_ACMA_MSB_01	S261_ACMA_MSB_02	S261_ACMA_WTS_01	S261_ACMA_WTS_02	S261_ACMA_WTS_03	S261_ACMA_WTS_04
Sample Date							28/06/2016	28/06/2016	24/06/2016	24/06/2016	28/06/2016	28/06/2016
Lab report No.							506263	506263	505950	505950	506263	506263
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal
Organochlorine Pesticides												
4,4-DDE	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2			0	0	0	0	0	0
b-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	-
d-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	-
Dieldrin	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	-
Endosulfan I	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30			<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons												
Hexachlorobenzene	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics												
Moisture Content (dried @ 103°C)	%	1					7.4	5.9	<1	<1	6.6	15

Data Table G - S261 ACMA compounds RWA A – stockpiles for on-site disposal

Chem name	Units	EQL	Cox EIL (S261/262) Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space					
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_AF_SP01	S261_ACMA_AF_SP01	S261_ACMA_AF_SP02	S261_ACMA_SP_01	S261_ACMA_SP_02
Field ID							S261_ACMA_AF_SP01_01	S261_ACMA_AF_SP01_02	S261_ACMA_AF_SP02_02	S261_ACMA_SP_01	S261_ACMA_SP_02
Sample Date							28/06/2016	28/06/2016	28/06/2016	24/06/2016	24/06/2016
Lab report No.							506263	506263	506263	506263	506263
Sample Type							Normal	Normal	Normal	Normal	Normal
Metals											
Arsenic	mg/kg	2	100	300			-	-	-	6.9	18
Beryllium	mg/kg	2		90			-	-	-	<2	<2
Cadmium	mg/kg	0.4		90			-	-	-	<0.4	<0.4
Chromium (hexavalent)	mg/kg	1		300			-	-	-	<1	<1
Lead	mg/kg	5	1117	600			-	-	-	6.2	6
Mercury	mg/kg	0.1		80			-	-	-	<0.1	<0.1
Molybdenum	mg/kg	5					-	-	-	<10	<10
Nickel	mg/kg	5	190	1200			-	-	-	<5	<5
Selenium	mg/kg	2		700			-	-	-	<2	<2
Silver	mg/kg	0.2					-	-	-	<5	<5
TRH - NEPM 2013 Fractions											
TRH >C6 - C10	mg/kg	20					-	-	-	<20	<20
TRH >C10 - C16	mg/kg	50					-	-	-	<50	<50
TRH >C16 - C34	mg/kg	100				300	-	-	-	<100	<100
TRH >C34 - C40	mg/kg	100				2800	-	-	-	<100	<100
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	-	-	-	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	-	-	-	<50	<50
TPH - NEPM 1999 Fractions											
TPH C6 - C9	mg/kg	20					-	-	-	<20	<20
TPH C10 - C14	mg/kg	20					-	-	-	<20	<20
TPH C15 - C28	mg/kg	50					-	-	-	<50	<50
TPH C29 - C36	mg/kg	50					-	-	-	52	<50
TPH C10 - C36 (Sum of total)	mg/kg	50					-	-	-	52	<50
BTEXN											
Naphthalene	mg/kg	0.5	170		3		-	-	-	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	50	-	-	-	<0.1	<0.1
Toluene	mg/kg	0.1			160	85	-	-	-	<0.1	<0.1
Ethylbenzene	mg/kg	0.1			55	70	-	-	-	<0.1	<0.1
Xylene (o)	mg/kg	0.1					-	-	-	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2					-	-	-	<0.2	<0.2
Xylene Total	mg/kg	0.3			40	105	-	-	-	<0.3	<0.3
PAHs											
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					-	-	-	0.6	0.6
Acenaphthene	mg/kg	0.5					-	-	-	<0.5	<0.5
Acenaphthylene	mg/kg	0.5					-	-	-	<0.5	<0.5
Anthracene	mg/kg	0.5					-	-	-	<0.5	<0.5
Benz(a)anthracene	mg/kg	0.5					-	-	-	<0.5	<0.5
Benzo(a) pyrene	mg/kg	0.5				0.7	-	-	-	<0.5	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					-	-	-	<0.5	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					-	-	-	1.2	1.2
Benzo(g,h,i)perylene	mg/kg	0.5					-	-	-	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5					-	-	-	<0.5	<0.5
Chrysene	mg/kg	0.5					-	-	-	<0.5	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5					-	-	-	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5					-	-	-	<0.5	<0.5
Fluoranthene	mg/kg	0.5					-	-	-	<0.5	<0.5
Fluorene	mg/kg	0.5					-	-	-	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					-	-	-	<0.5	<0.5
Phenanthrene	mg/kg	0.5					-	-	-	<0.5	<0.5
Pyrene	mg/kg	0.5					-	-	-	<0.5	<0.5
PAHs (Sum of total)	mg/kg	0.5		300			-	-	-	<0.5	<0.5
Polychlorinated Biphenyls											
Arochlor 1016	mg/kg	0.1					-	-	-	<0.1	<0.1
Arochlor 1221	mg/kg	0.1					-	-	-	<0.1	<0.1
Arochlor 1232	mg/kg	0.1					-	-	-	<0.1	<0.1
Arochlor 1242	mg/kg	0.1					-	-	-	<0.1	<0.1
Arochlor 1248	mg/kg	0.1					-	-	-	<0.1	<0.1
Arochlor 1254	mg/kg	0.1					-	-	-	<0.1	<0.1

Data Table G - S261 ACMA compounds RWA A – stockpiles for on-site disposal

Chem name	Units	EQL	Cox EIL (S261/262) Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space					
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_AF_SP01	S261_ACMA_AF_SP01	S261_ACMA_AF_SP02	S261_ACMA_SP_01	S261_ACMA_SP_02
Field ID							S261_ACMA_AF_SP01_01	S261_ACMA_AF_SP01_02	S261_ACMA_AF_SP02_02	S261_ACMA_SP_01	S261_ACMA_SP_02
Sample Date							28/06/2016	28/06/2016	28/06/2016	24/06/2016	24/06/2016
Lab report No.							506263	506263	506263	506263	506263
Sample Type							Normal	Normal	Normal	Normal	Normal
Arochlor 1260	mg/kg	0.1					-	-	-	<0.1	<0.1
PCBs (Sum of total)	mg/kg	0.1		1			-	-	-	<0.1	<0.1
Organochlorine Pesticides											
4,4-DDE	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg			10			0	0	0	4.4	0
b-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70			<0.1	<0.1	<0.1	<0.1	<0.1
d-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180				<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	mg/kg	0.05					<0.05	<0.05	<0.05	4.4	<0.05
Endosulfan I	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20			<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400			<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30			<1	<1	<1	<1	<1
Organophosphorous Pesticides											
Azinophos methyl	mg/kg	0.2					-	-	-	<0.2	<0.2
Bolstar (Sulprofos)	mg/kg	0.2					-	-	-	<0.2	<0.2
Chlorfenvinphos	mg/kg	0.2					-	-	-	<0.2	<0.2
Chlorpyrifos	mg/kg	0.2		250			-	-	-	<0.2	<0.2
Chlorpyrifos-methyl	mg/kg	0.2					-	-	-	<0.2	<0.2
Demeton-S	mg/kg	0.2					-	-	-	<0.2	<0.2
Diazinon	mg/kg	0.2					-	-	-	<0.2	<0.2
Dichlorvos	mg/kg	0.2					-	-	-	<0.2	<0.2
Dimethoate	mg/kg	0.2					-	-	-	<0.2	<0.2
Disulfoton	mg/kg	0.2					-	-	-	<0.2	<0.2
Ethion	mg/kg	0.2					-	-	-	<0.2	<0.2
Fenitrothion	mg/kg	0.2					-	-	-	<0.2	<0.2
Fenthion	mg/kg	0.2					-	-	-	<0.2	<0.2
Malathion	mg/kg	0.2					-	-	-	<0.2	<0.2
Merphos	mg/kg	0.2					-	-	-	<0.2	<0.2
Methyl parathion	mg/kg	0.2					-	-	-	<0.2	<0.2
Monocrotophos	mg/kg	2					-	-	-	<2	<2
Omethoate	mg/kg	2					-	-	-	<2	<2
Parathion	mg/kg	0.2					-	-	-	<0.2	<0.2
Phorate	mg/kg	0.2					-	-	-	<0.2	<0.2
Pirimiphos-methyl	mg/kg	0.2					-	-	-	<0.2	<0.2
Pyrazophos	mg/kg	0.2					-	-	-	<0.2	<0.2
Ronnel	mg/kg	0.2					-	-	-	<0.2	<0.2
Terbufos	mg/kg	0.2					-	-	-	<0.2	<0.2
Tetrachlorvinphos	mg/kg	0.2					-	-	-	<0.2	<0.2
Chlorinated Hydrocarbons											
1,2-dichlorobenzene	mg/kg	0.05					-	-	-	<0.05	<0.05
1,3-dichlorobenzene	mg/kg	0.05					-	-	-	<0.05	<0.05
1,4-dichlorobenzene	mg/kg	0.05					-	-	-	<0.05	<0.05
Chloroform	mg/kg	0.05					-	-	-	<0.05	<0.05
Dichloromethane	mg/kg	0.05					-	-	-	<0.05	<0.05
Hexachlorobenzene	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05
Halogenated Phenols											
2,4,5-Trichlorophenol	mg/kg	1					-	-	-	<1	<1

Data Table G - S261 ACMA compounds RWA A – stockpiles for on-site disposal

Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_AF_SP01	S261_ACMA_AF_SP01	S261_ACMA_AF_SP02	S261_ACMA_SP_01	S261_ACMA_SP_02
Field ID							S261_ACMA_AF_SP01_01	S261_ACMA_AF_SP01_02	S261_ACMA_AF_SP02_02	S261_ACMA_SP_01	S261_ACMA_SP_02
Sample Date							28/06/2016	28/06/2016	28/06/2016	24/06/2016	24/06/2016
Lab report No.							506263	506263	506263	506263	506263
Sample Type							Normal	Normal	Normal	Normal	Normal
Chem name	Units	EQL	Cox EIL (S261/262) Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space					
2,4,6-Trichlorophenol	mg/kg	1					-	-	-	<1	<1
2,4-dichlorophenol	mg/kg	0.5					-	-	-	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5					-	-	-	<0.5	<0.5
2-chlorophenol	mg/kg	0.5					-	-	-	<0.5	<0.5
4-chloro-3-methylphenol	mg/kg	1					-	-	-	<1	<1
Pentachlorophenol	mg/kg	1		120			-	-	-	<1	<1
tetrachlorophenols	mg/kg	1					-	-	-	<1	<1
Phenols (Total Halogenated)	mg/kg	1					-	-	-	<1	<1
Non-Halogenated Phenols											
2,4-dimethylphenol	mg/kg	0.5					-	-	-	<0.5	<0.5
2,4-dinitrophenol	mg/kg	5					-	-	-	<5	<5
2-Methylphenol	mg/kg	0.2					-	-	-	<0.2	<0.2
2-Nitrophenol	mg/kg	1					-	-	-	<1	<1
4,6-Dinitro-2-methylphenol	mg/kg	0.5					-	-	-	<0.5	<0.5
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20					-	-	-	<20	<20
4-nitrophenol	mg/kg	5					-	-	-	<5	<5
3/4-Methylphenol (m/p-cresol)	mg/kg	0.4					-	-	-	<0.4	<0.4
Dinoseb	mg/kg	0.5					-	-	-	<0.5	<0.5
Phenol	mg/kg	0.5		40000			-	-	-	<0.5	<0.5
Phenols (Total Non Halogenated)	mg/kg	20					-	-	-	<20	<20
Phthalate Esters											
Bis(2-ethylhexyl) phthalate	mg/kg	0.5					-	-	-	<0.5	<0.5
Butyl benzyl phthalate	mg/kg	0.5					-	-	-	<0.5	<0.5
Diethylphthalate	mg/kg	0.5					-	-	-	<0.5	<0.5
Dimethyl phthalate	mg/kg	0.5					-	-	-	<0.5	<0.5
Di-n-butyl phthalate	mg/kg	0.5					-	-	-	<0.5	<0.5
Di-n-octyl phthalate	mg/kg	0.5					-	-	-	<0.5	<0.5
Semivolatile Organics											
Tokuthion	mg/kg	0.2					-	-	-	<0.2	<0.2
2,4-Dinitrotoluene	mg/kg	0.5					-	-	-	<0.5	<0.5
Coumaphos	mg/kg	2					-	-	-	<2	<2
Demeton-O	mg/kg	0.2					-	-	-	<0.2	<0.2
EPN	mg/kg	0.2					-	-	-	<0.2	<0.2
Ethoprop	mg/kg	0.2					-	-	-	<0.2	<0.2
Fensulfothion	mg/kg	0.2					-	-	-	<0.2	<0.2
Mevinphos (Phosdrin)	mg/kg	0.2					-	-	-	<0.2	<0.2
Naled (Dibrom)	mg/kg	0.2					-	-	-	<0.2	<0.2
Nitrobenzene	mg/kg	0.5					-	-	-	<0.5	<0.5
Trichloronate	mg/kg	0.2					-	-	-	<0.2	<0.2
Volatile Organics											
1,1,1,2-tetrachloroethane	mg/kg	0.05					-	-	-	<0.05	<0.05
1,1,1-trichloroethane	mg/kg	0.05					-	-	-	<0.05	<0.05
1,1,2,2-tetrachloroethane	mg/kg	0.05					-	-	-	<0.05	<0.05
1,1,2-trichloroethane	mg/kg	0.05					-	-	-	<0.05	<0.05
1,1-dichloroethane	mg/kg	0.05					-	-	-	<0.05	<0.05
1,1-dichloroethene	mg/kg	0.05					-	-	-	<0.05	<0.05
1,2,3-trichloropropane	mg/kg	0.05					-	-	-	<0.05	<0.05
1,2,4-trimethylbenzene	mg/kg	0.05					-	-	-	<0.05	<0.05
1,2-dibromoethane	mg/kg	0.05					-	-	-	<0.05	<0.05
1,2-dichloroethane	mg/kg	0.05					-	-	-	<0.05	<0.05
1,2-dichloropropane	mg/kg	0.05					-	-	-	<0.05	<0.05
1,3,5-trimethylbenzene	mg/kg	0.05					-	-	-	<0.05	<0.05
1,3-dichloropropane	mg/kg	0.05					-	-	-	<0.05	<0.05
Methyl Ethyl Ketone	mg/kg	0.05					-	-	-	<0.05	<0.05
4-chlorotoluene	mg/kg	0.05					-	-	-	<0.05	<0.05
4-Methyl-2-pentanone	mg/kg	0.05					-	-	-	<0.05	<0.05
Acetone	mg/kg	0.05					-	-	-	<0.05	<0.05
Allyl chloride	mg/kg	0.05					-	-	-	<0.05	<0.05
Bromobenzene	mg/kg	0.05					-	-	-	<0.05	<0.05

Data Table G - S261 ACMA compounds RWA A – stockpiles for on-site disposal

Chem name	Units	EQL	Cox EIL (S261/262) Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space					
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_AF_SP01	S261_ACMA_AF_SP01	S261_ACMA_AF_SP02	S261_ACMA_SP_01	S261_ACMA_SP_02
Field ID							S261_ACMA_AF_SP01_01	S261_ACMA_AF_SP01_02	S261_ACMA_AF_SP02_02	S261_ACMA_SP_01	S261_ACMA_SP_02
Sample Date							28/06/2016	28/06/2016	28/06/2016	24/06/2016	24/06/2016
Lab report No.							506263	506263	506263	506263	506263
Sample Type							Normal	Normal	Normal	Normal	Normal
Bromochloromethane	mg/kg	0.05					-	-	-	<0.05	<0.05
Bromodichloromethane	mg/kg	0.05					-	-	-	<0.05	<0.05
Bromoform	mg/kg	0.05					-	-	-	<0.05	<0.05
Bromomethane	mg/kg	0.05					-	-	-	<0.05	<0.05
Carbon disulfide	mg/kg	0.05					-	-	-	<0.05	<0.05
Carbon tetrachloride	mg/kg	0.05					-	-	-	<0.05	<0.05
Chlorobenzene	mg/kg	0.05					-	-	-	<0.05	<0.05
Chlorodibromomethane	mg/kg	0.05					-	-	-	<0.05	<0.05
Chloroethane	mg/kg	0.05					-	-	-	<0.05	<0.05
Chloromethane	mg/kg	0.05					-	-	-	<0.05	<0.05
cis-1,2-dichloroethene	mg/kg	0.05					-	-	-	<0.05	<0.05
cis-1,3-dichloropropene	mg/kg	0.05					-	-	-	<0.05	<0.05
Dibromomethane	mg/kg	0.05					-	-	-	<0.05	<0.05
Dichlorodifluoromethane	mg/kg	0.05					-	-	-	<0.05	<0.05
Iodomethane	mg/kg	0.05					-	-	-	<0.05	<0.05
Isopropylbenzene	mg/kg	0.05					-	-	-	<0.05	<0.05
Styrene	mg/kg	0.05					-	-	-	<0.05	<0.05
Trichloroethene	mg/kg	0.05					-	-	-	<0.05	<0.05
Tetrachloroethene	mg/kg	0.05					-	-	-	<0.05	<0.05
trans-1,2-dichloroethene	mg/kg	0.05					-	-	-	<0.05	<0.05
trans-1,3-dichloropropene	mg/kg	0.05					-	-	-	<0.05	<0.05
Trichlorofluoromethane	mg/kg	0.05					-	-	-	<0.05	<0.05
Vinyl chloride	mg/kg	0.05					-	-	-	<0.05	<0.05
Inorganics											
Cyanide (Free)	mg/kg	5		240			-	-	-	<5	<5
Cyanide Total	mg/kg	5					-	-	-	<5	<5
Fluoride	mg/kg	100					-	-	-	<100	<100
Moisture Content (dried @ 103°C)	%	1					13	12	15	4.2	2.1
Herbicides											
2,4,5-Trichlorophenoxy Acetic Acid	mg/kg	0.5		800			-	-	-	<0.5	<0.5
2,4,5-TP (Silvex)	mg/kg	0.5					-	-	-	<0.5	<0.5
Hedonal	mg/kg	0.5		1300			-	-	-	<0.5	<0.5
2,4-Dichlorprop	mg/kg	0.5					-	-	-	<0.5	<0.5
4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	mg/kg	0.5					-	-	-	<0.5	<0.5
Actril (loxynil)	mg/kg	0.5					-	-	-	<0.5	<0.5
Dicamba	mg/kg	0.5					-	-	-	<0.5	<0.5
2-Methyl-4-chlorophenoxyacetic acid	mg/kg	0.5		800			-	-	-	<0.5	<0.5
2-Methyl-4-Chlorophenoxy Butanoic Acid	mg/kg	0.5		800			-	-	-	<0.5	<0.5
Mecoprop	mg/kg	0.5		800			-	-	-	<0.5	<0.5

Data Table H : S261 ACMA compounds RWA A – major slab stockpile footprint

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space							
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_SFP_0001	S261_ACMA_SFP_0002	S261_ACMA_SFP_0003	S261_ACMA_SFP_0004	S261_ACMA_SFP_0005	S261_ACMA_SFP_0006	S261_ACMA_SFP_013
Field ID							S261_ACMA_SFP_0001	S261_ACMA_SFP_0002	S261_ACMA_SFP_0003	S261_ACMA_SFP_0004	S261_ACMA_SFP_0005	S261_ACMA_SFP_0006	S261_ACMA_SFP_013
Sample Date							5/09/2016	5/09/2016	5/09/2016	5/09/2016	5/09/2016	5/09/2016	9/09/2016
Lab report No.							514449	514449	514449	514449	514449	514449	515643
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Normal
Organochlorine Pesticides													
4,4-DDE	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05					0.17	0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2			0.29	1.02	6.6	0.26	0	0.26	0
b-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	-	-
d-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05					0.12	0.92	6.6	0.26	<0.05	0.26	<0.05
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20			<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30			<1	<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons													
Hexachlorobenzene	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics													
Moisture Content (dried @ 103°C)	%	1					5.4	5.1	6.3	7.1	7.1	6.9	6.8

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

						Monitoring Zone	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
						Location Code	S261_HFDF_01	S261_HFDF_ASB_01	S261_HFDF_V_001	S261_HFDF_V_002	S261_HFDF_V_01	S261_HFDF_V_02	S261_HFDF_V_02	S261_HFDF_V_02	S261_HFDF_V_03
						Field ID	S261_HFDF_01	S261_HFDF_ASB_01	S261_HFDF_V_001	S261_HFDF_V_002	S261_HFDF_V_01	S261_HFDF_V_02	S261_HFDF_V_QA01	S261_HFDF_V_QA02	S261_HFDF_V_03
						Sample Date	13/07/2016	15/07/2016	13/07/2016	13/07/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016
						Lab report No.	523070	523070	523070	523070	523070	523070	523070	EM1613511	523070
						Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Field_D	Interlab_D	Normal
Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space									
Metals															
Arsenic	mg/kg	2	100	300			-	-	11	11	7.4	6.2	6.4	<5	5.4
Barium	mg/kg	10					-	-	47	45	42	34	33	30	56
Beryllium	mg/kg	2		90			-	-	<2	<2	<2	<2	<2	<1	<2
Cadmium	mg/kg	0.4		90			-	-	<0.4	<0.4	<0.4	<0.4	<0.4	<1	<0.4
Chromium (III+VI)	mg/kg	5					-	-	69	79	90	77	58	55	46
Cobalt	mg/kg	5		300			-	-	<5	<5	5.8	<5	<5	4	5.5
Copper	mg/kg	5	200	17000			-	-	7	11	9.1	7.4	7.3	6	9.4
Lead	mg/kg	5	1117	600			-	-	9.2	13	12	11	10	9	12
Manganese	mg/kg	5		19000			-	-	110	87	160	140	140	114	190
Mercury	mg/kg	0.1		80			-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	190	1200			-	-	9.1	9.2	15	13	12	8	15
Vanadium	mg/kg	10					-	-	100	110	150	120	92	90	100
Zinc	mg/kg	5	470	30000			-	-	<5	<5	5.9	<5	<5	<5	<5
TRH - NEPM 2013 Fractions															
TRH >C6 - C10	mg/kg	20					-	-	<20	<20	<20	<20	<20	<10	<20
TRH >C10 - C16	mg/kg	50					-	-	<50	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100				300	-	-	<100	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100				2800	-	-	<100	<100	<100	<100	<100	<100	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-	-	-	-	<50	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	-	-	<20	<20	<20	<20	<20	<10	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	-	-	<50	<50	<50	<50	<50	<50	<50
TPH - NEPM 1999 Fractions															
TPH C6 - C9	mg/kg	20					-	-	<20	<20	<20	<20	<20	<10	<20
TPH C10 - C14	mg/kg	20					-	-	<20	<20	<20	<20	<20	<50	<20
TPH C15 - C28	mg/kg	50					-	-	<50	<50	<50	<50	<50	<100	<50
TPH C29 - C36	mg/kg	50					-	-	<50	<50	<50	<50	<50	<100	<50
TPH C10 - C36 (Sum of total)	mg/kg	50					-	-	<50	<50	<50	<50	<50	<50	<50
BTEXN															
Naphthalene	mg/kg	0.5	170		3		-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	50	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1
Toluene	mg/kg	0.1			160	85	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1
Ethylbenzene	mg/kg	0.1			55	70	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1
Xylene (o)	mg/kg	0.1					-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1
Xylene (m & p)	mg/kg	0.2					-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2
Xylene Total	mg/kg	0.3			40	105	-	-	<0.3	<0.3	<0.3	<0.3	<0.3	<0.5	<0.3
Total BTEX	mg/kg	0.2					-	-	-	-	-	-	-	<0.2	-
PAHs															
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					-	-	0.6	0.6	-	0.6	0.6	0.6	-
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5					-	-	-	-	-	-	-	<0.5	-
Acenaphthene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Acenaphthylene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Anthracene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Benz(a)anthracene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Benzo(a) pyrene	mg/kg	0.5				0.7	-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	-	-
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					-	-	1.2	1.2	-	1.2	1.2	1.2	-
Benzo(a)pyrene TEQ (zero)	µg/kg	500					-	-	-	-	-	-	-	<500	-
Benzo(g,h,i)perylene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Benzo(k)fluoranthene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Chrysene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Benzo[b+j]fluoranthene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Dibenz(a,h)anthracene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Fluoranthene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Fluorene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Phenanthrene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
Pyrene	mg/kg	0.5					-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
PAHs (Sum of total)	mg/kg	0.5		300			-	-	<0.5	<0.5	-	<0.5	<0.5	-	-
Polychlorinated Biphenyls															
Arochlor 1016	mg/kg	0.1					-	-	<0.1	<0.1	-	<0.1	<0.1	-	-
Arochlor 1221	mg/kg	0.1					-	-	<0.1	<0.1	-	<0.1	<0.1	-	-
Arochlor 1232	mg/kg	0.1					-	-	<0.1	<0.1	-	<0.1	<0.1	-	-
Arochlor 1242	mg/kg	0.1					-	-	<0.1	<0.1	-	<0.1	<0.1	-	-
Arochlor 1248	mg/kg	0.1					-	-	<0.1	<0.1	-	<0.1	<0.1	-	-
Arochlor 1254	mg/kg	0.1					-	-	<0.1	<0.1	-	<0.1	<0.1	-	-
Arochlor 1260	mg/kg	0.1					-	-	<0.1	<0.1	-	<0.1	<0.1	-	-
PCBs (Sum of total)	mg/kg	0.1		1			-	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space									
Monitoring Zone							S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
Location Code							S261_HFDF_01	S261_HFDF_ASB_01	S261_HFDF_V_001	S261_HFDF_V_002	S261_HFDF_V_01	S261_HFDF_V_02	S261_HFDF_V_02	S261_HFDF_V_02	S261_HFDF_V_03
Field ID							S261_HFDF_01	S261_HFDF_ASB_01	S261_HFDF_V_001	S261_HFDF_V_002	S261_HFDF_V_01	S261_HFDF_V_02	S261_HFDF_V_QA01	S261_HFDF_V_QA02	S261_HFDF_V_03
Sample Date							13/07/2016	15/07/2016	13/07/2016	13/07/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016
Lab report No.							523070	523070	523070	523070	523070	523070	523070	EM1613511	523070
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Field_D	Interlab_D	Normal
Organochlorine Pesticides															
4,4-DDE	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
a-BHC	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Aldrin	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Aldrin + Dieldrin	mg/kg	0.05		10			-	-	0	0	-	0	-	<0.05	-
b-BHC	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
chlordane	mg/kg	0.1		70			-	-	<0.1	<0.1	-	<0.1	<0.1	<0.05	-
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-
d-BHC	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
DDD	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
DDT	mg/kg	0.05	180				-	-	<0.05	<0.05	-	<0.05	<0.05	<0.2	-
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	-	-	<0.05	-
Dieldrin	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	-	-	<0.05	-
Endosulfan I	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Endosulfan II	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Endosulfan sulphate	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Endrin	mg/kg	0.05		20			-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Endrin aldehyde	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Endrin ketone	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
g-BHC (Lindane)	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Heptachlor	mg/kg	0.05		10			-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Heptachlor epoxide	mg/kg	0.05					-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Methoxychlor	mg/kg	0.05		400			-	-	<0.05	<0.05	-	<0.05	<0.05	<0.2	-
Toxaphene	mg/kg	1		30			-	-	<1	<1	-	<1	<1	-	-
Organophosphorous Pesticides															
Azinophos methyl	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	-
Bolstar (Sulprofos)	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Bromophos-ethyl	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-
Carbophenothion	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-
Chlorfenvinphos	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	-
Chlorpyrifos	mg/kg	0.2		250			-	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	-
Chlorpyrifos-methyl	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	-
Demeton-S	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Demeton-S-methyl	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-
Diazinon	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	-
Dichlorvos	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	-
Dimethoate	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	-
Disulfoton	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Ethion	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	-
Fenamiphos	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-
Fenitrothion	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Fenthion	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	-
Malathion	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	-
Merphos	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Methyl parathion	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	-
Monocrotophos	mg/kg	2					-	-	<2	<2	-	<2	<2	<0.2	-
Omethoate	mg/kg	2					-	-	<2	<2	-	<2	<2	-	-
Parathion	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	-
Phorate	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Pirimiphos-methyl	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Pirimphos-ethyl	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-
Prothiofos	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-
Pyrazophos	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Ronnel	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Terbufos	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Tetrachlorvinphos	mg/kg	0.2					-	-	<0.2	<0.2	-	<0.2	<0.2	-	-

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space
Monitoring Zone						
Location Code						
Field ID						
Sample Date						
Lab report No.						
Sample Type						
Chlorinated Hydrocarbons						
Hexachlorobenzene	mg/kg	0.05		10		
Semivolatile Organics						
Tokuthion	mg/kg	0.2				
Coumaphos	mg/kg	2				
Demeton-O	mg/kg	0.2				
EPN	mg/kg	0.2				
Ethoprop	mg/kg	0.2				
Fensulfothion	mg/kg	0.2				
Mevinphos (Phosdrin)	mg/kg	0.2				
Naled (Dibrom)	mg/kg	0.2				
Trichloronate	mg/kg	0.2				
Inorganics						
Moisture	%	1				
Moisture Content (dried @ 103°C)	%	1				
Asbestos						
FA- Comment	Comment					
Approximate Sample Mass	g					
Asbestos from ACM in Soil	%w/w					
Asbestos from FA & AF in Soil	%w/w					
Asbestos Sample Dimensions	Comment					
AF - Comment	Comment					
Organic Fibres - Comment	Comment					
Respirable Fibres - Comment	Comment					
Synthetic Fibres - Comment	Comment					
Mass ACM	g					
Mass AF	g					
Mass Asbestos in AF	g					
Mass Asbestos in FA & AF	g					
Mass Asbestos in ACM	g					
Mass Asbestos in FA	g					
Mass FA	g					

Monitoring Zone	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
Location Code	S261_HFDF_01	S261_HFDF_ASB_01	S261_HFDF_V_001	S261_HFDF_V_002	S261_HFDF_V_01	S261_HFDF_V_02	S261_HFDF_V_02	S261_HFDF_V_02	S261_HFDF_V_03
Field ID	S261_HFDF_01	S261_HFDF_ASB_01	S261_HFDF_V_001	S261_HFDF_V_002	S261_HFDF_V_01	S261_HFDF_V_02	S261_HFDF_V_QA01	S261_HFDF_V_QA02	S261_HFDF_V_03
Sample Date	13/07/2016	15/07/2016	13/07/2016	13/07/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016
Lab report No.	523070	523070	523070	523070	523070	523070	523070	EM1613511	523070
Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Field_D	Interlab_D	Normal
Chlorinated Hydrocarbons									
Hexachlorobenzene	-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Semivolatile Organics									
Tokuthion	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Coumaphos	-	-	<2	<2	-	<2	<2	-	-
Demeton-O	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
EPN	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Ethoprop	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Fensulfothion	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Mevinphos (Phosdrin)	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Naled (Dibrom)	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Trichloronate	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-
Inorganics									
Moisture	-	-	-	-	-	-	-	12.6	-
Moisture Content (dried @ 103°C)	-	-	13	14	13	12	12	-	14
Asbestos									
FA- Comment	None	None	-	-	None	-	-	-	None
Approximate Sample Mass	44	39	-	-	655	-	-	-	471
Asbestos from ACM in Soil	0	0	-	-	0	-	-	-	0
Asbestos from FA & AF in Soil	0	0	-	-	0	-	-	-	0
Asbestos Sample Dimensions	-	-	-	-	-	-	-	-	-
AF - Comment	None	None	-	-	None	-	-	-	None
Organic Fibres - Comment	Detected	Detected	-	-	Detected	-	-	-	Detected
Respirable Fibres - Comment	None	None	-	-	None	-	-	-	None
Synthetic Fibres - Comment	None	None	-	-	None	-	-	-	None
Mass ACM	0	0	-	-	0	-	-	-	0
Mass AF	0	0	-	-	0	-	-	-	0
Mass Asbestos in AF	0	0	-	-	0	-	-	-	0
Mass Asbestos in FA & AF	0	0	-	-	0	-	-	-	0
Mass Asbestos in ACM	0	0	-	-	0	-	-	-	0
Mass Asbestos in FA	0	0	-	-	0	-	-	-	0
Mass FA	0	0	-	-	0	-	-	-	0

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space										
Monitoring Zone							S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
Location Code							S261_HFDF_V_04	S261_HFDF_V_05	S261_HFDF_V_06	S261_HFDF_V_07	S261_HFDF_V_08	S261_HFDF_V_09	S261_HFDF_V_09	S261_HFDF_V_09	S261_HFDF_V_10	S261_HFDF_V_11
Field ID							S261_HFDF_V_04	S261_HFDF_V_05	S261_HFDF_V_06	S261_HFDF_V_07	S261_HFDF_V_08	S261_HFDF_V_09	S261_HFDF_V_QA03	S261_HFDF_V_QA04	S261_HFDF_V_10	S261_HFDF_V_11
Sample Date							8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016
Lab report No.							523070	523070	523070	523070	523070	523070	523070	EM1613511	523070	523070
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Field_D	Interlab_D	Normal	Normal
Metals																
Arsenic	mg/kg	2	100	300			5.4	7.5	9.4	7	7	13	17	7	13	9.1
Barium	mg/kg	10					61	51	61	56	61	69	90	60	15	45
Beryllium	mg/kg	2		90			<2	<2	<2	<2	<2	<2	<2	<1	<2	<2
Cadmium	mg/kg	0.4		90			<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1	<0.4	<0.4
Chromium (III+VI)	mg/kg	5					54	83	100	74	81	72	89	44	120	110
Cobalt	mg/kg	5		300			6	6.7	6.7	5.9	5.4	11	13	9	<5	9.2
Copper	mg/kg	5	200	17000			8.9	9.6	8.8	9.1	9.3	11	13	8	<5	11
Lead	mg/kg	5	1117	600			11	14	14	12	12	16	20	12	11	16
Manganese	mg/kg	5		19000			240	260	250	300	230	360	470	292	86	280
Mercury	mg/kg	0.1		80			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	190	1200			13	14	13	13	14	17	18	10	6.2	20
Vanadium	mg/kg	10					98	140	170	120	130	200	230	128	190	200
Zinc	mg/kg	5	470	30000			<5	<5	5.4	<5	<5	21	30	15	5.6	8.3
TRH - NEPM 2013 Fractions																
TRH >C6 - C10	mg/kg	20					<20	<20	<20	<20	<20	<20	<20	<10	<20	<20
TRH >C10 - C16	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100				300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100				2800	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-	-	-	-	<50	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	<20	<20	<20	<20	<20	<20	<20	<10	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TPH - NEPM 1999 Fractions																
TPH C6 - C9	mg/kg	20					<20	<20	<20	<20	<20	<20	<20	<10	<20	<20
TPH C10 - C14	mg/kg	20					<20	<20	<20	<20	<20	<20	<20	<50	<20	<20
TPH C15 - C28	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<100	<50	<50
TPH C29 - C36	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<100	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
BTEXN																
Naphthalene	mg/kg	0.5	170		3		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1
Toluene	mg/kg	0.1			160	85	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
Ethylbenzene	mg/kg	0.1			55	70	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
Xylene (o)	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
Xylene Total	mg/kg	0.3			40	105	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.5	<0.3	<0.3
Total BTEX	mg/kg	0.2					-	-	-	-	-	-	-	<0.2	-	-
PAHs																
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					-	-	-	-	-	-	0.6	0.6	-	-
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5					-	-	-	-	-	-	-	<0.5	-	-
Acenaphthene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Acenaphthylene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Anthracene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Benz(a)anthracene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Benzo(a) pyrene	mg/kg	0.5				0.7	-	-	-	-	-	-	<0.5	<0.5	-	-
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					-	-	-	-	-	-	<0.5	-	-	-
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					-	-	-	-	-	-	1.2	1.2	-	-
Benzo(a)pyrene TEQ (zero)	µg/kg	500					-	-	-	-	-	-	-	<500	-	-
Benzo(g,h,i)perylene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Benzo(k)fluoranthene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Chrysene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Benzo[b+j]fluoranthene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Dibenz(a,h)anthracene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Fluoranthene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Fluorene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Phenanthrene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
Pyrene	mg/kg	0.5					-	-	-	-	-	-	<0.5	<0.5	-	-
PAHs (Sum of total)	mg/kg	0.5		300			-	-	-	-	-	-	<0.5	-	-	-
Polychlorinated Biphenyls																
Arochlor 1016	mg/kg	0.1					-	-	-	-	-	-	<0.1	-	-	-
Arochlor 1221	mg/kg	0.1					-	-	-	-	-	-	<0.1	-	-	-
Arochlor 1232	mg/kg	0.1					-	-	-	-	-	-	<0.1	-	-	-
Arochlor 1242	mg/kg	0.1					-	-	-	-	-	-	<0.1	-	-	-
Arochlor 1248	mg/kg	0.1					-	-	-	-	-	-	<0.1	-	-	-
Arochlor 1254	mg/kg	0.1					-	-	-	-	-	-	<0.1	-	-	-
Arochlor 1260	mg/kg	0.1					-	-	-	-	-	-	<0.1	-	-	-
PCBs (Sum of total)	mg/kg	0.1		1			-	-	-	-	-	-	<0.1	<0.1	-	-

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

			Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space										
Monitoring Zone							S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
Location Code							S261_HFDF_V_04	S261_HFDF_V_05	S261_HFDF_V_06	S261_HFDF_V_07	S261_HFDF_V_08	S261_HFDF_V_09	S261_HFDF_V_09	S261_HFDF_V_09	S261_HFDF_V_10	S261_HFDF_V_11
Field ID							S261_HFDF_V_04	S261_HFDF_V_05	S261_HFDF_V_06	S261_HFDF_V_07	S261_HFDF_V_08	S261_HFDF_V_09	S261_HFDF_V_QA03	S261_HFDF_V_QA04	S261_HFDF_V_10	S261_HFDF_V_11
Sample Date							8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016
Lab report No.							523070	523070	523070	523070	523070	523070	523070	EM1613511	523070	523070
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Field_D	Interlab_D	Normal	Normal
Chem name	Units	EQL														
Organochlorine Pesticides																
4,4-DDE	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
a-BHC	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Aldrin	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Aldrin + Dieldrin	mg/kg	0.05		10			-	-	-	-	-	-	-	<0.05	-	-
b-BHC	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
chlordane	mg/kg	0.1		70			<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.05	<0.1	-
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-	-
d-BHC	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
DDD	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
DDT	mg/kg	0.05	180				<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.2	<0.05	-
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	-	-	<0.05	-	-
Dieldrin	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	-	-	<0.05	-	-
Endosulfan I	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Endosulfan II	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Endosulfan sulphate	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Endrin	mg/kg	0.05		20			<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Endrin aldehyde	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Endrin ketone	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
g-BHC (Lindane)	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Heptachlor	mg/kg	0.05		10			<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Heptachlor epoxide	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Methoxychlor	mg/kg	0.05		400			<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.2	<0.05	-
Toxaphene	mg/kg	1		30			<1	-	<1	-	<1	<1	<1	-	<1	-
Organophosphorous Pesticides																
Azinophos methyl	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.05	<0.2	-
Bolstar (Sulprofos)	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Bromophos-ethyl	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-	-
Carbophenothion	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-	-
Chlorfenvinphos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.05	<0.2	-
Chlorpyrifos	mg/kg	0.2		250			<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.05	<0.2	-
Chlorpyrifos-methyl	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.05	<0.2	-
Demeton-S	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Demeton-S-methyl	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-	-
Diazinon	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.05	<0.2	-
Dichlorvos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.05	<0.2	-
Dimethoate	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.05	<0.2	-
Disulfoton	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Ethion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.05	<0.2	-
Fenamiphos	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-	-
Fenitrothion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Fenthion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.05	<0.2	-
Malathion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.05	<0.2	-
Merphos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Methyl parathion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-
Monocrotophos	mg/kg	2					<2	-	<2	-	<2	<2	<2	<0.2	<2	-
Omethoate	mg/kg	2					<2	-	<2	-	<2	<2	<2	-	<2	-
Parathion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-
Phorate	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Pirimiphos-methyl	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Pirimphos-ethyl	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-	-
Prothiofos	mg/kg	0.05					-	-	-	-	-	-	-	<0.05	-	-
Pyrazophos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Ronnel	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Terbufos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Tetrachlorvinphos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

			Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space										
Monitoring Zone							S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
Location Code							S261_HFDF_V_04	S261_HFDF_V_05	S261_HFDF_V_06	S261_HFDF_V_07	S261_HFDF_V_08	S261_HFDF_V_09	S261_HFDF_V_09	S261_HFDF_V_09	S261_HFDF_V_10	S261_HFDF_V_11
Field ID							S261_HFDF_V_04	S261_HFDF_V_05	S261_HFDF_V_06	S261_HFDF_V_07	S261_HFDF_V_08	S261_HFDF_V_09	S261_HFDF_V_QA03	S261_HFDF_V_QA04	S261_HFDF_V_10	S261_HFDF_V_11
Sample Date							8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016
Lab report No.							523070	523070	523070	523070	523070	523070	523070	EM1613511	523070	523070
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Field_D	Interlab_D	Normal	Normal
Chem name	Units	EQL														
Chlorinated Hydrocarbons																
Hexachlorobenzene	mg/kg	0.05		10			<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-
Semivolatile Organics																
Tokuthion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Coumaphos	mg/kg	2					<2	-	<2	-	<2	<2	<2	-	<2	-
Demeton-O	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
EPN	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Ethoprop	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Fensulfothion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Mevinphos (Phosdrin)	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Naled (Dibrom)	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Trichloronate	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Inorganics																
Moisture	%	1					-	-	-	-	-	-	-	13.2	-	-
Moisture Content (dried @ 103°C)	%	1					16	16	15	15	14	13	12	-	7.3	16
Asbestos																
FA- Comment	Comment						-	None	-	None	-	None	-	-	-	None
Approximate Sample Mass	g						-	403	-	431	-	437	-	-	-	427
Asbestos from ACM in Soil	%w/w						-	0	-	0	-	0	-	-	-	0
Asbestos from FA & AF in Soil	%w/w						-	0	-	0	-	0	-	-	-	0
Asbestos Sample Dimensions	Comment						-	-	-	-	-	-	-	-	-	-
AF - Comment	Comment						-	None	-	None	-	None	-	-	-	None
Organic Fibres - Comment	Comment						-	Detected	-	Detected	-	Detected	-	-	-	Detected
Respirable Fibres - Comment	Comment						-	None	-	None	-	None	-	-	-	None
Synthetic Fibres - Comment	Comment						-	None	-	None	-	None	-	-	-	None
Mass ACM	g						-	0	-	0	-	0	-	-	-	0
Mass AF	g						-	0	-	0	-	0	-	-	-	0
Mass Asbestos in AF	g						-	0	-	0	-	0	-	-	-	0
Mass Asbestos in FA & AF	g						-	0	-	0	-	0	-	-	-	0
Mass Asbestos in ACM	g						-	0	-	0	-	0	-	-	-	0
Mass Asbestos in FA	g						-	0	-	0	-	0	-	-	-	0
Mass FA	g						-	0	-	0	-	0	-	-	-	0

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

							Monitoring Zone	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
							Location Code	S261_HFDF_V_12	S261_HFDF_V_13	S261_HFDF_V_14	S261_HFDF_V_15	S261_HFDF_V_16	S261_HFDF_V_17	S261_HFDF_V_18	S261_HFDF_V_19	S261_HFDF_V_20	S261_HFDF_V_21
							Field ID	S261_HFDF_V_12	S261_HFDF_V_13	S261_HFDF_V_14	S261_HFDF_V_15	S261_HFDF_V_16	S261_HFDF_V_17	S261_HFDF_V_18	S261_HFDF_V_19	S261_HFDF_V_20	S261_HFDF_V_21
							Sample Date	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016
							Lab report No.	523070	523070	523070	523070	523070	523070	523070	523070	523070	523070
							Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space											
Metals																	
Arsenic	mg/kg	2	100	300			9.1	7.2	8.2	10	12	9.1	7.1	9	12	16	
Barium	mg/kg	10					67	57	60	62	120	70	52	36	31	31	
Beryllium	mg/kg	2		90			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Cadmium	mg/kg	0.4		90			<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	
Chromium (III+VI)	mg/kg	5					93	110	110	70	85	110	93	120	130	170	
Cobalt	mg/kg	5		300			6.1	<5	<5	8.5	5.9	5.9	5.9	<5	<5	<5	
Copper	mg/kg	5	200	17000			9.3	7.6	7.3	10	6	7.3	7	<5	6.4	5.7	
Lead	mg/kg	5	1117	600			15	11	12	14	16	14	14	13	14	11	
Manganese	mg/kg	5		19000			220	150	180	160	240	200	150	120	150	150	
Mercury	mg/kg	0.1		80			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Nickel	mg/kg	5	190	1200			14	12	11	16	8.6	11	12	8.3	9.5	9	
Vanadium	mg/kg	10					160	140	160	160	180	140	130	180	270	210	
Zinc	mg/kg	5	470	30000			7	13	<5	5.5	<5	<5	6.3	<5	<5	<5	
TRH - NEPM 2013 Fractions																	
TRH >C6 - C10	mg/kg	20					<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	
TRH >C10 - C16	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
TRH >C16 - C34	mg/kg	100				300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
TRH >C34 - C40	mg/kg	100				2800	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-	-	-	-	-	-	-	
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
TPH - NEPM 1999 Fractions																	
TPH C6 - C9	mg/kg	20					<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	
TPH C10 - C14	mg/kg	20					<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	
TPH C15 - C28	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
TPH C29 - C36	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
TPH C10 - C36 (Sum of total)	mg/kg	50					<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
BTEXN																	
Naphthalene	mg/kg	0.5	170		3		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzene	mg/kg	0.1			0.5	50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Toluene	mg/kg	0.1			160	85	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Ethylbenzene	mg/kg	0.1			55	70	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Xylene (o)	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Xylene (m & p)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Xylene Total	mg/kg	0.3			40	105	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	
Total BTEX	mg/kg	0.2					-	-	-	-	-	-	-	-	-	-	
PAHs																	
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					0.6	-	0.6	-	0.6	-	-	-	0.6	-	
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	
Acenaphthene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Acenaphthylene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Anthracene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Benz(a)anthracene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Benzo(a) pyrene	mg/kg	0.5				0.7	<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					1.2	-	1.2	-	1.2	-	-	-	1.2	-	
Benzo(a)pyrene TEQ (zero)	µg/kg	500					-	-	-	-	-	-	-	-	-	-	
Benzo(g,h,i)perylene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Benzo(k)fluoranthene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Chrysene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Benzo[b+j]fluoranthene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Dibenz(a,h)anthracene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Fluoranthene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Fluorene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Phenanthrene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Pyrene	mg/kg	0.5					<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
PAHs (Sum of total)	mg/kg	0.5		300			<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	
Polychlorinated Biphenyls																	
Arochlor 1016	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	-	-	<0.1	-	
Arochlor 1221	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	-	-	<0.1	-	
Arochlor 1232	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	-	-	<0.1	-	
Arochlor 1242	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	-	-	<0.1	-	
Arochlor 1248	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	-	-	<0.1	-	
Arochlor 1254	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	-	-	<0.1	-	
Arochlor 1260	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	-	-	<0.1	-	
PCBs (Sum of total)	mg/kg	0.1		1			<0.1	-	<0.1	-	<0.1	-	-	-	<0.1	-	

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

			Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space										
Monitoring Zone							S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
Location Code							S261_HFDF_V_12	S261_HFDF_V_13	S261_HFDF_V_14	S261_HFDF_V_15	S261_HFDF_V_16	S261_HFDF_V_17	S261_HFDF_V_18	S261_HFDF_V_19	S261_HFDF_V_20	S261_HFDF_V_21
Field ID							S261_HFDF_V_12	S261_HFDF_V_13	S261_HFDF_V_14	S261_HFDF_V_15	S261_HFDF_V_16	S261_HFDF_V_17	S261_HFDF_V_18	S261_HFDF_V_19	S261_HFDF_V_20	S261_HFDF_V_21
Sample Date							8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016
Lab report No.							523070	523070	523070	523070	523070	523070	523070	523070	523070	523070
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Chem name	Units	EQL														
Organochlorine Pesticides																
4,4-DDE	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
a-BHC	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aldrin	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aldrin + Dieldrin	mg/kg	0.05		10			-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
chlordane	mg/kg	0.1		70			<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
DDD	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
DDT	mg/kg	0.05	180				<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endosulfan II	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endosulfan sulphate	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endrin	mg/kg	0.05		20			<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endrin aldehyde	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endrin ketone	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
g-BHC (Lindane)	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Heptachlor	mg/kg	0.05		10			<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Heptachlor epoxide	mg/kg	0.05					<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Methoxychlor	mg/kg	0.05		400			<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Toxaphene	mg/kg	1		30			<1	-	<1	-	<1	-	<1	-	<1	-
Organophosphorous Pesticides																
Azinophos methyl	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Bolstar (Sulprofos)	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Bromophos-ethyl	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-
Carbophenothion	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Chlorpyrifos	mg/kg	0.2		250			<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Chlorpyrifos-methyl	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Demeton-S	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Demeton-S-methyl	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-
Diazinon	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Dichlorvos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Dimethoate	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Disulfoton	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Ethion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Fenamiphos	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-
Fenitrothion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Fenthion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Malathion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Merphos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Methyl parathion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Monocrotophos	mg/kg	2					<2	-	<2	-	<2	-	<2	-	<2	-
Omethoate	mg/kg	2					<2	-	<2	-	<2	-	<2	-	<2	-
Parathion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Phorate	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Pirimiphos-methyl	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Pirimphos-ethyl	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-
Prothiofos	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-
Pyrazophos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Ronnel	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Terbufos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Tetrachlorvinphos	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space										
Monitoring Zone							S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
Location Code							S261_HFDF_V_12	S261_HFDF_V_13	S261_HFDF_V_14	S261_HFDF_V_15	S261_HFDF_V_16	S261_HFDF_V_17	S261_HFDF_V_18	S261_HFDF_V_19	S261_HFDF_V_20	S261_HFDF_V_21
Field ID							S261_HFDF_V_12	S261_HFDF_V_13	S261_HFDF_V_14	S261_HFDF_V_15	S261_HFDF_V_16	S261_HFDF_V_17	S261_HFDF_V_18	S261_HFDF_V_19	S261_HFDF_V_20	S261_HFDF_V_21
Sample Date							8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016
Lab report No.							523070	523070	523070	523070	523070	523070	523070	523070	523070	523070
Sample Type							Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Chlorinated Hydrocarbons																
Hexachlorobenzene	mg/kg	0.05		10			<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Semivolatile Organics																
Tokuthion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Coumaphos	mg/kg	2					<2	-	<2	-	<2	-	<2	-	<2	-
Demeton-O	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
EPN	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Ethoprop	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Fensulfothion	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Mevinphos (Phosdrin)	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Naled (Dibrom)	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Trichloronate	mg/kg	0.2					<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Inorganics																
Moisture	%	1					-	-	-	-	-	-	-	-	-	-
Moisture Content (dried @ 103°C)	%	1					16	13	15	15	10	14	13	9.9	9.9	11
Asbestos																
FA- Comment	Comment						-	None	-	None	-	None	-	None	-	None
Approximate Sample Mass	g						-	470	-	496	-	469	-	512	-	606
Asbestos from ACM in Soil	%w/w						-	0	-	0	-	0	-	0	-	0
Asbestos from FA & AF in Soil	%w/w						-	0	-	0	-	0	-	0	-	0
Asbestos Sample Dimensions	Comment						-	-	-	-	-	-	-	-	-	-
AF - Comment	Comment						-	None	-	None	-	None	-	None	-	None
Organic Fibres - Comment	Comment						-	Detected	-	Detected	-	Detected	-	Detected	-	Detected
Respirable Fibres - Comment	Comment						-	None	-	None	-	None	-	None	-	None
Synthetic Fibres - Comment	Comment						-	None	-	None	-	None	-	None	-	None
Mass ACM	g						-	0	-	0	-	0	-	0	-	0
Mass AF	g						-	0	-	0	-	0	-	0	-	0
Mass Asbestos in AF	g						-	0	-	0	-	0	-	0	-	0
Mass Asbestos in FA & AF	g						-	0	-	0	-	0	-	0	-	0
Mass Asbestos in ACM	g						-	0	-	0	-	0	-	0	-	0
Mass Asbestos in FA	g						-	0	-	0	-	0	-	0	-	0
Mass FA	g						-	0	-	0	-	0	-	0	-	0

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space				
Monitoring Zone							S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
Location Code							S261_HFDF_V_22	S261_HFDF_V_23	S261_HFDF_V_24	S261_HFDF_V_25
Field ID							S261_HFDF_V_22	S261_HFDF_V_23	S261_HFDF_V_24	S261_HFDF_V_25
Sample Date							8/11/2016	8/11/2016	8/11/2016	8/11/2016
Lab report No.							523070	523070	523070	523070
Sample Type							Normal	Normal	Normal	Normal
Metals										
Arsenic	mg/kg	2	100	300			10	9.3	9.8	11
Barium	mg/kg	10					51	77	72	66
Beryllium	mg/kg	2		90			<2	<2	<2	<2
Cadmium	mg/kg	0.4		90			<0.4	<0.4	<0.4	<0.4
Chromium (III+VI)	mg/kg	5					110	83	120	63
Cobalt	mg/kg	5		300			<5	5	<5	<5
Copper	mg/kg	5	200	17000			6.1	8	7.5	5.5
Lead	mg/kg	5	1117	600			12	14	13	9.2
Manganese	mg/kg	5		19000			170	190	250	210
Mercury	mg/kg	0.1		80			<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	190	1200			9.7	14	13	7.6
Vanadium	mg/kg	10					140	120	170	110
Zinc	mg/kg	5	470	30000			<5	<5	<5	<5
TRH - NEPM 2013 Fractions										
TRH >C6 - C10	mg/kg	20					<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50					<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100				300	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100				2800	<100	<100	<100	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	<50	<50	<50	<50
TPH - NEPM 1999 Fractions										
TPH C6 - C9	mg/kg	20					<20	<20	<20	<20
TPH C10 - C14	mg/kg	20					<20	<20	<20	<20
TPH C15 - C28	mg/kg	50					<50	<50	<50	<50
TPH C29 - C36	mg/kg	50					<50	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50					<50	<50	<50	<50
BTEXN										
Naphthalene	mg/kg	0.5	170		3		<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	50	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1			160	85	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1			55	70	<0.1	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3			40	105	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.2					-	-	-	-
PAHs										
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					0.6	-	-	-
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5					-	-	-	-
Acenaphthene	mg/kg	0.5					<0.5	-	-	-
Acenaphthylene	mg/kg	0.5					<0.5	-	-	-
Anthracene	mg/kg	0.5					<0.5	-	-	-
Benz(a)anthracene	mg/kg	0.5					<0.5	-	-	-
Benzo(a) pyrene	mg/kg	0.5				0.7	<0.5	-	-	-
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					<0.5	-	-	-
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					1.2	-	-	-
Benzo(a)pyrene TEQ (zero)	µg/kg	500					-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.5					<0.5	-	-	-
Benzo(k)fluoranthene	mg/kg	0.5					<0.5	-	-	-
Chrysene	mg/kg	0.5					<0.5	-	-	-
Benzo[b+j]fluoranthene	mg/kg	0.5					<0.5	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.5					<0.5	-	-	-
Fluoranthene	mg/kg	0.5					<0.5	-	-	-
Fluorene	mg/kg	0.5					<0.5	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					<0.5	-	-	-
Phenanthrene	mg/kg	0.5					<0.5	-	-	-
Pyrene	mg/kg	0.5					<0.5	-	-	-
PAHs (Sum of total)	mg/kg	0.5		300			<0.5	-	-	-
Polychlorinated Biphenyls										
Arochlor 1016	mg/kg	0.1					<0.1	-	-	-
Arochlor 1221	mg/kg	0.1					<0.1	-	-	-
Arochlor 1232	mg/kg	0.1					<0.1	-	-	-
Arochlor 1242	mg/kg	0.1					<0.1	-	-	-
Arochlor 1248	mg/kg	0.1					<0.1	-	-	-
Arochlor 1254	mg/kg	0.1					<0.1	-	-	-
Arochlor 1260	mg/kg	0.1					<0.1	-	-	-
PCBs (Sum of total)	mg/kg	0.1		1			<0.1	-	-	-

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

							Monitoring Zone	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
							Location Code	S261_HFDF_V_22	S261_HFDF_V_23	S261_HFDF_V_24	S261_HFDF_V_25
							Field ID	S261_HFDF_V_22	S261_HFDF_V_23	S261_HFDF_V_24	S261_HFDF_V_25
							Sample Date	8/11/2016	8/11/2016	8/11/2016	8/11/2016
							Lab report No.	523070	523070	523070	523070
							Sample Type	Normal	Normal	Normal	Normal
Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space					
Organochlorine Pesticides											
4,4-DDE	mg/kg	0.05						<0.05	-	<0.05	-
a-BHC	mg/kg	0.05						<0.05	-	<0.05	-
Aldrin	mg/kg	0.05						<0.05	-	<0.05	-
Aldrin + Dieldrin	mg/kg	0.05		10				-	-	-	-
b-BHC	mg/kg	0.05						<0.05	-	<0.05	-
chlordane	mg/kg	0.1		70				<0.1	-	<0.1	-
Chlordane (cis)	mg/kg	0.05						-	-	-	-
Chlordane (trans)	mg/kg	0.05						-	-	-	-
d-BHC	mg/kg	0.05						<0.05	-	<0.05	-
DDD	mg/kg	0.05						<0.05	-	<0.05	-
DDT	mg/kg	0.05	180					<0.05	-	<0.05	-
DDT+DDE+DDD	mg/kg	0.05		400				-	-	-	-
Dieldrin	mg/kg	0.05						<0.05	-	<0.05	-
Endosulfan	mg/kg	0.05		340				-	-	-	-
Endosulfan I	mg/kg	0.05						<0.05	-	<0.05	-
Endosulfan II	mg/kg	0.05						<0.05	-	<0.05	-
Endosulfan sulphate	mg/kg	0.05						<0.05	-	<0.05	-
Endrin	mg/kg	0.05		20				<0.05	-	<0.05	-
Endrin aldehyde	mg/kg	0.05						<0.05	-	<0.05	-
Endrin ketone	mg/kg	0.05						<0.05	-	<0.05	-
g-BHC (Lindane)	mg/kg	0.05						<0.05	-	<0.05	-
Heptachlor	mg/kg	0.05		10				<0.05	-	<0.05	-
Heptachlor epoxide	mg/kg	0.05						<0.05	-	<0.05	-
Methoxychlor	mg/kg	0.05		400				<0.05	-	<0.05	-
Toxaphene	mg/kg	1		30				<1	-	<1	-
Organophosphorous Pesticides											
Azinophos methyl	mg/kg	0.2						<0.2	-	<0.2	-
Bolstar (Sulprofos)	mg/kg	0.2						<0.2	-	<0.2	-
Bromophos-ethyl	mg/kg	0.05						-	-	-	-
Carbophenothion	mg/kg	0.05						-	-	-	-
Chlorfenvinphos	mg/kg	0.2						<0.2	-	<0.2	-
Chlorpyrifos	mg/kg	0.2		250				<0.2	-	<0.2	-
Chlorpyrifos-methyl	mg/kg	0.2						<0.2	-	<0.2	-
Demeton-S	mg/kg	0.2						<0.2	-	<0.2	-
Demeton-S-methyl	mg/kg	0.05						-	-	-	-
Diazinon	mg/kg	0.2						<0.2	-	<0.2	-
Dichlorvos	mg/kg	0.2						<0.2	-	<0.2	-
Dimethoate	mg/kg	0.2						<0.2	-	<0.2	-
Disulfoton	mg/kg	0.2						<0.2	-	<0.2	-
Ethion	mg/kg	0.2						<0.2	-	<0.2	-
Fenamiphos	mg/kg	0.05						-	-	-	-
Fenitrothion	mg/kg	0.2						<0.2	-	<0.2	-
Fenthion	mg/kg	0.2						<0.2	-	<0.2	-
Malathion	mg/kg	0.2						<0.2	-	<0.2	-
Merphos	mg/kg	0.2						<0.2	-	<0.2	-
Methyl parathion	mg/kg	0.2						<0.2	-	<0.2	-
Monocrotophos	mg/kg	2						<2	-	<2	-
Omethoate	mg/kg	2						<2	-	<2	-
Parathion	mg/kg	0.2						<0.2	-	<0.2	-
Phorate	mg/kg	0.2						<0.2	-	<0.2	-
Pirimiphos-methyl	mg/kg	0.2						<0.2	-	<0.2	-
Pirimphos-ethyl	mg/kg	0.05						-	-	-	-
Prothiofos	mg/kg	0.05						-	-	-	-
Pyrazophos	mg/kg	0.2						<0.2	-	<0.2	-
Ronnel	mg/kg	0.2						<0.2	-	<0.2	-
Terbufos	mg/kg	0.2						<0.2	-	<0.2	-
Tetrachlorvinphos	mg/kg	0.2						<0.2	-	<0.2	-

Data Table I : S261 ACMA compounds RWA D – concrete footings in Area C

							Monitoring Zone	S261 - Area C	S261 - Area C	S261 - Area C	S261 - Area C
							Location Code	S261_HFDF_V_22	S261_HFDF_V_23	S261_HFDF_V_24	S261_HFDF_V_25
							Field ID	S261_HFDF_V_22	S261_HFDF_V_23	S261_HFDF_V_24	S261_HFDF_V_25
							Sample Date	8/11/2016	8/11/2016	8/11/2016	8/11/2016
							Lab report No.	523070	523070	523070	523070
							Sample Type	Normal	Normal	Normal	Normal
Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space					
Chlorinated Hydrocarbons											
Hexachlorobenzene	mg/kg	0.05		10				<0.05	-	<0.05	-
Semivolatile Organics											
Tokuthion	mg/kg	0.2						<0.2	-	<0.2	-
Coumaphos	mg/kg	2						<2	-	<2	-
Demeton-O	mg/kg	0.2						<0.2	-	<0.2	-
EPN	mg/kg	0.2						<0.2	-	<0.2	-
Ethoprop	mg/kg	0.2						<0.2	-	<0.2	-
Fensulfothion	mg/kg	0.2						<0.2	-	<0.2	-
Mevinphos (Phosdrin)	mg/kg	0.2						<0.2	-	<0.2	-
Naled (Dibrom)	mg/kg	0.2						<0.2	-	<0.2	-
Trichloronate	mg/kg	0.2						<0.2	-	<0.2	-
Inorganics											
Moisture	%	1						-	-	-	-
Moisture Content (dried @ 103°C)	%	1						13	15	11	9.7
Asbestos											
FA- Comment	Comment							-	None	-	None
Approximate Sample Mass	g							-	404	-	571
Asbestos from ACM in Soil	%w/w							-	0	-	0
Asbestos from FA & AF in Soil	%w/w							-	0	-	0
Asbestos Sample Dimensions	Comment							-	-	-	-
AF - Comment	Comment							-	None	-	None
Organic Fibres - Comment	Comment							-	Detected	-	Detected
Respirable Fibres - Comment	Comment							-	None	-	None
Synthetic Fibres - Comment	Comment							-	None	-	None
Mass ACM	g							-	0	-	0
Mass AF	g							-	0	-	0
Mass Asbestos in AF	g							-	0	-	0
Mass Asbestos in FA & AF	g							-	0	-	0
Mass Asbestos in ACM	g							-	0	-	0
Mass Asbestos in FA	g							-	0	-	0
Mass FA	g							-	0	-	0

Data Table J : S261 General site area RWA F – bitumen access road

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space EILs (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space			
Monitoring Zone							S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road
Location Code							S261_BAR_V_018	S261_BAR_V_019	S261_BAR_V_020
Field ID							S261_BAR_V_018	S261_BAR_V_019	S261_BAR_V_020
Sample Date							20/10/2016	20/10/2016	20/10/2016
Lab report no.							520739	520739	520739
Sample Type							Normal	Normal	Normal
Metals									
Arsenic	mg/kg	2	100	300			16	16	27
Barium	mg/kg	10					17	<10	14
Beryllium	mg/kg	2		90			<2	<2	<2
Cadmium	mg/kg	0.4		90			<0.4	<0.4	<0.4
Chromium (III+VI)	mg/kg	5					99	67	180
Cobalt	mg/kg	5		300			<5	<5	<5
Copper	mg/kg	5	200	17000			6.2	<5	<5
Lead	mg/kg	5	1117	600			12	10	16
Manganese	mg/kg	5		19000			51	25	51
Mercury	mg/kg	0.1		80			<0.1	<0.1	<0.1
Nickel	mg/kg	5	190	1200			6.6	<5	7.9
Vanadium	mg/kg	10					170	170	310
Zinc	mg/kg	5	470	30000			17	11	<5
TRH - NEPM 2013 Fractions									
TRH >C6 - C10	mg/kg	20					<20	<20	<20
TRH >C10 - C16	mg/kg	50					<50	<50	<50
TRH >C16 - C34	mg/kg	100				300	<100	150	<100
TRH >C34 - C40	mg/kg	100				2800	<100	110	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	<50	<50	<50
TPH - NEPM 1999 Fractions									
TPH C6 - C9	mg/kg	20					<20	<20	<20
TPH C10 - C14	mg/kg	20					<20	<20	<20
TPH C15 - C28	mg/kg	50					<50	64	<50
TPH C29 - C36	mg/kg	50					<50	140	<50
TPH C10 - C36 (Sum of total)	mg/kg	50					<50	204	<50
BTEXN									
Naphthalene	mg/kg	0.5	170		3		<0.5	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	50	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1			160	85	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1			55	70	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1					<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2					<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3			40	105	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.2					-	-	-
PAHs									
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					-	-	0.6
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5					-	-	-
Acenaphthene	mg/kg	0.5					-	-	<0.5
Acenaphthylene	mg/kg	0.5					-	-	<0.5
Anthracene	mg/kg	0.5					-	-	<0.5
Benz(a)anthracene	mg/kg	0.5					-	-	<0.5
Benzo(a) pyrene	mg/kg	0.5				0.7	-	-	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					-	-	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					-	-	1.2
Benzo(a)pyrene TEQ (zero)	µg/kg	500					-	-	-
Benzo(g,h,i)perylene	mg/kg	0.5					-	-	<0.5
Benzo(k)fluoranthene	mg/kg	0.5					-	-	<0.5
Chrysene	mg/kg	0.5					-	-	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5					-	-	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5					-	-	<0.5
Fluoranthene	mg/kg	0.5					-	-	<0.5
Fluorene	mg/kg	0.5					-	-	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					-	-	<0.5
Phenanthrene	mg/kg	0.5					-	-	<0.5
Pyrene	mg/kg	0.5					-	-	<0.5
PAHs (Sum of total)	mg/kg	0.5		300			-	-	<0.5
Polychlorinated Biphenyls									
Arochlor 1016	mg/kg	0.1					-	-	<0.1
Arochlor 1221	mg/kg	0.1					-	-	<0.1
Arochlor 1232	mg/kg	0.1					-	-	<0.1
Arochlor 1242	mg/kg	0.1					-	-	<0.1
Arochlor 1248	mg/kg	0.1					-	-	<0.1
Arochlor 1254	mg/kg	0.1					-	-	<0.1
Arochlor 1260	mg/kg	0.1					-	-	<0.1
PCBs (Sum of total)	mg/kg	0.1		1			-	-	<0.1
Organochlorine Pesticides									
4,4-DDE	mg/kg	0.05					<0.05	-	<0.05
a-BHC	mg/kg	0.05					<0.05	-	<0.05
Aldrin	mg/kg	0.05					<0.05	-	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2			0	-	0
b-BHC	mg/kg	0.05					<0.05	-	<0.05
chlordane	mg/kg	0.1		70			<0.1	-	<0.1
Chlordane (cis)	mg/kg	0.05					-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-
d-BHC	mg/kg	0.05					<0.05	-	<0.05
DDD	mg/kg	0.05					<0.05	-	<0.05
DDT	mg/kg	0.05	180				<0.05	-	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-
Dieldrin	mg/kg	0.05					<0.05	-	<0.05
Endosulfan	mg/kg	0.05		340			-	-	-
Endosulfan I	mg/kg	0.05					<0.05	-	<0.05

Data Table J : S261 General site area RWA F – bitumen access road

						Monitoring Zone	S261 - Bitumen Access Road	S261 - Bitumen Access Road	S261 - Bitumen Access Road
						Location Code	S261_BAR_V_018	S261_BAR_V_019	S261_BAR_V_020
						Field ID	S261_BAR_V_018	S261_BAR_V_019	S261_BAR_V_020
						Sample Date	20/10/2016	20/10/2016	20/10/2016
						Lab report no.	520739	520739	520739
						Sample Type	Normal	Normal	Normal
Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space EILs (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space			
Endosulfan II	mg/kg	0.05					<0.05	-	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	-	<0.05
Endrin	mg/kg	0.05		20			<0.05	-	<0.05
Endrin aldehyde	mg/kg	0.05					<0.05	-	<0.05
Endrin ketone	mg/kg	0.05					<0.05	-	<0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	-	<0.05
Heptachlor	mg/kg	0.05		10			<0.05	-	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	-	<0.05
Methoxychlor	mg/kg	0.05		400			<0.05	-	<0.05
Toxaphene	mg/kg	1		30			<1	-	<1
Organophosphorous Pesticides									
Azinophos methyl	mg/kg	0.2					<0.2	-	<0.2
Bolstar (Sulprofos)	mg/kg	0.2					<0.2	-	<0.2
Bromophos-ethyl	mg/kg	0.05					-	-	-
Carbophenothion	mg/kg	0.05					-	-	-
Chlorfenvinphos	mg/kg	0.2					<0.2	-	<0.2
Chlorpyrifos	mg/kg	0.2		250			<0.2	-	<0.2
Chlorpyrifos-methyl	mg/kg	0.2					<0.2	-	<0.2
Demeton-S	mg/kg	0.2					<0.2	-	<0.2
Demeton-S-methyl	mg/kg	0.05					-	-	-
Diazinon	mg/kg	0.2					<0.2	-	<0.2
Dichlorvos	mg/kg	0.2					<0.2	-	<0.2
Dimethoate	mg/kg	0.2					<0.2	-	<0.2
Disulfoton	mg/kg	0.2					<0.2	-	<0.2
Ethion	mg/kg	0.2					<0.2	-	<0.2
Fenamiphos	mg/kg	0.05					-	-	-
Fenitrothion	mg/kg	0.2					<0.2	-	<0.2
Fenthion	mg/kg	0.2					<0.2	-	<0.2
Malathion	mg/kg	0.2					<0.2	-	<0.2
Merphos	mg/kg	0.2					<0.2	-	<0.2
Methyl parathion	mg/kg	0.2					<0.2	-	<0.2
Monocrotophos	mg/kg	2					<2	-	<2
Omethoate	mg/kg	2					<2	-	<2
Parathion	mg/kg	0.2					<0.2	-	<0.2
Phorate	mg/kg	0.2					<0.2	-	<0.2
Pirimiphos-methyl	mg/kg	0.2					<0.2	-	<0.2
Pirimphos-ethyl	mg/kg	0.05					-	-	-
Prothiofos	mg/kg	0.05					-	-	-
Pyrazophos	mg/kg	0.2					<0.2	-	<0.2
Ronnel	mg/kg	0.2					<0.2	-	<0.2
Terbufos	mg/kg	0.2					<0.2	-	<0.2
Tetrachlorvinphos	mg/kg	0.2					<0.2	-	<0.2
Chlorinated Hydrocarbons									
Hexachlorobenzene	mg/kg	0.05		10			<0.05	-	<0.05
Semivolatile Organics									
Tokuthion	mg/kg	0.2					<0.2	-	<0.2
Coumaphos	mg/kg	2					<2	-	<2
Demeton-O	mg/kg	0.2					<0.2	-	<0.2
EPN	mg/kg	0.2					<0.2	-	<0.2
Ethoprop	mg/kg	0.2					<0.2	-	<0.2
Fensulfothion	mg/kg	0.2					<0.2	-	<0.2
Mevinphos (Phosdrin)	mg/kg	0.2					<0.2	-	<0.2
Naled (Dibrom)	mg/kg	0.2					<0.2	-	<0.2
Trichloronate	mg/kg	0.2					<0.2	-	<0.2
Inorganics									
Moisture	%	1					-	-	-
Moisture Content (dried @ 103°C)	%	1					5.7	5.3	4.7
Asbestos									
FA- Comment	Comment						None	None	-
Approximate Sample Mass	g						680	699	-
Asbestos from ACM in Soil	%w/w						0	0	-
Asbestos from FA & AF in Soil	%w/w						0	0	-
AF - Comment	Comment						None	None	-
Organic Fibres - Comment	Comment						Detected	Detected	-
Respirable Fibres - Comment	Comment						None	None	-
Synthetic Fibres - Comment	Comment						None	None	-
Mass ACM	g						0	0	-
Mass AF	g						0	0	-
Mass Asbestos in AF	g						0	0	-
Mass Asbestos in FA & AF	g						0	0	-
Mass Asbestos in ACM	g						0	0	-
Mass Asbestos in FA	g						0	0	-
Mass FA	g						0	0	-

Data Table K : S261 ACMA compounds RWA G – UST service lines

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space				
Monitoring Zone							S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code							S261_ACMA_V_UST_01	S261_ACMA_V_UST_02	S261_ACMA_V_UST_03	S261_ACMA_V_UST_04
Field ID							S261_ACMA_V_UST_01	S261_ACMA_V_UST_02	S261_ACMA_V_UST_03	S261_ACMA_V_UST_04
Sampled_Date_Time							15/07/2016	15/07/2016	15/07/2016	15/07/2016
Lab report No.							508414	508414	508414	508414
Sample Type							Normal	Normal	Normal	Normal
TRH - NEPM 2013 Fractions										
TRH >C6 - C10	mg/kg	20					<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50					1100	<50	1100	<50
TRH >C16 - C34	mg/kg	100				300	4200	170	3000	<100
TRH >C34 - C40	mg/kg	100				2800	<100	<100	<100	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	1100	<50	1100	<50
TPH - NEPM 1999 Fractions										
TPH C6 - C9	mg/kg	20					<20	<20	<20	<20
TPH C10 - C14	mg/kg	20					290	<20	340	<20
TPH C15 - C28	mg/kg	50					4900	200	3700	<50
TPH C29 - C36	mg/kg	50					55	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50					5245	200	4040	<50
BTEXN										
Naphthalene	mg/kg	0.5	170		3		<0.5	<0.5	<0.5	<0.5
Inorganics										
Moisture Content (dried @ 103°C)	%	1					16	14	10	13

Data Table L : S261 ACMA compounds RWA G – UST excavation pit

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for 0-1m	NEPM 2013 Table 1A(3) HSL A/B Sand for 1-2m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space	Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
								Location Code	S261_UST_V_001	S261_UST_V_001	S261_UST_V_001	S261_UST_V_002	S261_UST_V_003	S261_UST_V_004	S261_UST_V_005	S261_UST_V_006	S261_UST_V_007	S261_UST_V_008	S261_UST_V_009	S261_UST_V_010	S261_UST_V_011	S261_UST_V_012
								Field ID	S261_UST_V_001	S261_UST_V_QA01	S261_UST_V_QA02	S261_UST_V_002	S261_UST_V_003	S261_UST_V_004	S261_UST_V_005	S261_UST_V_006	S261_UST_V_007	S261_UST_V_008	S261_UST_V_009	S261_UST_V_010	S261_UST_V_011	S261_UST_V_012
								Sampple Date	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016
								Lab report No.	510888	510888	EM1609270	510888	510888	510888	510888	510888	510888	510888	510888	510888	510888	510888
								Sample Type	Normal	Field_D	Interlab_D	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Metals																					
Arsenic	mg/kg	2	100	300					5.9	7.6	<5	6.4	6.9	5.1	5.4	8.4	13	9	7	8	7.8	7.5
Barium	mg/kg	10							14	15	10	13	17	17	16	17	14	17	15	17	13	12
Beryllium	mg/kg	2		90					<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	mg/kg	0.4		90					<0.4	<0.4	<1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	1		300					-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	5							31	29	30	28	30	31	29	28	65	29	31	32	23	31
Cobalt	mg/kg	5		300					<5	<5	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Copper	mg/kg	5	200	17000					8.7	8.5	<5	8.2	8.1	9.3	8	6.2	40	7.7	7	6.5	5.2	6.9
Lead	mg/kg	5	1117	600					11	8.3	12	12	11	13	12	11	14	11	14	12	12	14
Manganese	mg/kg	5		19000					29	29	22	28	29	31	31	31	30	27	28	27	26	29
Mercury	mg/kg	0.1		80					<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	5							-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/kg	5	190	1200					7.7	7.7	4	6.7	7.5	7.8	7.2	6.9	<5	7	8.2	6.1	5.7	7.6
Selenium	mg/kg	2		700					-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/kg	0.2							-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	10							76	72	76	67	73	79	75	74	160	71	76	74	63	79
Zinc	mg/kg	5	470	30000					<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
TRH - NEPM 2013 Fractions																					
TRH >C6 - C10	mg/kg	20							<20	<20	<10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50							<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100					300		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100					2800		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50							-	-	<50	-	-	-	-	-	-	-	-	-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	70	180		<20	<20	<10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	240	120		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TPH - NEPM 1999 Fractions																					
TPH C6 - C9	mg/kg	20							<20	<20	<10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TPH C10 - C14	mg/kg	20							<20	22	<50	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TPH C15 - C28	mg/kg	50							<50	<50	<100	<50	<50	56	<50	<50	<50	<50	<50	<50	<50	<50
TPH C29 - C36	mg/kg	50							<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50							<50	<50	<50	<50	<50	56	<50	<50	<50	<50	<50	<50	<50	<50
BTEXN																					
Naphthalene	mg/kg	0.5	170		3	NL			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	0.5	50		<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1			160	220	85		<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1			55	NL	70		<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1							<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2							<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3			40	60	105		<0.3	<0.3	<0.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.2							-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-
PAHs																					
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5							0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5							-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a) pyrene	mg/kg	0.5					0.7		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5							1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Benzo(a)pyrene TEQ (zero)	µg/kg	500							-	-	<500	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PAHs (Sum of total)	mg/kg	0.5		300					<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Polychlorinated Biphenyls																					
Arochlor 1016	mg/kg	0.1							<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1							<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1							<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1							<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1							<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1							<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1							<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCBs (Sum of total)	mg/kg	0.1		1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Organochlorine Pesticides																					
4,4-DDE	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2					0	0	<0.05	0	0	0	0	0	0	0	0	0	0	0

Data Table L : S261 ACMA compounds RWA G – UST excavation pit

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for 0-1m	NEPM 2013 Table 1A(3) HSL A/B Sand for 1-2m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space	Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
								Location Code	S261_UST_V_001	S261_UST_V_001	S261_UST_V_001	S261_UST_V_002	S261_UST_V_003	S261_UST_V_004	S261_UST_V_005	S261_UST_V_006	S261_UST_V_007	S261_UST_V_008	S261_UST_V_009	S261_UST_V_010	S261_UST_V_011	S261_UST_V_012
								Field ID	S261_UST_V_001	S261_UST_V_QA01	S261_UST_V_QA02	S261_UST_V_002	S261_UST_V_003	S261_UST_V_004	S261_UST_V_005	S261_UST_V_006	S261_UST_V_007	S261_UST_V_008	S261_UST_V_009	S261_UST_V_010	S261_UST_V_011	S261_UST_V_012
								Sampple Date	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016
								Lab report No.	510888	510888	EM1609270	510888	510888	510888	510888	510888	510888	510888	510888	510888	510888	510888
								Sample Type	Normal	Field_D	Interlab_D	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
b-BHC	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70					<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05							-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05							-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180						<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400					-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan	mg/kg	0.05		340					-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400					<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30					<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Organophosphorous Pesticides																						
Azinophos methyl	mg/kg	0.2							<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bolstar (Sulprofos)	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos-ethyl	mg/kg	0.05							-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-
Carbophenothion	mg/kg	0.05							-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	0.2							<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos	mg/kg	0.2		250					<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos-methyl	mg/kg	0.2							<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Demeton-S	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Demeton-S-methyl	mg/kg	0.05							-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-
Diazinon	mg/kg	0.2							<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dichlorvos	mg/kg	0.2							<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	mg/kg	0.2							<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Disulfoton	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	mg/kg	0.2							<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenamiphos	mg/kg	0.05							-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-
Fenitrothion	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenthion	mg/kg	0.2							<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2							<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Merphos	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methyl parathion	mg/kg	0.2							<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Monocrotophos	mg/kg	2							<2	<2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Omethoate	mg/kg	2							<2	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Parathion	mg/kg	0.2							<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phorate	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimiphos-methyl	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	mg/kg	0.05							-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-
Prothiofos	mg/kg	0.05							-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-
Pyrazophos	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Terbufos	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrachlorvinphos	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorinated Hydrocarbons																						
Hexachlorobenzene	mg/kg	0.05		10					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Semivolatile Organics																						
Tokuthion	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4-Dinitrotoluene	mg/kg	0.5							-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coumaphos	mg/kg	2							<2	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Demeton-O	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
EPN	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethoprop	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fensulfothion	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Mevinphos (Phosdrin)	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naled (Dibrom)	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	mg/kg	0.5							-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloronate	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Inorganics																						
Moisture Content (dried @ 103°C)	%	1							17	18	17.6	18	18	19	15	12	5.1	17	14	15	9.8	17

Data Table L : S261 ACMA compounds RWA G – UST excavation pit

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for 0-1m	NEPM 2013 Table 1A(3) HSL A/B Sand for 1-2m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space	Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
								Location Code	S261_UST_V_013	S261_UST_V_014	S261_UST_V_015	S261_UST_V_016	S261_UST_V_017	S261_UST_V_018	S261_UST_V_019	S261_UST_V_020	S261_UST_V_021	S261_UST_V_022	S261_UST_V_023	S261_UST_V_024	S261_UST_V_025	S261_UST_V_026
								Field ID	S261_UST_V_013	S261_UST_V_014	S261_UST_V_015	S261_UST_V_016	S261_UST_V_017	S261_UST_V_018	S261_UST_V_019	S261_UST_V_020	S261_UST_V_021	S261_UST_V_022	S261_UST_V_023	S261_UST_V_024	S261_UST_V_025	S261_UST_V_026
								Sample Date	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016
								Lab report No.	510888	510888	510888	510888	510888	510888	510888	510888	510888	510888	510888	510888	510888	510888
								Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Metals																					
Arsenic	mg/kg	2	100	300					7.1	5.4	7	5.5	7.4	6.3	6.3	8	7.7	29	8.2	20	6.9	7
Barium	mg/kg	10							24	38	17	14	17	34	16	38	28	23	30	23	17	17
Beryllium	mg/kg	2		90					<2	<2	<2	<2	<2	<2	<2	<2	<2	3.1	<2	2.7	<2	<2
Cadmium	mg/kg	0.4		90					<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	1		300					-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	5							36	30	27	27	27	29	27	35	29	160	28	120	33	35
Cobalt	mg/kg	5		300					<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Copper	mg/kg	5	200	17000					7.3	7.7	7.2	5.6	6.1	7.4	6	8	8.3	7.1	8	6.6	6.1	7.8
Lead	mg/kg	5	1117	600					11	12	11	14	10	11	11	10	11	16	12	17	14	13
Manganese	mg/kg	5		19000					31	34	27	27	26	49	28	73	32	92	46	54	30	30
Mercury	mg/kg	0.1		80					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	5							-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/kg	5	190	1200					8.6	9.5	6.8	6	6.8	10	7.2	10	10	5.6	11	6	6.3	8.8
Selenium	mg/kg	2		700					-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/kg	0.2							-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	10							66	59	69	70	68	59	71	71	61	260	62	230	74	78
Zinc	mg/kg	5	470	30000					<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
TRH - NEPM 2013 Fractions																					
TRH >C6 - C10	mg/kg	20							<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50							<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100					300		<100	<100	<100	<100	<100	<100	<100	<100	130	<100	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100					2800		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50							-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	70	180		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	240	120		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TPH - NEPM 1999 Fractions																					
TPH C6 - C9	mg/kg	20							<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TPH C10 - C14	mg/kg	20							<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TPH C15 - C28	mg/kg	50							<50	<50	<50	<50	<50	<50	<50	<50	100	<50	<50	<50	<50	<50
TPH C29 - C36	mg/kg	50							<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50							<50	<50	<50	<50	<50	<50	<50	<50	100	<50	<50	<50	<50	<50
BTEXN																					
Naphthalene	mg/kg	0.5	170		3	NL			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	0.5	50		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1			160	220	85		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1			55	NL	70		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2							<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3			40	60	105		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.2							-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAHs																					
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5							0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5							-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a) pyrene	mg/kg	0.5					0.7		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5							1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Benzo(a)pyrene TEQ (zero)	µg/kg	500							-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PAHs (Sum of total)	mg/kg	0.5		300					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Polychlorinated Biphenyls																					
Arochlor 1016	mg/kg	0.1							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCBs (Sum of total)	mg/kg	0.1		1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Organochlorine Pesticides																					
4,4-DDE	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2					0	0	0	0	0	0	0	0	0	0	0	0	0	0

Data Table L : S261 ACMA compounds RWA G – UST excavation pit

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for 0-1m	NEPM 2013 Table 1A(3) HSL A/B Sand for 1-2m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space	Monitoring Zone	Location Code	Field ID	Sampple Date	Lab report No.	Sample Type
								S261 - Area A	S261_UST_V_013	S261_UST_V_013	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_014	S261_UST_V_014	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_015	S261_UST_V_015	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_016	S261_UST_V_016	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_017	S261_UST_V_017	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_018	S261_UST_V_018	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_019	S261_UST_V_019	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_020	S261_UST_V_020	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_021	S261_UST_V_021	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_022	S261_UST_V_022	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_023	S261_UST_V_023	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_024	S261_UST_V_024	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_025	S261_UST_V_025	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_026	S261_UST_V_026	5/08/2016	510888	Normal
b-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan	mg/kg	0.05		340				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30				<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Organophosphorous Pesticides																										
Azinophos methyl	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bolstar (Sulprofos)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos-ethyl	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbophenothion	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos	mg/kg	0.2		250				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos-methyl	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Demeton-S	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Demeton-S-methyl	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diazinon	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dichlorvos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Disulfoton	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenamiphos	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fenitrothion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenthion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Merphos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methyl parathion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Monocrotophos	mg/kg	2						<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Omethoate	mg/kg	2						<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Parathion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phorate	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimiphos-methyl	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prothiofos	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrazophos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Terbufos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrachlorvinphos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorinated Hydrocarbons																										
Hexachlorobenzene	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Semivolatile Organics																										
Tokuthion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4-Dinitrotoluene	mg/kg	0.5						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coumaphos	mg/kg	2						<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Demeton-O	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
EPN	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethoprop	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fensulfothion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Mevinphos (Phosdrin)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naled (Dibrom)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	mg/kg	0.5						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloronate	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Inorganics																										
Moisture Content (dried @ 103°C)	%	1						9.7	11	19	16	17	9	16	12	14	7.4	11	13	13	15					

Data Table L : S261 ACMA compounds RWA G – UST excavation pit

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for 0-1m	NEPM 2013 Table 1A(3) HSL A/B Sand for 1-2m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space	Monitoring Zone	Location Code	Field ID	Sampple Date	Lab report No.	Sample Type
								S261 - Area A	S261_UST_V_027	S261_UST_V_027	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_028	S261_UST_V_028	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_029	S261_UST_V_029	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_030	S261_UST_V_030	5/08/2016	510888	Normal
								S261 - Area A	S261_UST_V_030	S261_UST_V_QA03	5/08/2016	510888	Field_D
								S261 - Area A	S261_UST_V_030	S261_UST_V_QA04	5/08/2016	EM1609270	Interlab_D
								S261 - Area A	S261_UST_V_031	S261_UST_V_031	5/08/2016	510886	Normal
								S261 - Area A	S261_UST_V_032	S261_UST_V_032	5/08/2016	510886	Normal
								S261 - Area A	S261_UST_V_033	S261_UST_V_033	5/08/2016	510886	Normal
								S261 - Area A	S261_UST_V_034	S261_UST_V_034	5/08/2016	510886	Normal
								S261 - Area A	S261_UST_V_035	S261_UST_V_035	10/08/2016	511737	Normal
								S261 - Area A	S261_UST_V_036	S261_UST_V_036	10/08/2016	511737	Normal
								S261 - Area A	S261_UST_V_037	S261_UST_V_037	10/08/2016	511737	Normal
Metals													
Arsenic	mg/kg	2	100	300				3.9	6.3	16	9.9	8.3	5	6.4	5.4	8.2	7.4	<2	4.8	<2
Barium	mg/kg	10						16	27	21	18	18	20	25	14	18	16	18	20	27
Beryllium	mg/kg	2		90				<2	<2	2.1	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2
Cadmium	mg/kg	0.4		90				<0.4	<0.4	<0.4	<0.4	<0.4	<1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.8
Chromium (hexavalent)	mg/kg	1		300				-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	5						28	28	71	37	28	31	25	24	29	26	39	27	27
Cobalt	mg/kg	5		300				<5	<5	<5	<5	<5	2	<5	<5	<5	<5	<5	<5	5.3
Copper	mg/kg	5	200	17000				6.5	6.9	6.4	6.9	6.7	<5	7.4	5.2	6.6	5.7	<5	5.1	6.7
Lead	mg/kg	5	1117	600				14	11	19	11	11	16	10	8.5	11	9.6	11	<5	<5
Manganese	mg/kg	5		19000				30	35	64	47	40	42	45	26	33	29	28	26	27
Mercury	mg/kg	0.1		80				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	5						-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/kg	5	190	1200				7.9	9.2	6.7	6.5	6.5	5	9.7	5.9	7.4	6.6	7.5	8.8	11
Selenium	mg/kg	2		700				-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/kg	0.2						-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	10						74	61	160	72	71	86	55	59	75	65	68	69	57
Zinc	mg/kg	5	470	30000				<5	<5	6.3	<5	<5	<5	<5	<5	<5	8.1	<5	<5	<5
TRH - NEPM 2013 Fractions																				
TRH >C6 - C10	mg/kg	20						<20	<20	<20	<20	<20	<10	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50						<50	<50	180	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100					300	<100	<100	770	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100					2800	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50						-	-	-	-	-	<50	-	-	-	-	-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	70	180	<20	<20	<20	<20	<20	<10	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	240	120	<50	<50	180	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TPH - NEPM 1999 Fractions																				
TPH C6 - C9	mg/kg	20						<20	<20	<20	<20	<20	<10	<20	<20	<20	<20	<20	<20	<20
TPH C10 - C14	mg/kg	20						<20	<20	33	<20	31	<50	<20	<20	<20	<20	<20	<20	<20
TPH C15 - C28	mg/kg	50						<50	<50	920	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50
TPH C29 - C36	mg/kg	50						<50	<50	<50	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50						<50	<50	953	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
BTEXN																				
Naphthalene	mg/kg	0.5	170		3	NL		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	0.5	50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1			160	220	85	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1			55	NL	70	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3			40	60	105	<0.3	<0.3	<0.3	<0.3	<0.3	<0.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.2						-	-	-	-	-	<0.2	-	-	-	-	-	-	-
PAHs																				
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5						0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5						-	-	-	-	-	<0.5	-	-	-	-	-	-	-
Acenaphthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a) pyrene	mg/kg	0.5					0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5						1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Benzo(a)pyrene TEQ (zero)	µg/kg	500						-	-	-	-	-	<500	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PAHs (Sum of total)	mg/kg	0.5		300				<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Polychlorinated Biphenyls																				
Arochlor 1016	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCBs (Sum of total)	mg/kg	0.1		1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Organochlorine Pesticides																				
4,4-DDE	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05						<0.05	<0.05	3.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2				0.15	0	3.37	0	0	<0.05	0	0	0.13	0	0	0	0

Data Table L : S261 ACMA compounds RWA G – UST excavation pit

Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for 0-1m	NEPM 2013 Table 1A(3) HSL A/B Sand for 1-2m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space													
Monitoring Zone								S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code								S261_UST_V_027	S261_UST_V_028	S261_UST_V_029	S261_UST_V_030	S261_UST_V_030	S261_UST_V_030	S261_UST_V_031	S261_UST_V_032	S261_UST_V_033	S261_UST_V_034	S261_UST_V_035	S261_UST_V_036	S261_UST_V_037
Field ID								S261_UST_V_027	S261_UST_V_028	S261_UST_V_029	S261_UST_V_030	S261_UST_V_QA03	S261_UST_V_QA04	S261_UST_V_031	S261_UST_V_032	S261_UST_V_033	S261_UST_V_034	S261_UST_V_035	S261_UST_V_036	S261_UST_V_037
Sampple Date								5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	5/08/2016	10/08/2016	10/08/2016	10/08/2016
Lab report No.								510888	510888	510888	510888	510888	EM1609270	510886	510886	510886	510886	511737	511737	511737
Sample Type								Normal	Normal	Normal	Normal	Field_D	Interlab_D	Normal	Normal	Normal	Normal	Normal	Normal	Normal
b-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70				<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05						-	-	-	-	-	<0.05	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05						-	-	-	-	-	<0.05	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180					<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400				-	-	-	-	-	<0.05	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05						0.15	<0.05	0.27	<0.05	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	<0.05	<0.05	<0.05
Endosulfan	mg/kg	0.05		340				-	-	-	-	-	<0.05	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400				<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30				<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1
Organophosphorous Pesticides																				
Azinophos methyl	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bolstar (Sulprofos)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos-ethyl	mg/kg	0.05						-	-	-	-	-	<0.05	-	-	-	-	-	-	-
Carbophenothion	mg/kg	0.05						-	-	-	-	-	<0.05	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos	mg/kg	0.2		250				<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos-methyl	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Demeton-S	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Demeton-S-methyl	mg/kg	0.05						-	-	-	-	-	<0.05	-	-	-	-	-	-	-
Diazinon	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dichlorvos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Disulfoton	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenamiphos	mg/kg	0.05						-	-	-	-	-	<0.05	-	-	-	-	-	-	-
Fenitrothion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenthion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Merphos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methyl parathion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Monocrotophos	mg/kg	2						<2	<2	<2	<2	<2	<0.2	<2	<2	<2	<2	<2	<2	<2
Omethoate	mg/kg	2						<2	<2	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<2
Parathion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phorate	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimiphos-methyl	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	mg/kg	0.05						-	-	-	-	-	<0.05	-	-	-	-	-	-	-
Prothiofos	mg/kg	0.05						-	-	-	-	-	<0.05	-	-	-	-	-	-	-
Pyrazophos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Terbufos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrachlorvinphos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorinated Hydrocarbons																				
Hexachlorobenzene	mg/kg	0.05		10				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Semivolatile Organics																				
Tokuthion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4-Dinitrotoluene	mg/kg	0.5						-	-	-	-	-	-	-	-	-	-	-	-	-
Coumaphos	mg/kg	2						<2	<2	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<2
Demeton-O	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
EPN	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethoprop	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fensulfothion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Mevinphos (Phosdrin)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naled (Dibrom)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	mg/kg	0.5						-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloronate	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Inorganics																				
Moisture Content (dried @ 103°C)	%	1						13	12	9.8	17	17	17.8	13	13	14	12	17	15	16

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Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)								
Monitoring Zone					S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code					S261_UST_SP01	S261_UST_SP01	S261_UST_SP01	S261_UST_SP02	S261_UST_SP02	S261_UST_SP02	S261_UST_SP03	S261_UST_SP03
Field ID					S261_UST_SP01-01	S261_UST_SP01-02	S261_UST_SP01-03	S261_UST_SP02-01	S261_UST_SP02-02	S261_UST_SP02-03	S261_UST_SP03-01	S261_UST_SP03-02
Sample Date					3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016
Lab report no.					510972	510972	510972	510972	510972	510972	510972	510972
Sample Type					Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Scheduled chemicals (NSW Waste 2008)	mg/kg			50	0	0	0	0	0.21	0.39	0	0
Metals												
Arsenic	mg/kg	2	100	500	10	16	16	10	7.3	8	14	12
Beryllium	mg/kg	2	20	100	<2	<2	2.2	<2	<2	<2	<2	<2
Cadmium	mg/kg	0.4	20	100	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	1	100	1900	<1	<1	<1	<1	<1	<1	<1	<1
Lead	mg/kg	5	100	1500	15	21	25	16	8.6	12	9.7	8.7
Mercury	mg/kg	0.1	4	50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	5	100	1000	<5	<5	<5	<5	<5	<5	<5	<5
Nickel	mg/kg	5	40	1050	5.3	<5	<5	5.1	5.3	5.6	<5	<5
Selenium	mg/kg	2	20	50	<2	<2	<2	<2	<2	<2	<2	<2
Silver	mg/kg	0.2	100	180	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TRH - NEPM 2013 Fractions												
TRH >C6 - C10	mg/kg	20			<20	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100			<100	<100	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100			<100	<100	<100	<100	<100	<100	<100	<100
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			<20	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50
TPH - NEPM 1999 Fractions												
TPH C6 - C9	mg/kg	20		650	<20	<20	<20	<20	<20	<20	<20	<20
TPH C10 - C14	mg/kg	20			<20	<20	<20	<20	<20	<20	<20	<20
TPH C15 - C28	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50
TPH C29 - C36	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50		10000	<50	<50	<50	<50	<50	<50	<50	<50
BTEXN												
Naphthalene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1	10	18	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	288	518	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	600	1080	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3	1000	1800	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
PAHs												
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5			0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Acenaphthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a) pyrene	mg/kg	0.5	0.8	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5			1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Benzo(g,h,i)perylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PAHs (Sum of total)	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)								
Monitoring Zone					S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code					S261_UST_SP01	S261_UST_SP01	S261_UST_SP01	S261_UST_SP02	S261_UST_SP02	S261_UST_SP02	S261_UST_SP03	S261_UST_SP03
Field ID					S261_UST_SP01-01	S261_UST_SP01-02	S261_UST_SP01-03	S261_UST_SP02-01	S261_UST_SP02-02	S261_UST_SP02-03	S261_UST_SP03-01	S261_UST_SP03-02
Sample Date					3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016
Lab report no.					510972	510972	510972	510972	510972	510972	510972	510972
Sample Type					Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Polychlorinated Biphenyls												
Arochlor 1016	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCBs (Sum of total)	mg/kg	0.1		2|50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Organochlorine Pesticides												
4,4-DDE	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	0.21	0.39	<0.05	<0.05
Aldrin + Dieldrin	mg/kg		2	2	0	0	0	0	0.21	0.39	0	0
b-BHC	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
d-BHC	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	<1
Organophosphorous Pesticides												
Azinophos methyl	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bolstar (Sulprofos)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorfenvinphos	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos	mg/kg	0.2	4	7.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos-methyl	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Demeton-S	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Diazinon	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dichlorvos	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Disulfoton	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenthion	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Merphos	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methyl parathion	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Monocrotophos	mg/kg	2			<2	<2	<2	<2	<2	<2	<2	<2
Omethoate	mg/kg	2			<2	<2	<2	<2	<2	<2	<2	<2
Parathion	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phorate	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimiphos-methyl	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pyrazophos	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Terbufos	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrachlorvinphos	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorinated Hydrocarbons												
1,2-dichlorobenzene	mg/kg	0.05	86	155	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-dichlorobenzene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-dichlorobenzene	mg/kg	0.05	150	270	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

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Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)								
Monitoring Zone					S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code					S261_UST_SP01	S261_UST_SP01	S261_UST_SP01	S261_UST_SP02	S261_UST_SP02	S261_UST_SP02	S261_UST_SP03	S261_UST_SP03
Field ID					S261_UST_SP01-01	S261_UST_SP01-02	S261_UST_SP01-03	S261_UST_SP02-01	S261_UST_SP02-02	S261_UST_SP02-03	S261_UST_SP03-01	S261_UST_SP03-02
Sample Date					3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016
Lab report no.					510972	510972	510972	510972	510972	510972	510972	510972
Sample Type					Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Chloroform	mg/kg	0.05	120	216	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloromethane	mg/kg	0.05	172	310	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Halogenated Phenols												
2,4,5-Trichlorophenol	mg/kg	1	8000	14400	<1	<1	<1	<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	mg/kg	1	40	72	<1	<1	<1	<1	<1	<1	<1	<1
2,4-dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-chlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-chloro-3-methylphenol	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	<1
tetrachlorophenols	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	<1
Phenols (Total Halogenated)	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	<1
Non-Halogenated Phenols												
2,4-dimethylphenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	5			<5	<5	<5	<5	<5	<5	<5	<5
2-Methylphenol	mg/kg	0.2	4000	7200	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2-Nitrophenol	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	<1
4,6-Dinitro-2-methylphenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20			<20	<20	<20	<20	<20	<20	<20	<20
4-nitrophenol	mg/kg	5			<5	<5	<5	<5	<5	<5	<5	<5
3/4-Methylphenol (m/p-cresol)	mg/kg	0.4			<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Dinoseb	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenol	mg/kg	0.5		518	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenols (Total Non Halogenated)	mg/kg	20			<20	<20	<20	<20	<20	<20	<20	<20
Phthalate Esters												
Bis(2-ethylhexyl) phthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Butyl benzyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diethylphthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-n-butyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-n-octyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Semivolatile Organics												
Tokuthion	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4-Dinitrotoluene	mg/kg	0.5	2.6	4.68	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Coumaphos	mg/kg	2			<2	<2	<2	<2	<2	<2	<2	<2
Demeton-O	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
EPN	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethoprop	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fensulfothion	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Mevinphos (Phosdrin)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naled (Dibrom)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	mg/kg	0.5	40	72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloronate	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Volatile Organics												
1,1,1,2-tetrachloroethane	mg/kg	0.05	200	360	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-trichloroethane	mg/kg	0.05	600	1080	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-tetrachloroethane	mg/kg	0.05	26	46.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-trichloroethane	mg/kg	0.05	24	43.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-dichloroethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-dichloroethene	mg/kg	0.05	14	25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,3-trichloropropane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,4-trimethylbenzene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-dibromoethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-dichloroethane	mg/kg	0.05	10	18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-dichloropropane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3,5-trimethylbenzene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-dichloropropane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	mg/kg	0.05	4000	7200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4-chlorotoluene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4-Methyl-2-pentanone	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

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Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)								
Monitoring Zone					S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code					S261_UST_SP01	S261_UST_SP01	S261_UST_SP01	S261_UST_SP02	S261_UST_SP02	S261_UST_SP02	S261_UST_SP03	S261_UST_SP03
Field ID					S261_UST_SP01-01	S261_UST_SP01-02	S261_UST_SP01-03	S261_UST_SP02-01	S261_UST_SP02-02	S261_UST_SP02-03	S261_UST_SP03-01	S261_UST_SP03-02
Sample Date					3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016
Lab report no.					510972	510972	510972	510972	510972	510972	510972	510972
Sample Type					Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Acetone	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Allyl chloride	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromobenzene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromochloromethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromodichloromethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon disulfide	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon tetrachloride	mg/kg	0.05	10	18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	mg/kg	0.05	2000	3600	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorodibromomethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloromethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-dichloroethene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,3-dichloropropene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromomethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Iodomethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Isopropylbenzene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	mg/kg	0.05	60	108	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethene	mg/kg	0.05	10	18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethene	mg/kg	0.05	14	25.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,2-dichloroethene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,3-dichloropropene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	mg/kg	0.05	4	7.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics												
Cyanide (Free)	mg/kg	5			<5	<5	<5	<5	<5	<5	<5	<5
Cyanide Total	mg/kg	5	320	5900	<5	<5	<5	<5	<5	<5	<5	<5
Fluoride	mg/kg	100	3000	10000	140	<100	<100	<100	130	<100	<100	<100
Moisture Content (dried @ 103°C)	%	1			7.9	8.5	5.7	11	19	18	2.2	11
Herbicides												
2,4,5-Trichlorophenoxy Acetic Acid	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-TP (Silvex)	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hedonal	mg/kg	0.5	200	360	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorprop	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Actril (loxynil)	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dicamba	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methyl-4-chlorophenoxyacetic acid	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methyl-4-Chlorophenoxy Butanoic Acid	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Mecoprop	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Asbestos												
FA- Comment	Comment				1	1	1	1	1	1	1	1
Approximate Sample Mass	g				700	667	681	576	479	671	463	546
ACM - Comment	Comment				1	1	1	1	1	1	1	1
Asbestos from ACM in Soil	%w/w				0	0	0	0	0	0	0	0
Asbestos from FA & AF in Soil	%w/w				0	0	0	0	0	0	0	0
AF - Comment	Comment				1	1	1	1	1	1	1	1
Organic Fibres - Comment	Comment				1	1	1	1	1	1	1	1
Respirable Fibres - Comment	Comment				1	1	1	1	1	1	1	1
Synthetic Fibres - Comment	Comment				1	1	1	1	1	1	1	1
Mass ACM	g				0	0	0	0	0	0	0	0
Mass AF	g				0	0	0	0	0	0	0	0
Mass Asbestos in AF	g				0	0	0	0	0	0	0	0
Mass Asbestos in FA & AF	g				0	0	0	0	0	0	0	0
Mass Asbestos in ACM	g				0	0	0	0	0	0	0	0
Mass Asbestos in FA	g				0	0	0	0	0	0	0	0
Mass FA	g				0	0	0	0	0	0	0	0

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Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)							
Monitoring Zone					S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code					S261_UST_SP03	S261_UST_SP04	S261_UST_SP04	S261_UST_SP04	S261_UST_SP05	S261_UST_SP05	S261_UST_SP05
Field ID					S261_UST_SP03-03	S261_UST_SP04-01	S261_UST_SP04-02	S261_UST_SP04-03	S261_UST_SP05-01	S261_UST_SP05-02	S261_UST_SP05-03
Sample Date					3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016
Lab report no.					510972	510972	510972	510972	510972	510972	510972
Sample Type					Normal	Normal	Normal	Normal	Normal	Normal	Normal
Scheduled chemicals (NSW Waste 2008)	mg/kg			50	0	0	0	0	0	0	0
Metals											
Arsenic	mg/kg	2	100	500	11	11	6.9	6.2	4.3	7.8	7.4
Beryllium	mg/kg	2	20	100	<2	<2	<2	<2	<2	<2	<2
Cadmium	mg/kg	0.4	20	100	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	1	100	1900	<1	<1	<1	<1	<1	<1	<1
Lead	mg/kg	5	100	1500	9.9	15	9.6	12	14	13	13
Mercury	mg/kg	0.1	4	50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	5	100	1000	<5	<5	<5	<5	<5	<5	<5
Nickel	mg/kg	5	40	1050	<5	5.1	7.6	7.3	<5	6.1	5.5
Selenium	mg/kg	2	20	50	<2	<2	<2	<2	<2	<2	<2
Silver	mg/kg	0.2	100	180	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TRH - NEPM 2013 Fractions											
TRH >C6 - C10	mg/kg	20			<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50			<50	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100			<100	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100			<100	<100	<100	<100	<100	<100	<100
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50
TPH - NEPM 1999 Fractions											
TPH C6 - C9	mg/kg	20		650	<20	<20	<20	<20	<20	<20	<20
TPH C10 - C14	mg/kg	20			<20	<20	<20	<20	<20	<20	<20
TPH C15 - C28	mg/kg	50			<50	<50	<50	<50	<50	<50	<50
TPH C29 - C36	mg/kg	50			<50	<50	<50	<50	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50		10000	<50	<50	<50	<50	<50	<50	<50
BTEXN											
Naphthalene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1	10	18	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	288	518	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	600	1080	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3	1000	1800	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
PAHs											
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5			0.6	0.6	0.6	0.6	0.6	0.6	0.6
Acenaphthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a) pyrene	mg/kg	0.5	0.8	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5			1.2	1.2	1.2	1.2	1.2	1.2	1.2
Benzo(g,h,i)perylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PAHs (Sum of total)	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)	Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
					Location Code	S261_UST_SP03	S261_UST_SP04	S261_UST_SP04	S261_UST_SP04	S261_UST_SP05	S261_UST_SP05	S261_UST_SP05
					Field ID	S261_UST_SP03-03	S261_UST_SP04-01	S261_UST_SP04-02	S261_UST_SP04-03	S261_UST_SP05-01	S261_UST_SP05-02	S261_UST_SP05-03
					Sample Date	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016
					Lab report no.	510972	510972	510972	510972	510972	510972	510972
					Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Polychlorinated Biphenyls												
Arochlor 1016	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCBs (Sum of total)	mg/kg	0.1		2|50		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Organochlorine Pesticides												
4,4-DDE	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg		2	2		0	0	0	0	0	0	0
b-BHC	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
d-BHC	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1				<1	<1	<1	<1	<1	<1	<1
Organophosphorous Pesticides												
Azinophos methyl	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bolstar (Sulprofos)	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorfenvinphos	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos	mg/kg	0.2	4	7.5		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos-methyl	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Demeton-S	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Diazinon	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dichlorvos	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Disulfoton	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenthion	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Merphos	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methyl parathion	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Monocrotophos	mg/kg	2				<2	<2	<2	<2	<2	<2	<2
Omethoate	mg/kg	2				<2	<2	<2	<2	<2	<2	<2
Parathion	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phorate	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimiphos-methyl	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pyrazophos	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Terbufos	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrachlorvinphos	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorinated Hydrocarbons												
1,2-dichlorobenzene	mg/kg	0.05	86	155		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-dichlorobenzene	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-dichlorobenzene	mg/kg	0.05	150	270		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

					Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
					Location Code	S261_UST_SP03	S261_UST_SP04	S261_UST_SP04	S261_UST_SP04	S261_UST_SP05	S261_UST_SP05	S261_UST_SP05
					Field ID	S261_UST_SP03-03	S261_UST_SP04-01	S261_UST_SP04-02	S261_UST_SP04-03	S261_UST_SP05-01	S261_UST_SP05-02	S261_UST_SP05-03
					Sample Date	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016
					Lab report no.	510972	510972	510972	510972	510972	510972	510972
					Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)								
Chloroform	mg/kg	0.05	120	216	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Dichloromethane	mg/kg	0.05	172	310	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Hexachlorobenzene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Halogenated Phenols												
2,4,5-Trichlorophenol	mg/kg	1	8000	14400	<1	<1	<1	<1	<1	<1	<1	
2,4,6-Trichlorophenol	mg/kg	1	40	72	<1	<1	<1	<1	<1	<1	<1	
2,4-dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
2,6-dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
2-chlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
4-chloro-3-methylphenol	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	
Pentachlorophenol	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	
tetrachlorophenols	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	
Phenols (Total Halogenated)	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	
Non-Halogenated Phenols												
2,4-dimethylphenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
2,4-dinitrophenol	mg/kg	5			<5	<5	<5	<5	<5	<5	<5	
2-Methylphenol	mg/kg	0.2	4000	7200	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
2-Nitrophenol	mg/kg	1			<1	<1	<1	<1	<1	<1	<1	
4,6-Dinitro-2-methylphenol	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20			<20	<20	<20	<20	<20	<20	<20	
4-nitrophenol	mg/kg	5			<5	<5	<5	<5	<5	<5	<5	
3/4-Methylphenol (m/p-cresol)	mg/kg	0.4			<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	
Dinoseb	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Phenol	mg/kg	0.5		518	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Phenols (Total Non Halogenated)	mg/kg	20			<20	<20	<20	<20	<20	<20	<20	
Phthalate Esters												
Bis(2-ethylhexyl) phthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Butyl benzyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Diethylphthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Dimethyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Di-n-butyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Di-n-octyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Semivolatile Organics												
Tokuthion	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
2,4-Dinitrotoluene	mg/kg	0.5	2.6	4.68	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Coumaphos	mg/kg	2			<2	<2	<2	<2	<2	<2	<2	
Demeton-O	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
EPN	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Ethoprop	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Fensulfothion	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Mevinphos (Phosdrin)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Naled (Dibrom)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Nitrobenzene	mg/kg	0.5	40	72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Trichloronate	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Volatile Organics												
1,1,1,2-tetrachloroethane	mg/kg	0.05	200	360	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,1-trichloroethane	mg/kg	0.05	600	1080	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,2,2-tetrachloroethane	mg/kg	0.05	26	46.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,2-trichloroethane	mg/kg	0.05	24	43.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1-dichloroethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1-dichloroethene	mg/kg	0.05	14	25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,2,3-trichloropropane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,2,4-trimethylbenzene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,2-dibromoethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,2-dichloroethane	mg/kg	0.05	10	18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,2-dichloropropane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,3,5-trimethylbenzene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,3-dichloropropane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Methyl Ethyl Ketone	mg/kg	0.05	4000	7200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
4-chlorotoluene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
4-Methyl-2-pentanone	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	

Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

Monitoring Zone					S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code					S261_UST_SP03	S261_UST_SP04	S261_UST_SP04	S261_UST_SP04	S261_UST_SP05	S261_UST_SP05	S261_UST_SP05
Field ID					S261_UST_SP03-03	S261_UST_SP04-01	S261_UST_SP04-02	S261_UST_SP04-03	S261_UST_SP05-01	S261_UST_SP05-02	S261_UST_SP05-03
Sample Date					3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016	3/08/2016
Lab report no.					510972	510972	510972	510972	510972	510972	510972
Sample Type					Normal	Normal	Normal	Normal	Normal	Normal	Normal
Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)							
Acetone	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Allyl chloride	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromobenzene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromochloromethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromodichloromethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon disulfide	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon tetrachloride	mg/kg	0.05	10	18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	mg/kg	0.05	2000	3600	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorodibromomethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloromethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-dichloroethene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,3-dichloropropene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromomethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Iodomethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Isopropylbenzene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	mg/kg	0.05	60	108	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethene	mg/kg	0.05	10	18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethene	mg/kg	0.05	14	25.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,2-dichloroethene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,3-dichloropropene	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	mg/kg	0.05	4	7.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics											
Cyanide (Free)	mg/kg	5			<5	<5	<5	<5	<5	<5	<5
Cyanide Total	mg/kg	5	320	5900	<5	<5	<5	<5	<5	<5	<5
Fluoride	mg/kg	100	3000	10000	<100	<100	<100	<100	110	<100	110
Moisture Content (dried @ 103°C)	%	1			12	9.9	15	15	16	16	18
Herbicides											
2,4,5-Trichlorophenoxy Acetic Acid	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-TP (Silvex)	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hedonal	mg/kg	0.5	200	360	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorprop	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Actril (loxynil)	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dicamba	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methyl-4-chlorophenoxyacetic acid	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methyl-4-Chlorophenoxy Butanoic Acid	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Mecoprop	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Asbestos											
FA- Comment	Comment				1	1	1	1	1	1	1
Approximate Sample Mass	g				417	412	354	354	533	577	487
ACM - Comment	Comment				1	1	1	1	1	1	1
Asbestos from ACM in Soil	%w/w				0	0	0	0	0	0	0
Asbestos from FA & AF in Soil	%w/w				0	0	0	0	0	0	0
AF - Comment	Comment				1	1	1	1	1	1	1
Organic Fibres - Comment	Comment				1	1	1	1	1	1	1
Respirable Fibres - Comment	Comment				1	1	1	1	1	1	1
Synthetic Fibres - Comment	Comment				1	1	1	1	1	1	1
Mass ACM	g				0	0	0	0	0	0	0
Mass AF	g				0	0	0	0	0	0	0
Mass Asbestos in AF	g				0	0	0	0	0	0	0
Mass Asbestos in FA & AF	g				0	0	0	0	0	0	0
Mass Asbestos in ACM	g				0	0	0	0	0	0	0
Mass Asbestos in FA	g				0	0	0	0	0	0	0
Mass FA	g				0	0	0	0	0	0	0

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Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

				Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A
				Location Code	S261_UST_SP07	S261_UST_SP07	S261_UST_SP07
				Field ID	S261_UST_SP07-01	S261_UST_SP07-02	S261_UST_SP07-03
				Sample Date	3/08/2016	3/08/2016	3/08/2016
				Lab report no.	510972	510972	510972
				Sample Type	Normal	Normal	Normal
Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)			
Scheduled chemicals (NSW Waste 2008)	mg/kg			50	0	0	0
Metals							
Arsenic	mg/kg	2	100	500	5.8	9.5	9.2
Beryllium	mg/kg	2	20	100	<2	<2	<2
Cadmium	mg/kg	0.4	20	100	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	1	100	1900	<1	<1	<1
Lead	mg/kg	5	100	1500	13	18	15
Mercury	mg/kg	0.1	4	50	<0.1	<0.1	<0.1
Molybdenum	mg/kg	5	100	1000	<5	<5	<5
Nickel	mg/kg	5	40	1050	5.8	<5	5.3
Selenium	mg/kg	2	20	50	<2	<2	<2
Silver	mg/kg	0.2	100	180	<0.2	<0.2	<0.2
TRH - NEPM 2013 Fractions							
TRH >C6 - C10	mg/kg	20			<20	<20	<20
TRH >C10 - C16	mg/kg	50			<50	<50	<50
TRH >C16 - C34	mg/kg	100			<100	<100	<100
TRH >C34 - C40	mg/kg	100			<100	<100	<100
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			<50	<50	<50
TPH - NEPM 1999 Fractions							
TPH C6 - C9	mg/kg	20		650	<20	<20	<20
TPH C10 - C14	mg/kg	20			<20	<20	<20
TPH C15 - C28	mg/kg	50			<50	<50	<50
TPH C29 - C36	mg/kg	50			<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50		10000	<50	<50	<50
BTEXN							
Naphthalene	mg/kg	0.5			<0.5	<0.5	<0.5
Benzene	mg/kg	0.1	10	18	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	288	518	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	600	1080	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1			<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2			<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3	1000	1800	<0.3	<0.3	<0.3
PAHs							
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5			0.6	0.6	0.6
Acenaphthene	mg/kg	0.5			<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5			<0.5	<0.5	<0.5
Anthracene	mg/kg	0.5			<0.5	<0.5	<0.5
Benz(a)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5
Benzo(a) pyrene	mg/kg	0.5	0.8	10	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5			<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5			1.2	1.2	1.2
Benzo(g,h,i)perylene	mg/kg	0.5			<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5
Chrysene	mg/kg	0.5			<0.5	<0.5	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5
Fluorene	mg/kg	0.5			<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5			<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5			<0.5	<0.5	<0.5
Pyrene	mg/kg	0.5			<0.5	<0.5	<0.5
PAHs (Sum of total)	mg/kg	0.5			<0.5	<0.5	<0.5

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Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

				Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A
				Location Code	S261_UST_SP07	S261_UST_SP07	S261_UST_SP07
				Field ID	S261_UST_SP07-01	S261_UST_SP07-02	S261_UST_SP07-03
				Sample Date	3/08/2016	3/08/2016	3/08/2016
				Lab report no.	510972	510972	510972
				Sample Type	Normal	Normal	Normal
Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)			
Polychlorinated Biphenyls							
Arochlor 1016	mg/kg	0.1			<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1			<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1			<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1			<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1			<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1			<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1			<0.1	<0.1	<0.1
PCBs (Sum of total)	mg/kg	0.1		2|50	<0.1	<0.1	<0.1
Organochlorine Pesticides							
4,4-DDE	mg/kg	0.05			<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05			<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05			<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg		2	2	0	0	0
b-BHC	mg/kg	0.05			<0.05	<0.05	<0.05
chlordane	mg/kg	0.1			<0.1	<0.1	<0.1
d-BHC	mg/kg	0.05			<0.05	<0.05	<0.05
DDD	mg/kg	0.05			<0.05	<0.05	<0.05
DDT	mg/kg	0.05			<0.05	<0.05	<0.05
Dieldrin	mg/kg	0.05			<0.05	<0.05	<0.05
Endosulfan I	mg/kg	0.05			<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05			<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05			<0.05	<0.05	<0.05
Endrin	mg/kg	0.05			<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05			<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05			<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05			<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05			<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05			<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05			<0.05	<0.05	<0.05
Toxaphene	mg/kg	1			<1	<1	<1
Organophosphorous Pesticides							
Azinophos methyl	mg/kg	0.2			<0.2	<0.2	<0.2
Bolstar (Sulprofos)	mg/kg	0.2			<0.2	<0.2	<0.2
Chlorfenvinphos	mg/kg	0.2			<0.2	<0.2	<0.2
Chlorpyrifos	mg/kg	0.2	4	7.5	<0.2	<0.2	<0.2
Chlorpyrifos-methyl	mg/kg	0.2			<0.2	<0.2	<0.2
Demeton-S	mg/kg	0.2			<0.2	<0.2	<0.2
Diazinon	mg/kg	0.2			<0.2	<0.2	<0.2
Dichlorvos	mg/kg	0.2			<0.2	<0.2	<0.2
Dimethoate	mg/kg	0.2			<0.2	<0.2	<0.2
Disulfoton	mg/kg	0.2			<0.2	<0.2	<0.2
Ethion	mg/kg	0.2			<0.2	<0.2	<0.2
Fenitrothion	mg/kg	0.2			<0.2	<0.2	<0.2
Fenthion	mg/kg	0.2			<0.2	<0.2	<0.2
Malathion	mg/kg	0.2			<0.2	<0.2	<0.2
Merphos	mg/kg	0.2			<0.2	<0.2	<0.2
Methyl parathion	mg/kg	0.2			<0.2	<0.2	<0.2
Monocrotophos	mg/kg	2			<2	<2	<2
Omethoate	mg/kg	2			<2	<2	<2
Parathion	mg/kg	0.2			<0.2	<0.2	<0.2
Phorate	mg/kg	0.2			<0.2	<0.2	<0.2
Pirimiphos-methyl	mg/kg	0.2			<0.2	<0.2	<0.2
Pyrazophos	mg/kg	0.2			<0.2	<0.2	<0.2
Ronnel	mg/kg	0.2			<0.2	<0.2	<0.2
Terbufos	mg/kg	0.2			<0.2	<0.2	<0.2
Tetrachlorvinphos	mg/kg	0.2			<0.2	<0.2	<0.2
Chlorinated Hydrocarbons							
1,2-dichlorobenzene	mg/kg	0.05	86	155	<0.05	<0.05	<0.05
1,3-dichlorobenzene	mg/kg	0.05			<0.05	<0.05	<0.05
1,4-dichlorobenzene	mg/kg	0.05	150	270	<0.05	<0.05	<0.05

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Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

				Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A
				Location Code	S261_UST_SP07	S261_UST_SP07	S261_UST_SP07
				Field ID	S261_UST_SP07-01	S261_UST_SP07-02	S261_UST_SP07-03
				Sample Date	3/08/2016	3/08/2016	3/08/2016
				Lab report no.	510972	510972	510972
				Sample Type	Normal	Normal	Normal
Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)			
Chloroform	mg/kg	0.05	120	216	<0.05	<0.05	<0.05
Dichloromethane	mg/kg	0.05	172	310	<0.05	<0.05	<0.05
Hexachlorobenzene	mg/kg	0.05			<0.05	<0.05	<0.05
Halogenated Phenols							
2,4,5-Trichlorophenol	mg/kg	1	8000	14400	<1	<1	<1
2,4,6-Trichlorophenol	mg/kg	1	40	72	<1	<1	<1
2,4-dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5
2-chlorophenol	mg/kg	0.5			<0.5	<0.5	<0.5
4-chloro-3-methylphenol	mg/kg	1			<1	<1	<1
Pentachlorophenol	mg/kg	1			<1	<1	<1
tetrachlorophenols	mg/kg	1			<1	<1	<1
Phenols (Total Halogenated)	mg/kg	1			<1	<1	<1
Non-Halogenated Phenols							
2,4-dimethylphenol	mg/kg	0.5			<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	5			<5	<5	<5
2-Methylphenol	mg/kg	0.2	4000	7200	<0.2	<0.2	<0.2
2-Nitrophenol	mg/kg	1			<1	<1	<1
4,6-Dinitro-2-methylphenol	mg/kg	0.5			<0.5	<0.5	<0.5
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20			<20	<20	<20
4-nitrophenol	mg/kg	5			<5	<5	<5
3/4-Methylphenol (m/p-cresol)	mg/kg	0.4			<0.4	<0.4	<0.4
Dinoseb	mg/kg	0.5			<0.5	<0.5	<0.5
Phenol	mg/kg	0.5		518	<0.5	<0.5	<0.5
Phenols (Total Non Halogenated)	mg/kg	20			<20	<20	<20
Phthalate Esters							
Bis(2-ethylhexyl) phthalate	mg/kg	0.5			<0.5	<0.5	<0.5
Butyl benzyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5
Diethylphthalate	mg/kg	0.5			<0.5	<0.5	<0.5
Dimethyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5
Di-n-butyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5
Di-n-octyl phthalate	mg/kg	0.5			<0.5	<0.5	<0.5
Semivolatile Organics							
Tokuthion	mg/kg	0.2			<0.2	<0.2	<0.2
2,4-Dinitrotoluene	mg/kg	0.5	2.6	4.68	<0.5	<0.5	<0.5
Coumaphos	mg/kg	2			<2	<2	<2
Demeton-O	mg/kg	0.2			<0.2	<0.2	<0.2
EPN	mg/kg	0.2			<0.2	<0.2	<0.2
Ethoprop	mg/kg	0.2			<0.2	<0.2	<0.2
Fensulfothion	mg/kg	0.2			<0.2	<0.2	<0.2
Mevinphos (Phosdrin)	mg/kg	0.2			<0.2	<0.2	<0.2
Naled (Dibrom)	mg/kg	0.2			<0.2	<0.2	<0.2
Nitrobenzene	mg/kg	0.5	40	72	<0.5	<0.5	<0.5
Trichloronate	mg/kg	0.2			<0.2	<0.2	<0.2
Volatile Organics							
1,1,1,2-tetrachloroethane	mg/kg	0.05	200	360	<0.05	<0.05	<0.05
1,1,1-trichloroethane	mg/kg	0.05	600	1080	<0.05	<0.05	<0.05
1,1,2,2-tetrachloroethane	mg/kg	0.05	26	46.8	<0.05	<0.05	<0.05
1,1,2-trichloroethane	mg/kg	0.05	24	43.2	<0.05	<0.05	<0.05
1,1-dichloroethane	mg/kg	0.05			<0.05	<0.05	<0.05
1,1-dichloroethene	mg/kg	0.05	14	25	<0.05	<0.05	<0.05
1,2,3-trichloropropane	mg/kg	0.05			<0.05	<0.05	<0.05
1,2,4-trimethylbenzene	mg/kg	0.05			<0.05	<0.05	<0.05
1,2-dibromoethane	mg/kg	0.05			<0.05	<0.05	<0.05
1,2-dichloroethane	mg/kg	0.05	10	18	<0.05	<0.05	<0.05
1,2-dichloropropane	mg/kg	0.05			<0.05	<0.05	<0.05
1,3,5-trimethylbenzene	mg/kg	0.05			<0.05	<0.05	<0.05
1,3-dichloropropane	mg/kg	0.05			<0.05	<0.05	<0.05
Methyl Ethyl Ketone	mg/kg	0.05	4000	7200	<0.05	<0.05	<0.05
4-chlorotoluene	mg/kg	0.05			<0.05	<0.05	<0.05
4-Methyl-2-pentanone	mg/kg	0.05			<0.05	<0.05	<0.05

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Data Table M-1 : S261 ACMA compounds RWA G – stockpile classification for on-site disposal

				Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A
				Location Code	S261_UST_SP07	S261_UST_SP07	S261_UST_SP07
				Field ID	S261_UST_SP07-01	S261_UST_SP07-02	S261_UST_SP07-03
				Sample Date	3/08/2016	3/08/2016	3/08/2016
				Lab report no.	510972	510972	510972
				Sample Type	Normal	Normal	Normal
Chem name	Units	EQL	On-site disposal in containment cell NSW 2014 GSW (No Leaching)	On-site disposal in containment cell NSW 2014 GSW (with leached)			
Acetone	mg/kg	0.05			<0.05	<0.05	<0.05
Allyl chloride	mg/kg	0.05			<0.05	<0.05	<0.05
Bromobenzene	mg/kg	0.05			<0.05	<0.05	<0.05
Bromochloromethane	mg/kg	0.05			<0.05	<0.05	<0.05
Bromodichloromethane	mg/kg	0.05			<0.05	<0.05	<0.05
Bromoform	mg/kg	0.05			<0.05	<0.05	<0.05
Bromomethane	mg/kg	0.05			<0.05	<0.05	<0.05
Carbon disulfide	mg/kg	0.05			<0.05	<0.05	<0.05
Carbon tetrachloride	mg/kg	0.05	10	18	<0.05	<0.05	<0.05
Chlorobenzene	mg/kg	0.05	2000	3600	<0.05	<0.05	<0.05
Chlorodibromomethane	mg/kg	0.05			<0.05	<0.05	<0.05
Chloroethane	mg/kg	0.05			<0.05	<0.05	<0.05
Chloromethane	mg/kg	0.05			<0.05	<0.05	<0.05
cis-1,2-dichloroethene	mg/kg	0.05			<0.05	<0.05	<0.05
cis-1,3-dichloropropene	mg/kg	0.05			<0.05	<0.05	<0.05
Dibromomethane	mg/kg	0.05			<0.05	<0.05	<0.05
Dichlorodifluoromethane	mg/kg	0.05			<0.05	<0.05	<0.05
Iodomethane	mg/kg	0.05			<0.05	<0.05	<0.05
Isopropylbenzene	mg/kg	0.05			<0.05	<0.05	<0.05
Styrene	mg/kg	0.05	60	108	<0.05	<0.05	<0.05
Trichloroethene	mg/kg	0.05	10	18	<0.05	<0.05	<0.05
Tetrachloroethene	mg/kg	0.05	14	25.2	<0.05	<0.05	<0.05
trans-1,2-dichloroethene	mg/kg	0.05			<0.05	<0.05	<0.05
trans-1,3-dichloropropene	mg/kg	0.05			<0.05	<0.05	<0.05
Trichlorofluoromethane	mg/kg	0.05			<0.05	<0.05	<0.05
Vinyl chloride	mg/kg	0.05	4	7.2	<0.05	<0.05	<0.05
Inorganics							
Cyanide (Free)	mg/kg	5			<5	<5	<5
Cyanide Total	mg/kg	5	320	5900	<5	<5	<5
Fluoride	mg/kg	100	3000	10000	<100	<100	<100
Moisture Content (dried @ 103°C)	%	1			9.1	12	10
Herbicides							
2,4,5-Trichlorophenoxy Acetic Acid	mg/kg	0.5			<0.5	<0.5	<0.5
2,4,5-TP (Silvex)	mg/kg	0.5			<0.5	<0.5	<0.5
Hedonal	mg/kg	0.5	200	360	<0.5	<0.5	<0.5
2,4-Dichlorprop	mg/kg	0.5			<0.5	<0.5	<0.5
4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	mg/kg	0.5			<0.5	<0.5	<0.5
Actril (loxynil)	mg/kg	0.5			<0.5	<0.5	<0.5
Dicamba	mg/kg	0.5			<0.5	<0.5	<0.5
2-Methyl-4-chlorophenoxyacetic acid	mg/kg	0.5			<0.5	<0.5	<0.5
2-Methyl-4-Chlorophenoxy Butanoic Acid	mg/kg	0.5			<0.5	<0.5	<0.5
Mecoprop	mg/kg	0.5			<0.5	<0.5	<0.5
Asbestos							
FA- Comment	Comment				1	1	1
Approximate Sample Mass	g				81	59	78
ACM - Comment	Comment				1	1	1
Asbestos from ACM in Soil	%w/w				0	0	0
Asbestos from FA & AF in Soil	%w/w				0	0	0
AF - Comment	Comment				1	1	1
Organic Fibres - Comment	Comment				1	1	1
Respirable Fibres - Comment	Comment				1	1	1
Synthetic Fibres - Comment	Comment				1	1	1
Mass ACM	g				0	0	0
Mass AF	g				0	0	0
Mass Asbestos in AF	g				0	0	0
Mass Asbestos in FA & AF	g				0	0	0
Mass Asbestos in ACM	g				0	0	0
Mass Asbestos in FA	g				0	0	0
Mass FA	g				0	0	0

Data Table M-2 : S261 ACMA compounds RWA G – stockpile classification for off-site disposal

							Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
							Location Code	S261_ACMA_V_UST_SP01	S261_ACMA_V_UST_SP01	S261_ACMA_V_UST_SP01	S261_ACMA_V_UST_SP01	S261_ACMA_V_UST_SP01	S261_ACMA_V_UST_SP01	S261_UST_SP06	S261_UST_SP06	S261_UST_SP06	S261_UST_SP08	S261_UST_SP08	S261_UST_SP08
							Field ID	S261_ACMA_V_UST_SP01-1	S261_ACMA_V_UST_SP01-1	S261_ACMA_V_UST_SP01-2	S261_ACMA_V_UST_SP01-2	S261_ACMA_V_UST_SP01-3	S261_ACMA_V_UST_SP01-3	S261_UST_SP06-01	S261_UST_SP06-02	S261_UST_SP06-03	S261_UST_SP08_1	S261_UST_SP08_2	S261_UST_SP08_3
							Sample Date	15/07/2016	28/07/2016	15/07/2016	28/07/2016	15/07/2016	28/07/2016	3/08/2016	3/08/2016	3/08/2016	10/08/2016	10/08/2016	10/08/2016
							Lab report no.	509103	509969	509103	509969	509103	509969	510972	510972	510972	511737	511737	511737
							Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Chem name	Units	EQL	Off-site disposal NSW 2014 GSW (no leaching)	Off-site disposal NSW 2014 GSW (with leached)	Off-site disposal NSW 2014 RSW (No Leaching)	Off-site disposal NSW 2014 RSW (with leached)													
Scheduled chemicals (NSW Waste 2008)	mg/kg			50		50	0	0.22	0.34	0.27	0.72	3.86	7.3	0.31	0	18.6	3.8	2.7
Metals																		
Arsenic	mg/kg	2	100	500	400	2000	5.8	6.9	10	11	8	9.4	5.7	6.1	7.7	<2	<2	<2
Beryllium	mg/kg	2	20	100	80	400	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	mg/kg	0.4	20	100	80	400	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	1	100	1900	400	7600	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead	mg/kg	5	100	1500	400	6000	12	7.4	8.4	10	11	9.6	12	13	12	<5	<5	5.4
Mercury	mg/kg	0.1	4	50	16	200	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	5	100	1000	400	4000	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nickel	mg/kg	5	40	1050	160	4200	8	6.8	8.8	7	6.5	8.1	<5	5.8	5.6	8.7	7.6	8
Selenium	mg/kg	2	20	50	80	200	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Silver	mg/kg	0.2	100	180	400	720	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TRH - NEPM 2013 Fractions																		
TRH >C6 - C10	mg/kg	20					60	<20	26	<20	<20	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50					5300	330	2800	970	330	700	320	<50	<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100					10,000	1400	12,000	3500	1200	3000	1800	<100	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100					<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C6 - C10 less BTEX (F1)	mg/kg	20					59	<20	26	<20	<20	<20	<20	<20	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50					5300	330	2800	970	330	700	320	<50	<50	<50	<50	<50
TPH - NEPM 1999 Fractions																		
TPH C6 - C9	mg/kg	20	2600	650		2600	32	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TPH C10 - C14	mg/kg	20					2300	69	880	260	110	160	70	<20	<20	<20	<20	<20
TPH C15 - C28	mg/kg	50					13,000	1500	14,000	3900	1400	3300	1800	79	<50	<50	<50	<50
TPH C29 - C36	mg/kg	50					120	<50	190	60	<50	52	<50	<50	<50	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50	10000|40000	10000		40000	15,420	1569	15,070	4220	1510	3512	1870	79	<50	<50	<50	<50
BTEXN																		
Naphthalene	mg/kg	0.5					3.6 - 6.6	<0.5	0.9 - 6.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1	10	18	40	72	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	288	518	1152	2073	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	600	1080	2400	4320	0.3	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (o)	mg/kg	0.1					<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2					0.3	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Xylene Total	mg/kg	0.3	1000	1800	4000	7200	0.3	<0.3	<3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
PAHs																		
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5					0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Acenaphthene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a) pyrene	mg/kg	0.5	0.8	10	3.2	23	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5					1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Benzo(g,h,i)perylene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	mg/kg	0.5					<5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5					8.9	0.6	4.8	1.1	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	mg/kg	0.5					0.9	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PAHs (Sum of total)	mg/kg	0.5					13.9	0.6	8.5	1.1	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Polychlorinated Biphenyls																		
Arochlor 1016	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1					<0.1	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCBs (Sum of total)	mg/kg	0.1		50		50	<0.1	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Organochlorine Pesticides																		
4,4-DDE	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05					<0.05	<0.05	0.08	<0.05	<0.05	<0.05	4.2	0.24	<0.05	17	2.7	2.5
Aldrin + Dieldrin	mg/kg		50	50	50	50	0	0.22	0.34	0.27	0.72	3.2	7.3	0.31	0	18.6	3.8	2.7
b-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	0.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
d-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	mg/kg	0.05					<0.05	0.22	0.26	0.27	0.72	3.2	3.1	0.07	<0.05	1.6	1.1	0.2
Endosulfan I	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Data Table M-2 : S261 ACMA compounds RWA G – stockpile classification for off-site disposal

Chem name	Units	EQL	Off-site disposal NSW 2014 GSW (no leaching)	Off-site disposal NSW 2014 GSW (with leached)	Off-site disposal NSW 2014 RSW (No Leaching)	Off-site disposal NSW 2014 RSW (with leached)	S261 - Area A S261_ACMA_V_UST_SP01 S261_ACMA_V_UST_SP01-1 15/07/2016 509103 Normal	S261 - Area A S261_ACMA_V_UST_SP01 S261_ACMA_V_UST_SP01-1 28/07/2016 509969 Normal	S261 - Area A S261_ACMA_V_UST_SP01 S261_ACMA_V_UST_SP01-2 15/07/2016 509103 Normal	S261 - Area A S261_ACMA_V_UST_SP01 S261_ACMA_V_UST_SP01-2 28/07/2016 509969 Normal	S261 - Area A S261_ACMA_V_UST_SP01 S261_ACMA_V_UST_SP01-3 15/07/2016 509103 Normal	S261 - Area A S261_ACMA_V_UST_SP01 S261_ACMA_V_UST_SP01-3 28/07/2016 509969 Normal	S261 - Area A S261_UST_SP06 S261_UST_SP06-01 3/08/2016 510972 Normal	S261 - Area A S261_UST_SP06 S261_UST_SP06-02 3/08/2016 510972 Normal	S261 - Area A S261_UST_SP06 S261_UST_SP06-03 3/08/2016 510972 Normal	S261 - Area A S261_UST_SP08 S261_UST_SP08_1 10/08/2016 511737 Normal	S261 - Area A S261_UST_SP08 S261_UST_SP08_2 10/08/2016 511737 Normal	S261 - Area A S261_UST_SP08 S261_UST_SP08_3 10/08/2016 511737 Normal
Toxaphene	mg/kg	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Organophosphorous Pesticides																			
Azinophos methyl	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bolstar (Sulprofos)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorfenvinphos	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos	mg/kg	0.2	4	7.5	16	30	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2
Chlorpyrifos-methyl	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Demeton-S	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Diazinon	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dichlorvos	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Disulfoton	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fenthion	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Merphos	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methyl parathion	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Monocrotophos	mg/kg	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Omethoate	mg/kg	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Parathion	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<2	
Phorate	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimiphos-methyl	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pyrazophos	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Terbufos	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrachlorvinphos	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorinated Hydrocarbons																			
1,2-dichlorobenzene	mg/kg	0.05	86	155	344	620	-	<0.05	-	0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,3-dichlorobenzene	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,4-dichlorobenzene	mg/kg	0.05	150	270	600	1080	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Chloroform	mg/kg	0.05	120	216	480	864	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Dichloromethane	mg/kg	0.05	172	310	688	1240	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Hexachlorobenzene	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Halogenated Phenols																			
2,4,5-Trichlorophenol	mg/kg	1	8000	14400	32000	57600	-	<1	-	<1	-	<1	<1	<1	<1	<1	<1	<1	
2,4,6-Trichlorophenol	mg/kg	1	40	72	160	288	-	<1	-	<1	-	<1	<1	<1	<1	<1	<1	<1	
2,4-dichlorophenol	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
2,6-dichlorophenol	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
2-chlorophenol	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
4-chloro-3-methylphenol	mg/kg	1					-	<1	-	<1	-	<1	<1	<1	<1	<1	<1	<1	
Pentachlorophenol	mg/kg	1					-	<1	-	<1	-	<1	<1	<1	<1	<1	<1	<1	
tetrachlorophenols	mg/kg	1					-	<1	-	<1	-	<1	<1	<1	<1	<1	<1	<1	
Phenols (Total Halogenated)	mg/kg	1					-	<1	-	<1	-	<1	<1	<1	<1	<1	<1	<1	
Non-Halogenated Phenols																			
2,4-dimethylphenol	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
2,4-dinitrophenol	mg/kg	5					-	<5	-	<5	-	<5	<5	<5	<5	<5	<5	<5	
2-Methylphenol	mg/kg	0.2	4000	7200	16000	28800	-	<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
2-Nitrophenol	mg/kg	1					-	<1	-	<1	-	<1	<1	<1	<1	<1	<1	<1	
4,6-Dinitro-2-methylphenol	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20					-	<20	-	<20	-	<20	<20	<20	<20	<20	<20	<20	
4-nitrophenol	mg/kg	5					-	<5	-	<5	-	<5	<5	<5	<5	<5	<5	<5	
3/4-Methylphenol (m/p-cresol)	mg/kg	0.4					-	<0.4	-	<0.4	-	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	
Dinoseb	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Phenol	mg/kg	0.5		518		2073	-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Phenols (Total Non Halogenated)	mg/kg	20					-	<20	-	<20	-	<20	<20	<20	<20	<20	<20	<20	
Phthalate Esters																			
Bis(2-ethylhexyl) phthalate	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Butyl benzyl phthalate	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Diethylphthalate	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Dimethyl phthalate	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Di-n-butyl phthalate	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Di-n-octyl phthalate	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Semivolatile Organics																			
Tokuthion	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
2,4-Dinitrotoluene	mg/kg	0.5	2.6	4.68	10.4	18.7	-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Coumaphos	mg/kg	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Demeton-O	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
EPN	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Ethoprop	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Fensulfothion	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Mevinphos (Phosdrin)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Naled (Dibrom)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Nitrobenzene	mg/kg	0.5	40	72	160	288	-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Trichloronate	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	

Data Table M-2 : S261 ACMA compounds RWA G – stockpile classification for off-site disposal

Chem name	Units	EQL	Off-site disposal NSW 2014 GSW (no leaching)	Off-site disposal NSW 2014 GSW (with leached)	Off-site disposal NSW 2014 RSW (No Leaching)	Off-site disposal NSW 2014 RSW (with leached)												
Monitoring Zone			S261 - Area A		S261 - Area A		S261 - Area A		S261 - Area A		S261 - Area A		S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
Location Code			S261_ACMA_V_UST_SP01		S261_ACMA_V_UST_SP01		S261_ACMA_V_UST_SP01		S261_ACMA_V_UST_SP01		S261_ACMA_V_UST_SP01		S261_UST_SP06	S261_UST_SP06	S261_UST_SP06	S261_UST_SP08	S261_UST_SP08	S261_UST_SP08
Field ID			S261_ACMA_V_UST_SP01-1		S261_ACMA_V_UST_SP01-1		S261_ACMA_V_UST_SP01-2		S261_ACMA_V_UST_SP01-2		S261_ACMA_V_UST_SP01-3		S261_UST_SP06-01	S261_UST_SP06-02	S261_UST_SP06-03	S261_UST_SP08_1	S261_UST_SP08_2	S261_UST_SP08_3
Sample Date			15/07/2016		28/07/2016		15/07/2016		28/07/2016		15/07/2016		28/07/2016	3/08/2016	3/08/2016	3/08/2016	10/08/2016	10/08/2016
Lab report no.			509103		509969		509103		509969		509103		509969	510972	510972	510972	511737	511737
Sample Type			Normal		Normal		Normal		Normal		Normal		Normal	Normal	Normal	Normal	Normal	Normal
Volatile Organics																		
1,1,1,2-tetrachloroethane	mg/kg	0.05	200	360	800	1440	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-trichloroethane	mg/kg	0.05	600	1080	2400	4320	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-tetrachloroethane	mg/kg	0.05	26	46.8	104	187.2	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-trichloroethane	mg/kg	0.05	24	43.2	96	172.8	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-dichloroethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-dichloroethene	mg/kg	0.05	14	25	56	100	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,3-trichloropropane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1
1,2,4-trimethylbenzene	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-dibromoethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-dichloroethane	mg/kg	0.05	10	18	40	72	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-dichloropropane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3,5-trimethylbenzene	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-dichloropropane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	mg/kg	0.05	4000	7200	16000	28800	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4-chlorotoluene	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4-Methyl-2-pentanone	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acetone	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Allyl chloride	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromobenzene	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromochloromethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromodichloromethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon disulfide	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon tetrachloride	mg/kg	0.05	10	18	40	72	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	mg/kg	0.05	2000	3600	8000	14400	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorodibromomethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloromethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-dichloroethene	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,3-dichloropropene	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromomethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Iodomethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Isopropylbenzene	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	mg/kg	0.05	60	108	240	432	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethene	mg/kg	0.05	10	18	40	72	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethene	mg/kg	0.05	14	25.2	56	100.8	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,2-dichloroethene	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,3-dichloropropene	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	mg/kg	0.05					-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	mg/kg	0.05	4	7.2	16	28.8	-	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics																		
Cyanide (Free)	mg/kg	5					-	<5	-	<5	-	<5	<5	<5	<5	<5	<5	<5
Cyanide Total	mg/kg	5	320	5900	1280	23600	-	<5	-	<5	-	<5	<5	<5	<5	<5	<5	<5
Fluoride	mg/kg	100	3000	10000	12000	40000	-	110	-	110	-	100	220	<100	<100	<100	<100	<100
Moisture Content (dried @ 103°C)	%	1					19 - 20	2.1	18 - 19	2.2	13 - 14	3.6	11	15	9.7	15	14	14
Herbicides																		
2,4,5-Trichlorophenoxy Acetic Acid	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-TP (Silvex)	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hedonal	mg/kg	0.5	200	360	800	1440	-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorprop	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Actril (Ioxynil)	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dicamba	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methyl-4-chlorophenoxyacetic acid	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methyl-4-Chlorophenoxy Butanoic Acid	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Mecoprop	mg/kg	0.5					-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Asbestos																		
FA- Comment	Comment						-	None	-	None	-	None	None	None	None	None	None	None
Approximate Sample Mass	g						-	1277	-	1235	-	1207	589	487	545	336	331	265
Asbestos from ACM in Soil	%w/w						-	0	-	0	-	0	0	0	0	0	0	0
Asbestos from FA & AF in Soil	%w/w						-	0	-	0	-	0	0	0	0	0	0	0
AF - Comment	Comment						-	None	-	None	-	None	None	None	None	None	None	None
Organic Fibres - Comment	Comment						-	Detected	-	Detected	-	Detected	Detected	Detected	Detected	Detected	Detected	Detected
Respirable Fibres - Comment	Comment						-	None	-	None	-	None	None	None	None	None	None	None
Synthetic Fibres - Comment	Comment						-	None	-	None	-	None	None	None	None	None	None	None
Mass ACM	g						-	0	-	0	-	0	0	0	0	0	0	0
Mass AF	g						-	0	-	0	-	0	0	0	0	0	0	0
Mass Asbestos in AF	g						-	0	-	0	-	0	0	0	0	0	0	0
Mass Asbestos in FA & AF	g						-	0	-	0	-	0	0	0	0	0	0	0
Mass Asbestos in ACM	g						-	0	-	0	-	0	0	0	0	0	0	0
Mass Asbestos in FA	g						-	0	-	0	-	0	0	0	0	0	0	0
Mass FA	g						-	0	-	0	-	0	0	0	0	0	0	0

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Department of Finance

Data Table N : S261 ACMA compounds RWA G – UST stockpile footprint

						Monitoring Zone	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A	S261 - Area A
						Location Code	S261_ACMA_SFP_0007	S261_ACMA_SFP_0008	S261_ACMA_SFP_0009	S261_ACMA_SFP_0010	S261_ACMA_SFP_0011	S261_ACMA_SFP_0012
						Field ID	S261_ACMA_SFP_0007	S261_ACMA_SFP_0008	S261_ACMA_SFP_0009	S261_ACMA_SFP_0010	S261_ACMA_SFP_0011	S261_ACMA_SFP_0012
						Sample Date	5/09/2016	5/09/2016	5/09/2016	5/09/2016	5/09/2016	5/09/2016
						Lab report No.	514449	514449	514449	514449	514449	514449
						Sample Type	Normal	Normal	Normal	Normal	Normal	Normal
Chem name	Units	EQL	Site Specific Urban Residential and Public Open Space (NEPM 2013)	NEPM 2013 Table 1A(1) HIL C Soil	NEPM 2013 Table 1A(3) HSL A/B Sand for Vapour Intrusion 0-1m	NEPM 2013 Table 1B(6) ESL, Coarse Soil, Urban Residential/Public Open Space						
TRH - NEPM 2013 Fractions												
TRH >C6 - C10	mg/kg	20					<20	<20	<20	<20	<20	<20
TRH >C10 - C16	mg/kg	50					<50	<50	<50	<50	<50	<50
TRH >C16 - C34	mg/kg	100				300	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	mg/kg	100				2800	<100	<100	<100	<100	<100	<100
TRH >C10 - C40 (Sum of total)	mg/kg	50					-	-	-	-	-	-
TRH >C6 - C10 less BTEX (F1)	mg/kg	20			45	180	<20	<20	<20	<20	<20	<20
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	50			110	120	<50	<50	<50	<50	<50	<50
TPH - NEPM 1999 Fractions												
TPH C6 - C9	mg/kg	20					<20	<20	<20	<20	<20	<20
TPH C10 - C14	mg/kg	20					<20	21	21	<20	<20	<20
TPH C15 - C28	mg/kg	50					<50	<50	<50	<50	<50	<50
TPH C29 - C36	mg/kg	50					<50	<50	<50	<50	<50	<50
TPH C10 - C36 (Sum of total)	mg/kg	50					<50	<50	<50	<50	<50	<50
BTEXN												
Naphthalene	mg/kg	0.5	170		3		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzene	mg/kg	0.1			0.5	50	-	-	-	-	-	-
Toluene	mg/kg	0.1			160	85	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.1			55	70	-	-	-	-	-	-
Xylene (o)	mg/kg	0.1					-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.2					-	-	-	-	-	-
Xylene Total	mg/kg	0.3			40	105	-	-	-	-	-	-
Total BTEX	mg/kg	0.2					-	-	-	-	-	-
Organochlorine Pesticides												
4,4-DDE	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05					0.76	0.19	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		2			0.97	0.27	0	0	0.09	0
b-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
chlordane	mg/kg	0.1		70			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (cis)	mg/kg	0.05					-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05					-	-	-	-	-	-
d-BHC	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT+DDE+DDD	mg/kg	0.05		400			-	-	-	-	-	-
Dieldrin	mg/kg	0.05					0.21	0.08	<0.05	<0.05	0.09	<0.05
Endosulfan	mg/kg	0.05		340			-	-	-	-	-	-
Endosulfan I	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		20			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		400			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	mg/kg	1		30			<1	<1	<1	<1	<1	<1
Chlorinated Hydrocarbons												
Hexachlorobenzene	mg/kg	0.05		10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Inorganics												
Moisture Content (dried @ 103°C)	%	1					5.2	5.4	8.2	6.9	4.8	5

TABLE Q - S261 ACMA COMPOUNDS - RWA C

Stockpile footprint validation sampling

			Site	Section 261	Section 261	Section 261
			Field ID	S261_ASB_SPF_001	S261_ASB_SPF_002	S261_ASB_SPF_003
			Location Code	S261_ASB_SPF_001	S261_ASB_SPF_002	S261_ASB_SPF_003
			Sampled Date	26/10/2016	26/10/2016	26/10/2016
			Lab Report Number	521348	521348	521348
			Sample Type	Normal	Normal	Normal
			NEPM 2013 Table 1A(1) HIL C Soil			
Chemical Name	Units	EQL				
Asbestos						
FA- Comment	Comment			Detected	None	Detected
Approximate Sample Mass	g			567	543	616
ACM - Comment	Comment			1	1	1
Asbestos from ACM in Soil	%w/w	0.01	0.02	ND	ND	ND
Asbestos from FA & AF in Soil	%w/w	0.01	0.001	ND	ND	ND
AF - Comment	Comment			None	None	None
Organic Fibres - Comment	Comment			Detected	Detected	Detected
Respirable Fibres - Comment	Comment			None	None	None
Synthetic Fibres - Comment	Comment			None	None	None

TABLE R - S261 ACMA COMPOUNDS - RWA G

UST Waste Water

Site ID	Section 261
Field ID	S261_UST_01
Location Code	S261_UST_01
Sample Date	5/07/2016

ChemName	output unit	EQL	
TRH - NEPM 2013 Fractions			
TRH >C6 - C10	µg/L	20	7500
TRH >C10 - C16	µg/L	50	280,000
TRH >C16 - C34	µg/L	100	530,000
TRH >C34 - C40	µg/L	100	2800
TRH >C6 - C10 less BTEX (F1)	µg/L	20	6700
TRH >C10 - C16 less Naphthalene (F2)	µg/L	50	280,000
TPH - NEPM 1999 Fractions			
TPH C6 - C9	µg/L	20	4400
TPH C10 - C14	µg/L	50	150,000
TPH C15 - C28	µg/L	100	650,000
TPH C29 - C36	µg/L	100	20,000
TPH C10 - C36 (Sum of total)	µg/L	100	820,000
BTEXN			
Naphthalene	µg/L	10	1100

Appendix E

Environmental Care Procedures

Appendix E Environmental Control Procedures

EXAMPLES OF UNEXPECTED FINDS



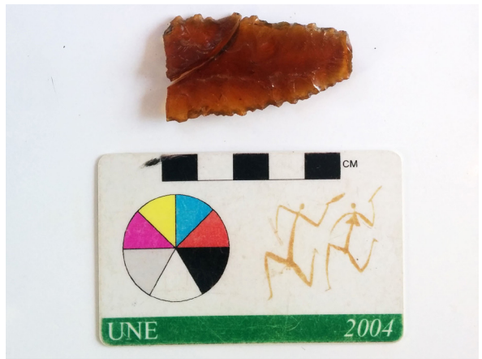
Bonded Asbestos Cement Sheeting (ACMs)



Dumped or fly-tipped waste materials



Contaminated soils or water



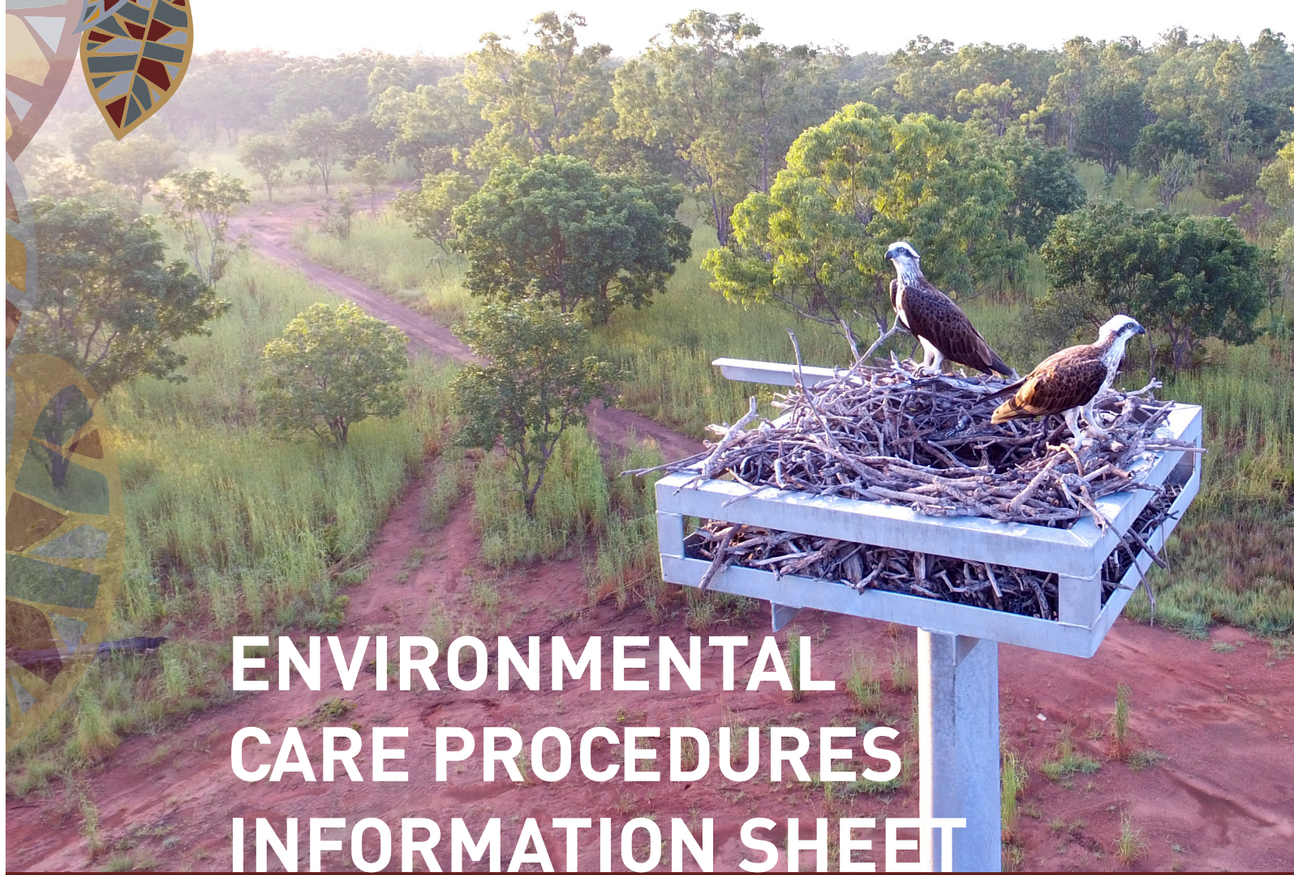
Potential heritage item

REFERENCES

Jacobs, 2017. Environmental Care Procedures – Section 261. Report prepared by Jacobs Group (Australia) Pty Ltd for Department of Finance. Document reference IW102400-0000-NP-RPT-0024 Revision 3 dated 14 September 2017.

Cox Peninsula
Remediation Project

Australian Government
Department of Finance



ENVIRONMENTAL CARE PROCEDURES INFORMATION SHEET

Section 261, Cox Peninsula, NT

OVERVIEW

The former Australian Communications and Media Authority compounds, also known as Section 261 is located on the eastern side of Cox Peninsula. The Section comprises 39 hectares of land south of Charles Point Road. The Section was subject to remediation works as part of the Cox Peninsula Remediation Project between 2013 and 2017.

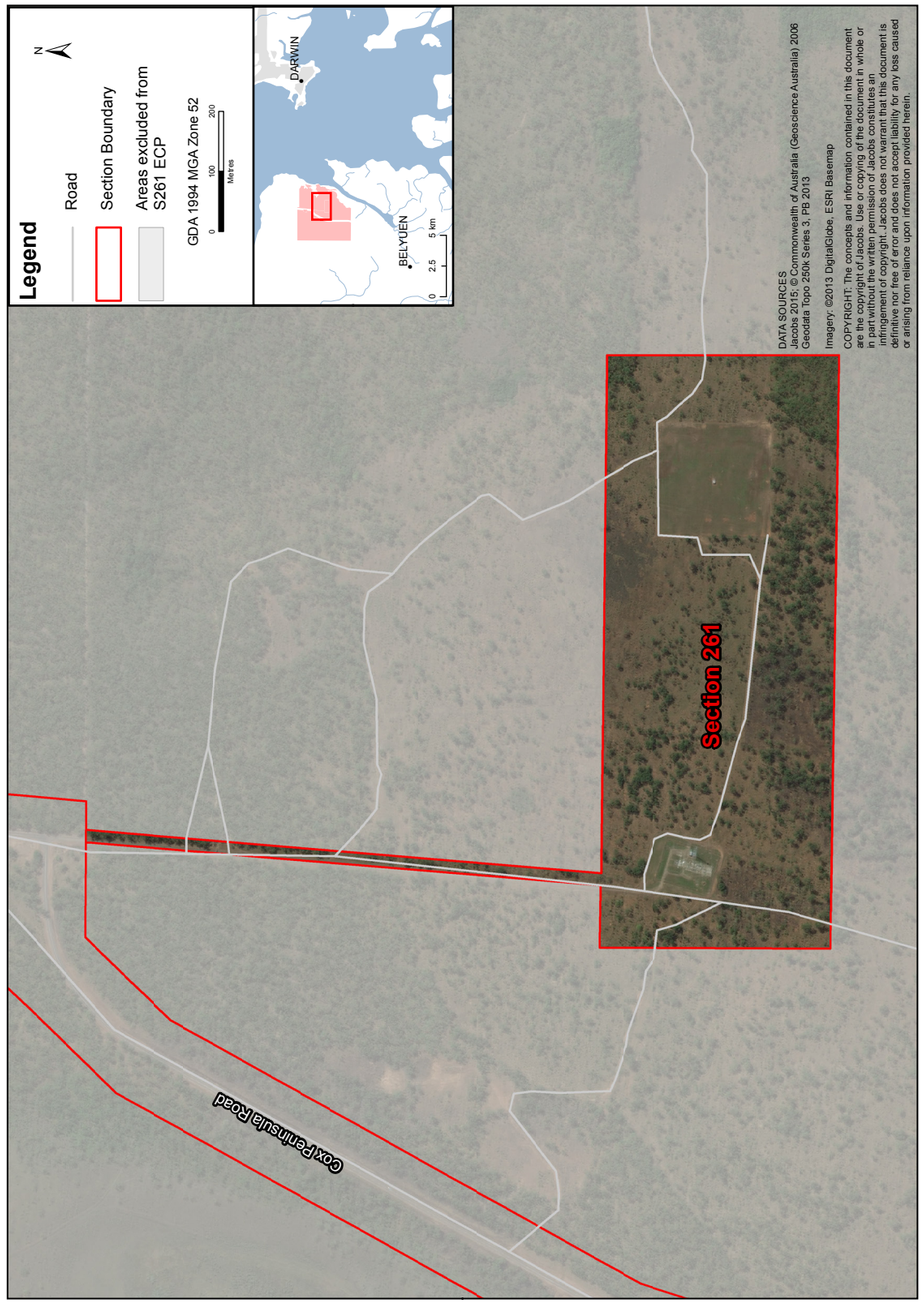
The Site requires ongoing management to ensure the protection of site users. This information sheet summarises the management requirements outlined in the Environmental Care Procedures (ECP) (Jacobs, 2017).

Cox Peninsula
Remediation Project

ENVIRONMENTAL CARE PROCEDURES INFORMATION SHEET

Australian Government
Department of Finance

SITE LOCATION



SITE MANAGEMENT

The following diagrams outline the management procedures to be implemented under the ECP. The key management requirements for the site relate to unexpected finds of waste material, including asbestos-containing materials (ACMs). Further information on these key issues is provided on the back page.

If the following actions/incidents occur:

- Identification of:
  - ACMs at ground surface
  - Fly-tipped waste
  - Unknown contamination
  - Unknown heritage item(s)

→ **STOP WORK** →

Notify:
- Site Owner
- Site Tenants

→

- Engagement specialist consultants:
- Update ECP *(if required)*

If site works are required, such as:

- Construction activities
- Excavation activities

→

- Review ECP
- Prepare work plan and safe work method statement(s) (SWMS)
- Engage specialist consultant(s) *(if required)*

→

- Undertake works in accordance with ECP, work plan and SWMS

UNEXPECTED FINDS

In the event that unexpected or previously unidentified items are found at the site and which may be hazardous or considered heritage items, site users should follow the 'What To Do' unexpected finds procedures. Potential unexpected finds at the site include:

- Asbestos containing materials (ACMs), such as bonded cement sheeting
- Dumped or fly-tipped waste materials
- Contamination, such as stained, discoloured and/or odorous soils or water
- Previously unidentified heritage items

WHAT TO DO

If site users encounter an Unexpected Find, they should:

1) Immediately stop work and activities in the area
2) Notify the site tenant and / or the site owner
3) Leave the site
4) The site tenant or owner will then engage the necessary specialist consultant(s) to investigate the unexpected find.

Cox Peninsula Remediation Project

Department of Finance

Environmental Care Procedures - Section 261

IW102400-000-NP-RPT-0024 | 3

14 September 2017

DEHP-ID-133



Cox Peninsula Remediation Project

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Author:	Ben Grasso
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Document history and status

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1	02/06/2017	Draft Issue for Site Auditor Review	BG	WR	WR
2	10/07/2017	Draft Issue for Client Review	BG	WR	WR
3	14/09/2017	Final Draft for Auditor Review	BG	WR	WR

Document distribution

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Appendix B. Detailed procedures

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Appendix F. Site history and environmental setting

Appendix G. Site conditions pre and post-remediation

Appendix H. Post remediation - exposure route assessment

1. Introduction

1.1 Background

Jacobs Group (Australia) Pty Ltd (Jacobs) was appointed by the Department of Finance (Finance) to undertake works for the Cox Peninsula Remediation Project, including various stages of assessment, remediation and preparation of Environmental Care Procedures (ECP) where required. The work has been undertaken to support the future transfer of the Site and wider project area to the Northern Territory Government (NTG) and ultimately the Larrakia people for future use.

The wider project area comprises six separate sections, namely Section 265 and Section 266 (formerly referred to collectively as Section 34), Section 41 and Section 262, Section 263 and 264 (formerly referred to collectively as Section 32), as well as Section 261 (also part of the land formerly referred to as Section 32) and hereafter referred to as 'the Site'. Remediation works at the Site were completed in November 2016 and reported in the Validation Report (Jacobs, 2017c).

Previous investigations and assessments relating specifically to the Site are documented in the following:

- Supplementary Site Investigation – Section 261 (S261 SSI) (Jacobs, 2017b),
- Remediation Action Plan – Section 261 (S261 RAP) (Jacobs, 2017a); and
- Validation Report – Section 261 (Jacobs, 2017c).

Pertinent information from these reports has been included in this document for reference, including figures that identify the extent of the site (Figure 1).

1.2 Site information

1.2.1 Remediation works

Remediation was undertaken with the objective of rehabilitating the Site to be suitable for use as Public Open Space. This involved removal of contaminated soils, surface waste and surface and sub-surface infrastructure. Existing infrastructure (such as roads) that could support the nominated future site use of the Site were retained.

Remediation works were undertaken by Ventia Utility Services Pty Ltd (Ventia) in between April and November 2016 with Project Manager Contract Administrator (PMCA) responsibilities carried out by Jacobs. Jacobs also perform the role of site contamination assessment consultant. Details of site conditions prior to remediation along with remediation works undertaken are provided in Appendix G.

1.2.2 Site condition post-remediation

Based on the remediation undertaken and results of previous investigations (refer to the SSI for the Site for further details), chemical contaminants which were previously reported at concentrations above the adopted assessment criteria for Public Open Space land use were removed as part of the remediation project.

All visible asbestos containing material (ACM) was removed to the extent practicable from the ground surface and shallow soils as part of the remediation project. Due to the nature of the ACM contamination previously reported at the Site, there remains the low potential for fragments of bonded ACMs to remain in shallow subsurface soils in localised areas on the Site which may or may not become exposed over time due to weathering and erosion processes, particularly following heavy rainfall associated with the Northern Australian tropical climate (wet season).

Notwithstanding the remedial work undertaken and subsequent validation to demonstrate that the Site is suitable for the proposed Public Open Space land use as outlined below, this ECP has been developed as a precaution.

1.2.3 Site characterisation conclusions

Based on the qualitative assessments undertaken to date, Jacobs is satisfied that there is no evidence that ACM is buried at the Site. This is based on consideration of the post-remediation condition and history of the Site as well as previous investigations and remediation validation assessments performed by Jacobs and others. On this basis, the ECP focusses on precautionary control measures to manage bonded ACM fragments in the shallow subsurface soils.

1.3 Site identification

Details that relate to the Site are outlined in Table 1.1 below.

Table 1.1 : Summary of Site details

Details	Description
Site Name	Section 261 (Formerly known as part of Section 32)
Certificate of Title	Volume 763 Folio 203 (or part thereof) (Appendix A).
Locality Map	See locality map (Figure 1)
Coordinates of Site Boundary	See survey plan (Appendix A)
Site Area	39.4 hectares (ha)
Current Site Owner	Commonwealth of Australia (proposed future transfer to Larrakia people mid-late 2017 as part of land claim settlement)
Current Site Occupier	Commonwealth of Australia (proposed future transfer to Larrakia people mid-late 2017 as part of land claim settlement)
Land Use - Proposed	Public Open Space
Local Government Authority	NIL
Zoning	Commonwealth land (no local planning scheme controls)
Previous environmental investigation, remediation and validation reports	· Site History Investigation Report – Section 32 Cox Peninsula, NT (PB, 2011b) · Draft Remediation Action Plan (Version 1) – Portion of Section 32 Hundred of Bray, Cox Peninsula, NT (PB, 2011a) · Contamination, Remediation and Waste Management – Data Review, Risk Assessment and Remediation Options Appraisal – Cox Peninsula (Section 32, 34 & 41), NT (AEC Environmental, 2011) · Contamination, Remediation and Waste Management – Initial Business Case (First Stage) – Cox Peninsula, NT - Sections 32, 34 & 41 (RPL, 2012). · Supplementary Site Investigation – Section 261 (Jacobs, 2017b) · Remediation Action Plan – Section 261 (Jacobs, 2017a) · Validation Report – Section 261 (Jacobs, 2017c)

1.4 Objectives

The objective of the ECP is to provide a general framework to ensure the continued protection of Site users and the environment following the completion of remediation works performed between April and November 2016. This document in particular outlines required site care procedures and their implementation.

1.5 Purpose of this document

The procedures outlined in this document are mechanisms for ensuring environmental values are maintained. It should be noted that the ECP does not include measures for protection of Aboriginal heritage given the proposed future transfer of the Site to the Traditional Owners.

It should be noted that management triggers and actions contained in this document are intended only in situations where such instances (e.g. unexpected finds) or activities (e.g. construction / excavation work) are required at the Site.

It is noted that based on the remediation works recently performed there is a low potential for ACM fragments to remain at the Site. Despite the low potential for ACM to be present, it is for this reason that the ECP is required.

To meet the objectives, this document provides an outline of the remedial works undertaken to remove or mitigate risks associated with the identified contaminants, current site conditions and simple, practical and safe care procedures for the Site. This document includes:

- Summary of site history and environmental setting (Appendix F)
- Outline of remedial works undertaken (Appendix G)
- Summary of the Site characteristics (pre and post remediation)
- Assessment of exposure pathways – post remediation (Appendix H).
- Short to medium term management and work procedures; and
- Review points and change management procedures for the proposed Site management strategy.

1.6 Implementation of the ECP

The ECP should be implemented by the Site owner and must be considered by all parties/stakeholders planning to occupy and/or undertake work at the Site. Should any activity need to occur on the Site that is not currently covered in the ECP, then this document should be updated to include this activity. The revision of this document should be undertaken in consultation with a suitably qualified person.

A copy of this document should be provided to any future Site owners as part of the land transfer process. Any future owners and/or occupiers of the Site should be informed of the ECP. Any future Conditions of Sale placed on transfer of Site ownership must also make reference to the ECP.

Compliance with the ECP should be undertaken in accordance with the requirements of the NT EPA and/or any applicable Pollution Abatement Notice (PAN) that it may issue over the Site.

1.7 Management structure and responsibilities

The responsibilities of the parties under the ECP are summarised in Table 1.2. It is noted that the responsibilities outlined in the table relate to Site management only and do not replace regulatory requirements.

Table 1.2 : ECP implementation

Party	Responsibilities and Qualifications under the ECP
Site Owner	· Implementation of this ECP · Overall responsibility for ongoing management, monitoring and reporting requirements specified in the ECP · Maintain Site records related to the implementation of the ECP · Report and manage rectification of non-conformances of the ECP, including notification to regulatory authorities if required · Provide Site users and workers a copy of the ECP and training related to its implementation · Organise Site inspections and maintenance activities as specified in the ECP · Manage implementation of any recommendations made by the environmental, OHS or heritage consultants
Site Users or Workers (where applicable)	· Be aware of Site risks and obligations included in the ECP · Implementation of the ECP as relevant to their activity · Report incidents or unexpected finds encountered during works

Party	Responsibilities and Qualifications under the ECP
Environmental Consultant	· Provide advice as required relating to the ongoing condition of the Site · Undertake periodic reviews and updates of the ECP
Occupational Hygienist	· Supervise/undertake Site inspections periodically or as required as specified in the ECP · Issue of asbestos clearance certificates as required · Assist in periodic reviews and updates of the ECP · Hold an Asbestos Assessor license issued by NT WorkSafe or an interstate equivalent (in accordance with Northern Territory Work Health and Safety National Uniform Legislation Act 2014 (NT Government, 2014)) · Notification to NT WorkSafe prior to commencement of work and as appropriate during and after completion of any asbestos related works at the site.
Heritage Consultant	· Provide advice as required relating to the ongoing condition of the Site · Assist in periodic reviews and updates of the ECP

1.8 Relevant legislation and guidelines

The ECP has been developed in accordance with the following NT legislation and guidelines:

- Northern Territory Work Health and Safety National Uniform Legislation Act 2014 (NT Government, 2014)
- NSW EPA. (2014) Waste Classification Guidelines Part 1: Classifying Waste. Sydney (NSW EPA, 2014)
- NT Government Waste Management and Pollution Control (Administration) Regulations 2013
- NT Government Northern Territory Work Health and Safety (National Uniform Legislation) Act 2014 (2014)
- NT Government Waste Management and Pollution Control Act (2016)
- NT Government Contaminated Land Guideline (NT EPA, 2017); and
- WA DoH. (2009). Guidelines for the assessment, remediation and management of asbestos-contaminated sites in Western Australia (WA DoH, 2009).

2. Environmental Care Procedures

The following sections outline the general requirements of the ECP and any procedures that should be followed.

2.1 Communication

As outlined in Section 1.6, the Site owner should provide a copy of the ECP to construction or maintenance workers requiring access to soils or performing excavation works on the Site. This will make them aware of their obligations with regards to protecting themselves, other Site workers, recreational Site users and the environment.

In addition, the Site owner should also provide a copy of the ECP to Site users and occupiers.

2.2 Requirements

The Site owner, Site operator, construction or maintenance workers should be made aware of potential environmental risks and heritage values associated with use of the Site (noting that this ECP does not include measures for protection of Aboriginal heritage given the proposed future transfer of the Site to the Traditional Owners).

All personnel and contractors who intend to undertake excavation or intrusive ground works shall undergo training relating to the ECP. This includes works such as the erection of fencing or signage and other activities that would result in ground disturbance. The training register included in Appendix D should be completed in order to demonstrate compliance with the ECP.

Environmental and heritage training shall include (but is not limited to):

- A site induction;
- Emergency response procedures;
- Familiarisation with site controls; and/or
- Specific training relating to intrusive investigations which require excavation of soil on Site. Training should include, but not be limited to an induction onto the safe work method statement methodology/ job safety analysis (SWMS/JSA) approved for the intended works by a suitably qualified person.

Records of all training should be maintained and should include:

- Name of the individual receiving training;
- When the individual was trained;
- Name of trainer; and
- A general description of the training content.

2.3 Management procedures

The following procedures should be implemented as precautionary measures adopted to manage the potential presence of ACM at the Site, including:

- Preparation and implementation of appropriate management provisions and procedures for the unlikely possibility that ACM may be encountered on Site (further outlined in Table 2.1 and Section Appendix B); and
- Execution of all works in accordance with all Legal Enactments, Laws and Regulations governing such work, including (where specified) relevant Australian Standards.

2.4 Management triggers and actions

Table 2.1 outlines potential triggers, actions and the corresponding sections of this document that should be referenced for further information in relation to management requirements.

Table 2.1 : ECP triggers and actions

Trigger	Responsible Party / Actions			Timing	Report Section
	Site Owner / Authorised Representative	Site Users / Workers	Specialist Consultant (environment/ OHS/heritage)		
Ongoing monitoring in the unlikely event that ACM appears at the ground surface	· Implement monitoring program including engagement of Occupational Hygienist for asbestos clearance (as well as licenced asbestos removalists where necessary)	N/A	· Walkover across previously disturbed/ remediated areas (as per Figure 2) and issue of clearance certificate by Occupational Hygienist. · Environmental Consultant and Occupational Hygienist to reassess monitoring requirement periodically	· Beginning of 2017 dry season once vegetation dies back (to be conducted by Jacobs on behalf of the Commonwealth) · Subsequent monitoring timing requirements will be determined by the Occupational Hygienist post the 2017 walkover of disturbed areas (as per Figure 2)	Section 3.2
Identification of ACM at the ground surface	· Engage Occupational Hygienist for asbestos clearance (as well as licenced asbestos removalist where necessary) · Ensure health safety and environment (HSE) and other Site management controls are in place	· Stop works · Notify Site owner / authorised representative of identified issue and location	· Completion of walkover across area of interest. · Removal of identified asbestos by a licenced removalist · Issue of clearance certificate by Occupational Hygienist	· In the event that potential asbestos containing material is identified at the Site.	Section B.4.1
Identification of fly-tipped waste	· Engage contractor for removal of waste · Engage Environmental Consultant to assess potential impacts of waste on sub-surface soils · Engage Occupational Hygienist to assess potential ACM	· Stop works · Notify Site owner / authorised representative of identified issue and location	· Environmental Consultant to assess potential contamination and update the ECP as required · Occupational Hygienist to assess potential ACM and provide clearance certificate if required	· In the event that fly-tipped waste material is identified	Section B.4.1 Section B.4.2
Identification of previously unknown contamination	· Engage Environmental Consultant to assess potential contamination	· Stop works · Notify Site owner / authorised representative of identified issue and location	· Environmental Consultant to assess potential contamination and update the ECP as required	· If soils are observed to have abnormal odours or visual indicators of contamination	Section B.4.1 Section B.4.3
Site work involving	· Review work and safety plans	· Prepare work plan and safe work	· Approval of plans including work	· Prior to undertaking excavation or	Section B.4.1

Trigger	Responsible Party / Actions			Timing	Report Section
	Site Owner / Authorised Representative	Site Users / Workers	Specialist Consultant (environment/ OHS/heritage)		
excavation / construction	prepared by Site workers · Ensure work managed in accordance with the ECP · Provide training to contractors in accordance with the ECP · Engage Occupational Hygienist, Environmental Consultant and Heritage Consultant to review plans	method statements for tasks to be performed · Undertake training in accordance with the ECP	plan	construction work	Section B.4.2 Section B.4.3 Section B.6
Change in land owner	· Provide a copy of this document as part of settlement	N/A	N/A	· On transfer of land	Section 1.6
Change in land use	· Engage specialist consultants for advice and review of the ECP	N/A	· Review and update the ECP	· As required	Section 3.1

NOTE:

· N/A denotes a non-applicable component.

3. Monitoring and review

3.1 General

The ECP applies while the Site is maintained in its current condition and has been prepared using current knowledge of the potential contaminants of concern at the Site. It should be noted that the ECP is only relevant to the Site for its intended use as Public Open Space. Should the Site be developed for an alternative use, this document will no longer be relevant. If significant changes are made to human and ecological receptors surrounding the Site, the ECP will require review to assess their relevance.

3.2 Site monitoring

It is recommended that Site walkovers be conducted by an Occupational Hygienist to visually identify areas where ACM may have become exposed and present an unacceptable risk to Site users. The frequency of monitoring is proposed as follows:

- Initial Site walkover at the beginning of the 2017 dry season following vegetation die-back (around May 2017). This initial Site walkover will be conducted by Jacobs on behalf of the Commonwealth; and
- The need for (and frequency of) subsequent walkovers should be determined following the initial 2017 site walkover and will be based on the advice of the appointed Occupational Hygienist.

Where ACM is identified and further remedial measures are recommended, ACM should be removed from the Site by a suitable asbestos removal contractor under the supervision of the Occupational Hygienist. This should be undertaken by emu picking and/or mechanical excavation as deemed appropriate by the supervising Occupational Hygienist in accordance with WA Asbestos Guidelines (WA DoH, 2009) and Northern Territory Work Health and Safety National Uniform Legislation Act 2014 (NT Government, 2014) or as superseded. A clearance certificate should be issued by an Occupational Hygienist following each walkover event.

A summary of requirements is provided in Table 2.1. A checklist which should be completed during Site inspections is provided in Appendix A. A record of Site inspections as well as resulting remedial measures should be maintained by the Site owner.

3.3 Soil and groundwater

Soil and groundwater at the Site are not currently considered to require ongoing monitoring. The ECP applies while the Site is maintained in its current condition and has been prepared using current knowledge of the potential contaminants of concern at the Site. It should be noted that the ECP is only relevant to the Site for its intended use as Public Open Space. Should the Site be developed for an alternative use, this document will no longer be relevant. If significant changes are made to human and ecological receptors surrounding the Site, the ECP will require review to assess their relevance.

3.4 ECP review

The ECP should be reviewed on a two-yearly basis, or when there is a change in Site conditions or Site use. The review should be conducted by a suitably qualified environmental professional.

Updates to the ECP shall be documented in Appendix E.

3.5 Submission of documentation

Should the NTEPA require, the Site owner shall be responsible for the submission of all relevant reports pertaining to the ongoing management of the Site to NT EPA not more than two months after their completion. Relevant reports (required to be submitted to NT EPA in order to demonstrate compliance with the requirements of this ECP) include:

- Periodic Site monitoring inspection reports

- Asbestos clearance reports; and
- Updated Environment Care Procedures following periodic review.

4. References

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Figures

Figure 1 : Site Location Plan

Figure 2 : Remediated/ disturbed areas of Section 261

Cox Peninsula Remediation Project

Figure 1 - Site Location Plan
Cox Peninsula, NT

672,000 680,000 688,000 696,000 704,000

8,632,000 8,624,000 8,616,000 8,608,000

Section 41
Section 265
Section 266
Section 263
Section 264
Section 262
Section 262
Section 261

WAGAIT SHIRE COMMUNITY
BELYUEN
DARWIN

Stuart Highway
Peninsula Road
Cox
Corrawara Creek
Waterlilly Creek

Legend

- Section Boundary
- Major Road
- Minor Road
- Track
- Watercourse
- Waterbody
- Built Up Areas

N

GDA 1994 MGA Zone 52

0 4 8
kilometres

DATA SOURCES
Jacobs 2015; © Commonwealth of Australia (Geoscience Australia) 2006
Geodata Topo 250k Series 3

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Australian Government
Department of Finance

JACOBS

Project No: IW102400
PM: WR
DPE: JA

Cox Peninsula Remediation Project

Figure 2 : Remediated/disturbed areas of S261
Sub Area S262

689,000

690,000

8,621,000

8,620,000

Section 262

Section 262

Section 261

Legend

- Section Boundary
- Disturbed/remediated area
- Areas excluded from S261 ECP

N

GDA 1994 MGA Zone 52

0 100 200

Metres

DATA SOURCES
Jacobs 2015; © Commonwealth of Australia (Geoscience Australia) 2006
Geodata Topo 250k Series 3, PB 2013

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Australian Government
Department of Finance

JACOBS

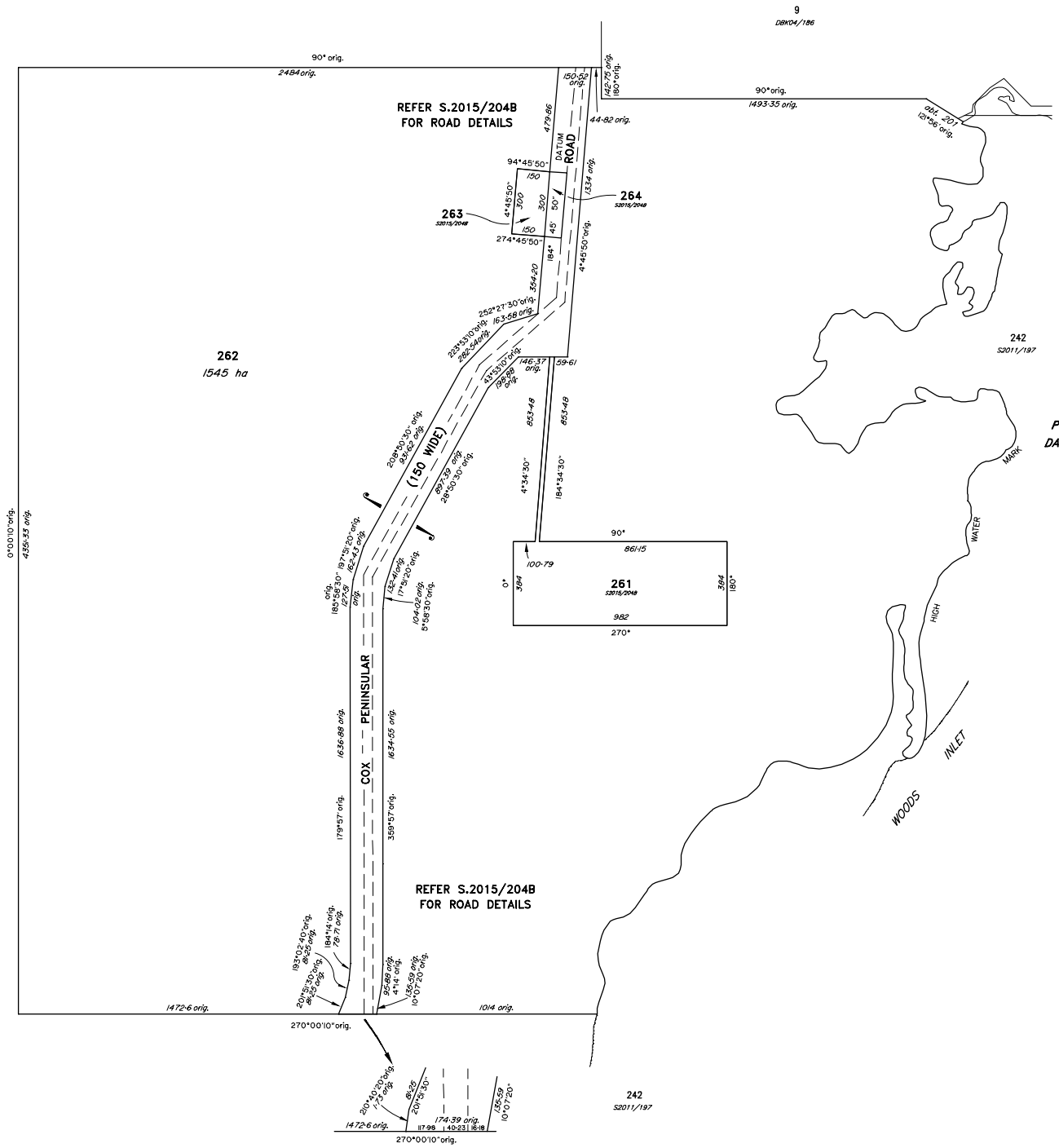
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DPE: JA

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Date Published: 27 Apr 2017

Appendix A. Site Survey Plan and Certificate of Title

SUPERSEDES OP1510



I, Alan William Thorpe hereby certify that the survey represented on this plan was carried out by me or under my supervision and was completed on 22 September 2015 and that this survey has been executed in accordance with the Licensed Surveyors Act and the Directions thereunder.

Licensed Surveyor — 24 September 2015 — Date

Northern Territory Government

SURVEY APPROVED

Surveyor-General — 26 October 2015 — Date

NOTE:

All dimensions longer than 100m are calculated.

GNSS measurements were used on this survey to determine boundaries longer than 100m.

This plan is Version 1.

Field Book	
Drawn	DTA 24.09.2015 – IW075600
Examined	Jacobs Group Aust. Pty Ltd (30.09.2015)
Map Reference	

True Mid ..... Bearings

AZIMUTH

Assumed from S2012/198

Observed at .....

LEGEND

Concrete Post .....
Concrete Block .....
Peg or Wooden Post. .o
Reference Mark .....
Lockspit .....
Fence Post .....

SECTIONS 261 TO 264

HUNDRED OF BRAY

SCALE 1:10000 at A1

200 0 200 400 600 metres

S.2015/204A

SHEET 1 OF 2

WARNING – Damaged or creased plan will be rejected.

Date Registered: 24/01/2012 **Volume** 763 **Folio** 203

Duplicate Certificate as to Title issued? No

SEARCH CERTIFICATE

Section 32 Hundred of Bray from plan(s) OP 001510
Area under title is 16 square kilometres 19 hectares

Owner:
Commonwealth of Australia
of Assistant Secretary, Property Branch, Property & Construction Division, Department of Finance and Deregulation, John Gorton Building, King Edward Terrace, Parkes ACT 2600

Registered Date	Dealing Number	Description
24/01/2012	764373	Application to register Statutory Vesting or Grant - Pursuant to section 70(4) of the Northern Territory (Self-Government) Act 1978(Cth)

End of Dealings

NORTHERN TERRITORY OF AUSTRALIA

Record of Administrative Interests and Information

Record of Administrative Interests and Information
The information contained in this record of Administrative Interests only relates to the below parcel reference.

Parcel Reference: Section 00032 Hundred of Bray plan(s) OP 001510

(See section 38 of the Land Title Act)

Note: The Record of Administrative Interests and Information is not part of the Land Register and is not guaranteed by the Northern Territory of Australia, and the NT Government accepts no Liability for any omission, misstatement or inaccuracy contained in this statement.

Registrar General

Government Land Register
(none found)

Custodian - Registrar General (+61 8 8999 6252)

Current Title
CUFT 763 203 (order 1)

Tenure Type
ESTATE IN FEE SIMPLE

Tenure Status
Current

Area Under Title
16 square kilometres 19 hectares

Owners
Commonwealth of Australia
Assistant Secretary, Property Branch, Property & Construction Division, Department of Finance and Deregulation, John Gorton Building, King Edward Terrace, Parkes ACT 2600

Easements
(none found)

Scheme Name
(none found)

Scheme Body Corporate Name
(none found)

Reserved Name(s)
(none found)

Unit Entitlements
(none found)

Transfers
(none found)

Tenure Comments
(none found)

Historic Titles
(none found)
Visit the website http://www.nt.gov.au/justice/bdm/land_title_office/

Custodian - Surveyor General (+61 8 8995 5362)

Address
7411 COX PENINSULA RD, COX PENINSULA

Survey Plan
OP 001510

Survey Status
Approved

Parcel Status
CURRENT

Parcel Area
16 square kilometres, 19 hectares

Map Reference
Code 200 Scale 10000 Sheet 07.06
Code 503 Scale 10000 Sheet 06.10
Code 503 Scale 10000 Sheet 07.10
Code 200 Scale 10000 Sheet 06.06

Parent Parcels
(none found)

Parcel Comments
PROCLAIMED UNDER SEC 103 CLO AS RES 1352 FOR RADIO AUST BOOSTER STN SITE CG60 17/6/1971, NTG25 23/6/1971. ACQ BY C OF A (NT SELF GOVT ACT 1978) FOR TELECOMMUNICATIONS PURPOSES CG 50 19/12/1978 P 10 ITEM 46. SUBJECT TO LAND CLAIM 131. SECTION 243(A) OVER PART - S2011/222. TO BE SUBDIVIDED INTO SECTION 247 AND PROPOSED ROAD OPENING - S2012/198. TO BE SUBDIVIDED INTO SECTIONS 260 TO 261 - S2015/204.

Survey Comments
EXAMINATION OF PLAN ON FILE S.96/162.

Proposed Easements
(none found)

Municipality
UN-INCORPORATED

Region
DARWIN

Custodian - Valuer General (+61 8 8943 9193)

Owner's Last Known Address
Commonwealth of Australia, ASSISTANT SECRETARY, PROPERTY BRANCH, PROPERTY & CONSTRUCTION DIVISION, DEPARTMENT OF FINANCE AND DEREGULATION, JOHN GORTON BUILDING, KING EDWARD TERRACE, PARKES ACT 2600

Parcels in Valuation
Section 00032 Hundred of Bray

Unimproved Capital Value
$100,000 on 01/07/1997
$50,000 on 01/07/1991
$40,000 on 01/05/1979

Valuation Improvements
(none found)

Custodian - Property Purchasing (+61 8 8999 6631)

Acquisitions
(none found)

Custodian - Building Advisory Service (+61 8 8999 8965)

Building Control Areas
BBDAR001 - Building Control Area DARWIN BUILDING AREA

Building Permits
(none found)

Visit the website http://www.nt.gov.au/lands/building/

Custodian - Town Planning and Development Assessment Services (+61 8 8999 8965)

Planning Scheme Zone
R (Rural)

Interim Development Control Orders
(none found)

Planning Notes
(none found)

Planning Applications

File Number
PA2011/0777

Type
Subdivision

Date Received
25/10/2011

Application Purpose
Subdivision for purpose of a lease in excess of 12 years

Application Status
Approved

Other Affected Parcels
(none found)

Instrument Signed
22/11/2011

Instrument Number
DP11/0825

Instrument Issued
Signed

Instrument Status
Current

Custodian - Power and Water Corporation (1800 245 092)

Meters on Parcel

Power Water - Electricity	(none found)
Power Water - Water	(none found)

For Account balances, contact the Power and Water Corporation.

Custodian - Pool Fencing Unit (+61 8 8924 3641)

Swimming Pool/Spa Status
(none found)

For more information, contact the Pool Fencing Unit (+61 8 8924 3641).

Custodian - Mines and Energy (+61 8 8999 5322)

For information on possible Exploration Licences, contact Mines & Energy or visit the website http://www.nt.gov.au/d/Minerals_Energy/

For information on possible Petroleum Titles, contact Mines & Energy for further details.

Custodian - NT Environment Protection Authority (+61 8 8924 4218)

Results of site contamination assessment
(none found)

For further information contact Environment Protection Agency or visit the website http://www.ntepa.nt.gov.au/waste-pollution/compliance/audits/contamination

Custodian - Heritage Branch (+61 8 8999 5039)

Heritage Listing:
(none found)

For further information on heritage places contact Heritage Branch or visit the website http://www.dlpe.nt.gov.au/heritage

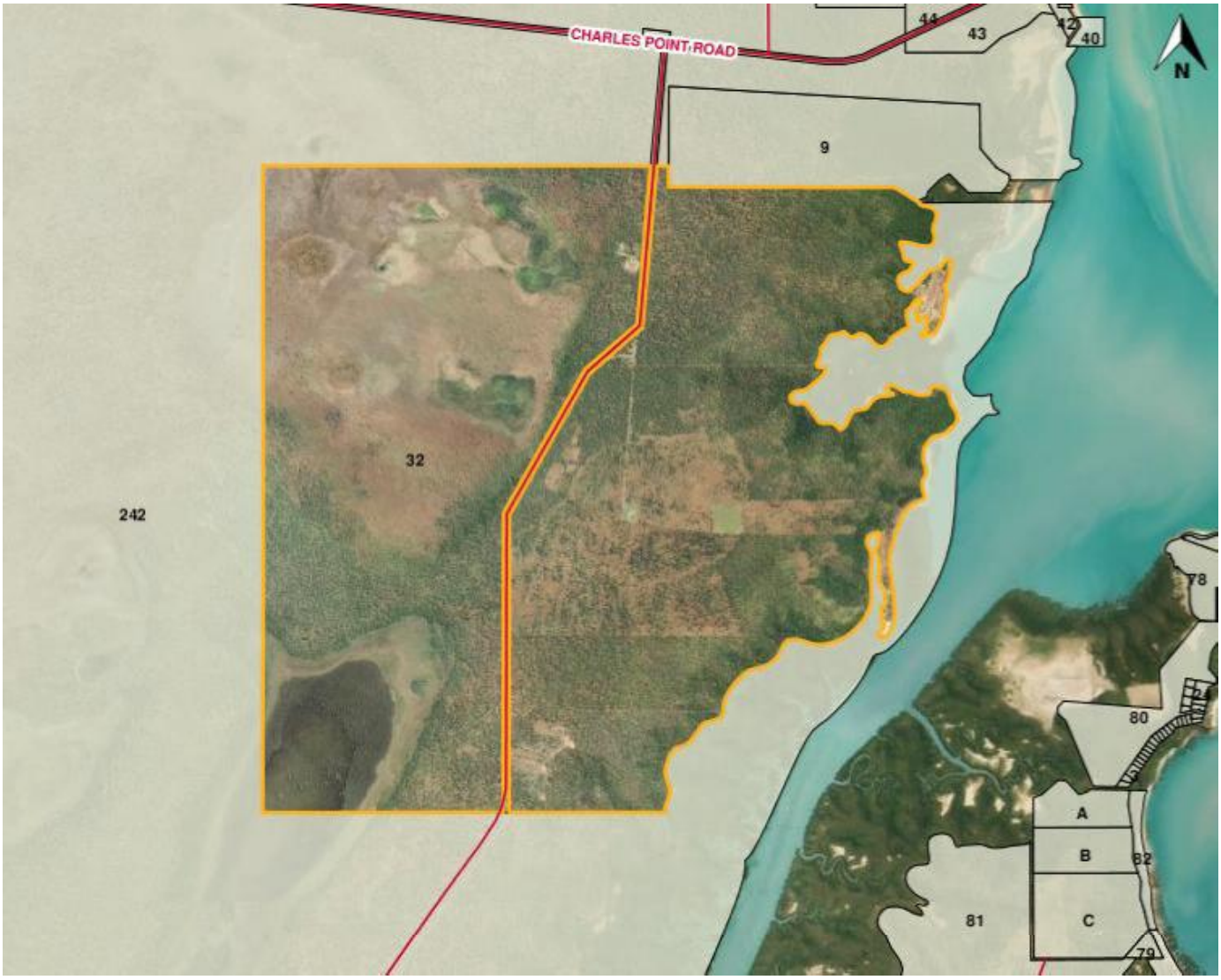
Other Interests

For Account balances, contact none

Aboriginal Land Claim. Contact Land Administration on 8999 6827.

Storm Surge: This lot is within a primary surge zone. For more information contact Lands Planning on 8999 8963.

Storm Surge: This lot is within a secondary surge zone. For more information contact Lands Planning on 8999 8963.



Appendix B. Detailed procedures

B.1 Objective

The objective of these procedures is to provide specific work instructions, including safety procedures, for works on Site. Where personnel or contractors are required to undertake works within previously disturbed areas that have now been remediated (refer Figure 2) all work plans are required to be reviewed and approved by an Occupational Hygienist or suitably qualified environmental professional prior to commencement of works. Where activities are to be undertaken elsewhere on site (out with previously disturbed areas on Site) review of work plans will be undertaken by the Site Owner / Authorised Representative with further review by an Occupational Hygienist or suitably qualified environmental professional at their discretion.

B.2 Health, safety and environmental risks

B.2.1 Control measures

HSE risks associated with works at the Site should be managed through the use of appropriate controls presented in Table B.1. The hierarchy of controls below are listed in order of preference (most desirable to least desirable).

More than one control method should generally be used to mitigate or remove risks.

Table B.1 : Risk control measures

Control	Description	Example
Elimination	Remove the hazard so the consequence is essentially zero. This is the most effective control measure and should always be considered first.	Removal and disposal of hazardous substances i.e. asbestos or ACM from works area
Substitution	Substitute a less hazardous material, process or equipment.	Substitution of plant equipment or hazardous activity
Isolation	Isolate the hazard from the receptor	Creation of exclusion zones and restricted work areas to isolate hazardous materials from workers and general Site users
Engineering	Implement design or procedural controls so as to reduce the likelihood or severity of potential risks	Modification of site processes and work activities to mitigate / minimise risk
Administration	Reduce exposure to hazards through procedures, instructions, training and competency.	Training of Site personnel in pertinent areas i.e. working with ACM / asbestos Review of procedures to identify areas of potential risk / improvement
Personal protective equipment	Personal protective equipment (PPE) provides a final line of defence should other controls prove ineffective, or in the event of an unanticipated hazard for which no controls are present. PPE should be used in conjunction with other control measures.	Includes: · Gloves; · Safety glasses; · Steel-toed boots; · Long shirt and pants; and · High-visibility safety vest.

B.2.2 Personal protective equipment

Appropriate Occupational Health and Safety (OH&S) measures are to be established by the maintenance workers/contractor for the personnel involved in intrusive earthworks at the Site. The levels of protection and

the procedures specified in this section are related to contamination issues only and do not represent an OH&S Plan for the Site.

It is the responsibility of the contractor carrying out the works on Site to develop a SWMS and JSA for works at the Site, including the relevant PPE to be worn by the Site workers. In the event that the works are to be undertaken in a previously disturbed/ remediated areas (refer to Figure 2), the SWMS/JSA should be approved by a suitably qualified professional. In all other cases the SWMS/JSA should be reviewed by the Site Owner or Authorised Representative. The typical minimal level of PPE required for intrusive earthworks includes:

- First-aid kit, with eye wash bottle and manual;
- Gloves;
- Safety glasses;
- Steel-toed boots;
- Hard hat;
- Long shirt and pants; and
- High-visibility safety vest.

If the Site Owner / Authorised Representative or Occupational Hygienist / Environmental Professional identifies a potential risk to operatives/users at the Site as a result of exposure to asbestos, further protective measures or mitigation procedures should be implemented under the instruction of the appointed professional. Such measures may include, but are not limited to:

- Use of respirators and disposable overalls for Site operatives;
- Introduction of exclusion zones;
- Continuous air monitoring of airborne fibres in the works area during excavations; and
- Dust suppression measures.

Protective measures required should be identified by the qualified Occupational Hygienist and documented by means of an Asbestos Management Plan (AMP) or equivalent that is specific to the proposed activities. The ultimate responsibility and authority for the health and safety of the individual rests with the individual themselves and their colleagues. Each employee is responsible for exercising utmost care and good judgment in protecting his or her own health and safety and that of fellow site workers.

B.3 Soil management

Following completion of any intrusive works performed in previously disturbed/ remediated areas (refer Figure 2) the work areas should be inspected in order to confirm that ACM has not inadvertently become exposed and that the condition of the area does not present an unacceptable risk to other site users / workers.

B.4 Unexpected finds

B.4.1 Potentially asbestos containing material

In the event that any unknown type of potential ACM (such as bonded cement sheeting) is encountered during works being carried out at the Site, the following steps should be undertaken site workers / users:

- Cease all works or activities in the area in which the suspect material is identified;
- Place plastic sheeting over exposed soils / material, if available (or otherwise cover);
- Leave the area;
- Notify the Site Owner / Appointed Representative;
- The Site Owner / Appointed Representative should contact an appropriately qualified Occupational Hygienist immediately;

- The Occupational Hygienist will assess the area of interest and provide guidance in relation to the extent of remediation of the area required as appropriate; and
- If clearance of the area is required, this will be undertaken by licenced asbestos removalists under the observation of the Occupational Hygienist. Such works should be undertaken in accordance with the provisions of an Asbestos Removal Control Plan (ARCP), including relevant notification to NT WorkSafe. Upon completion of any asbestos removal works, the Occupational Hygienist will issue a Clearance Certificate.

Should potential ACM be reported by general Site users, they should be advised to leave the area of the find and avoid disturbing the ground in the immediate vicinity. The location of the ACM should be recorded and reported to the Site Owner / Appointed Representative. The Site Owner / Appointed Representative should engage an Occupational Hygienist for further assessment and implementation of remedial measures if deemed necessary. ACM should be removed from the Site by a suitably licenced asbestos removalist under the supervision of the Occupational Hygienist and the provisions of an ARCP.

Asbestos removal should be undertaken by emu picking and/or mechanical excavation as deemed appropriate by the Occupational Hygienist in accordance with WA Asbestos Guidelines (WA DoH, 2009) and Northern Territory Work Health and Safety National Uniform Legislation Act 2014 (NT Government, 2014) or as superseded. A clearance certificate must be issued by an Occupational Hygienist each time potential ACM is identified and removed from the Site.

B.4.2 General waste material

In the event that general waste is identified at the Site, this waste should be disposed of offsite. The appointed environmental consultant or Site Owner / Authorised Representative should be contacted to assess any potential impacts of the waste on Site users and the environment. All relevant NT guidelines should be followed in undertaking such work and the NT EPA advised, if deemed necessary.

B.4.3 Potential contamination

In the event that Site workers identify potential contamination that has not previously been documented, for example odorous or stained soil or water, the following steps should be undertaken:

- Cease work and activities in the area;
- Contact an environmental consultant or otherwise suitably qualified person to assess the potential contamination; and
- Implement control measures recommended by the environmental consultant / qualified person.

B.5 Incident management

All environmental incidents and impacts to heritage values should be recorded and if an incident or potential incident is likely to cause significant offsite impacts on people or the environment, the appropriate regulatory authorities (e.g. NT EPA) should be notified and rectification actions undertaken.

B.6 Waste management

The disposal of contaminated soil and any waste must be undertaken with regards to the provision of the Protection of the Environment Operations Act 1997 and Regulations (NSW Government, 1997), NT EPA Waste Management and Pollution Control Act (NT Government, 2016), NT EPA Waste Management and Pollution Control (Administration) Regulations (NT Government, 2013) and other relevant NT EPA guidelines.

Should any waste material be deposited on the Site in the future (or clean imported material brought to Site), this should be assessed by the appointed environmental consultant (or suitably qualified person) in order to determine the contamination status of the material. This material should be tested in accordance with the National Environment Protection Measure (Assessment of Site Contamination) Measure (NEPM) as amended 2013 (NEPC, 2013) as well as Australian Standard AS 4482.1 Guide to the sampling and investigation of

potentially contaminated soil Part 2: Volatile substances (Standards Australia, 2005). In the event that material does not meet the relevant acceptance criteria for the Site, this material should be appropriately managed based on the advice provided by a suitably qualified environmental professional.

B.7 Fire management

Should either a controlled or unplanned fire take place at the Site, the risk presented by potential asbestos containing material during such an incident does not warrant the compulsory use of breathing apparatus. It should be noted that this judgment relates specifically to asbestos. The appropriateness of this judgment should be reassessed as part of the routine asbestos walkover to be conducted by an occupational hygienist or suitably qualified personnel.

Appendix C. Site inspection checklist

Inspection Checklist – Asbestos Containing Material			
Name:		**Company:**	
Qualified Occupational Hygienist?	Y / N	**Date of Previous Inspection:**	

Visual Evidence of Asbestos:

Description of Findings	Northing	Easting	Map Reference	Further Work Required?
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N

Summary of Findings:

Recommended Actions:					

Appendix D. Site induction record

ENVIRONMENTAL CARE PROCEDURES - SIGN OFF SHEET					
ALL PERSONNEL UNDERTAKING INTRUSIVE GROUND WORKS ON SITE MUST SIGN BELOW					
I fully understand the requirements of the ECP. Title of Document: Section 261 Environmental Care Procedures					
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /

Appendix E. ECP change register

SECTION 261 ENVIRONMENTAL CARE PROCEDURES – CHANGE REGISTER				
Revision	Section	Requested By	Date	Summary of Change to ECP
			/ /	
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			/ /	

Appendix F. Site history and environmental setting

F.1 Site history

The Site comprises a 39.41 ha of land that is bounded on all sides by the surrounding Section 262 of Cox Peninsula. The Cox Peninsula has had a varied history supporting local maritime activities through to military occupation, support of World War II operations and use for radio communications.

In 1965 the Federal Government established a receiver station at the Site which also extended into the adjacent Section 262. The receiver station was paired with a corresponding transmission booster in Section 265 to increase the capacity and capability of Radio Australia. The facility was in operation until 1974 when Cyclone Tracy caused significant damage to the facilities, causing operations to cease. While the facility at Section 265 was re-established, the facility within the Site and Section 262 was not restored and remained largely unchanged until the late 1990s when demolition contractors were engaged to remove above ground infrastructure.

The demolition in the late 1990s primarily related to the Site although above ground infrastructure in the adjacent Section 262 (i.e. antennas) also seems to have occurred at this time. Historical activities associated with the adjacent Section 262 site are considered pertinent noting that former operations were not confined to the extents of the Site, with a number of antenna arrays that were established across a cleared area around the main compounds within the Site crossing into Section 262. These antennas were connected to the main compound at the Site by underground services that have since been removed as part of the recent remediation project. Similarly, a number of informal tip sites were also established at the adjacent Section 262 with waste identified likely to have resulted from former site activities that occurred within the Site and Section 262.

Demolition within the Site included the removal of asbestos corrugated roofing material, vinyl floor tiles with asbestos backing and tilux (asbestos containing sheeting) from wet areas (i.e. ablution blocks). This material was encapsulated before being disposed of at Shoal Bay landfill. The exact quantity is not known, but anecdotally a number of 15 m^3 skip bins of waste material were said to have been removed (PB, 2011b).

Above ground diesel tanks located at the former radio receiver compound within the Site were also reportedly removed, as was an air conditioning unit, with the possible involvement of a supervising consultant (although no reports are available to verify this). While the buildings themselves were removed, the concrete slabs were left in place, anecdotally due to the historical sub-slab treatment with dieldrin (an organochlorine pesticide) (PB, 2011b).

Further detail on the Site setting and history can be found in the SSI and RAP (Jacobs, 2017b, 2017a).

F.2 Neighbouring land uses

The Site is bounded on all sides by adjacent Section 262 with the only exception being a narrow easement-style connection to the Cox Peninsula Road to the north, which provides connectivity to the two former Australian Communications and Media Authority (ACMA) compounds.

The eastern boundary of the adjacent Section 262 is demarcated with cliffs, below which are mangroves, sandy beaches and mud flats along the shoreline. To the north, west and south of the adjacent Section 262 is undisturbed bushland and ephemeral wetlands. The township of Wagait Beach is located approximately 3 km north east of the Site.

F.3 Environmental setting

Table D.1 summarises the environmental setting of the Site. Further detail is included in the SSI (Jacobs, 2017b) and RAP (Jacobs, 2017a).

Table F.1 : Summary of Site environmental setting

Setting	Description
Topography	· The Site is relatively flat however the topography of the surrounding Section 262 facilitates the formation of ephemeral wetlands during the wet season west of Cox Peninsula Road and drops off rapidly towards the east coast.
Hydrology	· West of Cox Peninsula Road seasonal wetlands form during the wet season although these appear to recede and then dry out over the course of the dry season. These wetlands occupy approximately half of the western part of Section 262 at their maximum extent but no not encroach on the Site. · Elsewhere, floodways are evident in various locations including along and across cleared unsealed tracks, although no permanent surface water features are present on the Site. These floodways accommodate surface water flows during high rainfall periods (particularly during the wet season) but are otherwise dry. · Surface water at the Site generally drains away from the Site to either the low lying areas to the west of Cox Peninsula Road, or east towards the mangroves and Darwin Harbour.
Geology	· Coffee rock (laterite) comprises the local shallow geology encountered to a depth of approximately 7- 9 metres below ground level (mbgl) overlain by sands, clays and silts (Jacobs, 2017b) · Regional surface geology of clayey sandstone, quartz-sandstone, ferruginous is characterised primarily by the Bathurst Island Formations comprising radiolarian claystone, sandy claystone, sandstone, glauconitic sandstone and basal conglomerate (NT Government, 1983; PB, 2011b) · Underlying the above is the South Alligator Group comprising ferruginous siltstone, siltstone and shale, pyritic carbonaceous shale, minor chert-banded siltstone and carbonate rocks (NT Government, 1983; PB, 2011b) · The above is Cretaceous sediments overlie Early Proterozoic Welltree Metamorphics consisting primarily of medium to coarse-grained undifferentiated schist and gneiss and minor quartzite (Jacobs, 2017b).
Hydrogeology	· Groundwater depth is generally shallow and fluctuates significantly within the range of approximately 12 - 19 metres above Australian Height Datum (mAHD) (Jacobs, 2017b) · Fractured and weathered rock aquifer, suggestion of confined layer within Bathurst formation (NT Government, 1983; PB, 2011b) · Yield typically 0.5 – 1.5 L/sec (Verma N.M, 1982) · Groundwater flow east towards Darwin Harbour.
Sensitive local environments	Significant habitats identified at Section 262 and to a lesser extent, the Site (ERM, 2011): · Armstrong's Cycad (listed under the Territory Parks and Wildlife Conservation Act) dominant feature of Eucalypt forest mid storey · Estuarine crocodile habitat in intertidal areas in the immediate vicinity of the Site · Migratory shorebird habitat in intact vegetation surrounding the Site. No Environment Protection Biodiversity Conservation Act (EPBC) threatened species have been identified at the Site.

F.4 Nature of the proposed future site use

The Site forms part of the land that is subject to the Kenbi land claim, an area of land which is proposed to be transferred to the NT Government and subsequently returned to the Larrakia people. It is understood that the Site will be utilised for Public Open Space land use (as per the NEPM definition of such a land use) once the settlement with the Traditional Owners has occurred.

Appendix G. Site conditions pre and post-remediation

G.1 Pre-remediation site environmental condition

Based on the results of soil and groundwater investigations (Jacobs, 2017b), the following contaminants were identified at concentrations above the adopted assessment criteria for the Site:

G.1.1 Soil

- Asbestos containing materials (ACM) identified across the ground surface at Tip Site E-1 and within and surrounding the main former ACMA compound
- Soils contaminated with organochlorine pesticides (OCPs) within the former ACMA compound
- Hydrocarbon impacted soils in the min former ACMA compound associated with two former underground storage tanks; and
- Asbestos identified in conduits associated with underground services.

G.1.2 Groundwater

- Concentrations of selenium and ammonia (as N) above adopted drinking water criteria and concentrations of other heavy metals above ecological criteria in shallow groundwater at the Site
- Groundwater is considered naturally acidic; and
- Potential for off-site impacts from elevated concentrations of boron, cobalt, copper, lead, selenium, zinc, ammonia (as N) and nitrate (as N) identified at adjacent sections.

G.1.3 Waste

Concrete footings associated with the former radio antenna as well as general rubbish and waste materials have been identified as presenting an aesthetic impact that is not compatible with the proposed future use of the Site. Detailed information regarding Site contamination can be found in the SSI for the Site (Jacobs, 2017b).

G.1.4 Conceptual site model

Based on the conceptual site model (CSM) - a model that considers sources, pathways and receptors of contamination for the Site, a qualitative risk assessment was undertaken. This considered contaminant concentrations identified during investigations, potential health and aesthetic impacts to human and environmental receptors, along with migration potential and the likelihood of exposure of identified contaminants to potential receptors. Complete exposure pathways to contamination were identified (pre-remediation) as:

- Exposure of ecological receptors through dermal contact with contaminants in the surficial soils and shallow sub-surface soils
- Potential inhalation of asbestos fibres that have become airborne from contaminated soils or degraded ACM (such as remnant infrastructure or general surface ACM).

No complete source, pathway and receptor linkage for shallow groundwater exists at the Site based on findings of the Supplementary Site Investigations. The observed poor yield and low pH of the water preclude its extraction and use of drinking and or irrigation purposes. Considering the above, no remediation activities were undertaken on groundwater at the Site.

Based on the CSM and qualitative risk assessment process undertaken and in consideration of complete exposure pathways, remediation works were developed and subsequently undertaken.

G.2 Remediation works

Remediation was undertaken with the objective of rehabilitating the Site to a condition that is suitable for use as Public Open Space. This involved removal of contaminated soils, surface waste and surface infrastructure. Consideration was made for retaining roads and remnant infrastructure that could support future development of the Site.

Remediation works were undertaken by Ventia Utility Services Pty Ltd (Ventia) between April and November 2016 with project management / contract administration (PMCA) and environmental assessment responsibilities carried out by Jacobs. Table G.1 summarises the roles and responsibilities of parties involved in completion of the remediation works.

Table G.1 : Summary of remediation roles and responsibilities

Organisation	Project Role	Responsibilities
Department of Finance - Project Delivery Branch (PDB)	Principal	· Overall leadership, management and delivery of the project · Responsible for ensuring the overall goals and objectives for the project are achieved
Nation Partners	Technical Advisor	· Directly support Finance in provision of technical input, report review and preparation and a range of other inputs as required by the principal
AECOM Australia Pty Ltd	Environmental Site Auditor	· Perform the role of Environmental Site Auditor for the project in accordance with Northern Territory legislation
Jacobs Group (Australia) Pty Ltd	PMCA and Environmental Consultant	· On behalf of the Principal, act as overall Project Manager for the project · On behalf of the Principal, act as Contract Administrator for the RWC and Kenbi Rangers' Contracts · Perform all tasks as specified in the Remediation Contract Specification as being the responsibility of the PMCA
Ventia Utility Services Pty Ltd	Remediation Works Contractor (RWC)	· Implementation and execution of all remediation works and activities in accordance with the Remediation Contract Specification and under the direction of the PMCA
Kenbi Rangers	Local Ranger Group	· Continued day to day land and heritage management activities, security provisions for the Site exclusive of the remediation works areas and provision of transport services.

Remedial works were carried out in order to restore the Site to a condition that is compatible with the proposed Public Open Space land-use setting. These works were undertaken in several different areas of the Site and in particular, separate sub-areas named remediation work areas (RWAs). A summary of works completed at each RWA is provided below. Figures showing the location of each RWA are provided in the RAP and Validation report for the Site (Jacobs, 2017a, 2017c)

General site area:

- RWA A – Removal of underground services (including asbestos conduits) and disposal off-site
- RWA B – Removal of asbestos utility pits
- RWA C – Emu-pick of ACM from Tip Site E-1 with off-site disposal of waste collected
- RWA D – Emu-pick of ACM around the main former ACMA compound with off-site disposal of waste collected
- RWA E – Removal of redundant surface infrastructure (i.e. concrete antenna footings) ; and
- RWA F – Removal of general waste items from the ground surface across the site

Former ACMA compounds:

- RWA A – Removal pesticide contaminated soils beneath building slabs for on-site disposal in the Containment Cell (following thermal treatment)
- RWA B – Removal of underground services (including asbestos conduits) and disposal off-site
- RWA C – Removal of waste stockpile with ACM for off-site disposal
- RWA D – Removal of redundant surface infrastructure (i.e. concrete antenna footings)
- RWA E – Removal of bitumen road and other sealed surfaces for off-site disposal
- RWA F – Removal of cyclone and general fencing around compounds for off-site recycling; and
- RWA G – Removal of two underground storage tanks.

G.3 Validation of remediation works

A Validation Report was prepared (Jacobs, 2017c) detailing the remediation work undertaken, including validation sampling results obtained to support the conclusion that the condition of the site is now suitable to support the proposed future Public Open Space land use. This report outlines the current Site environmental condition.

Following the remediation and validation work undertaken at the Site, the following summarises the current Site condition:

- Contaminated soils, including impacts from OCPs and hydrocarbons, have been removed and validation samples indicate residual soils do not represent a risk to proposed site users under the proposed Public Open Space use of the Site
- Surficial waste and redundant infrastructure has been removed to the extent practicable and no longer represent an adverse aesthetic condition
- Surficial asbestos has been removed to the extent practicable and validated in identified areas. A qualified Occupational Hygienist licenced under Northern Territory Work Health and Safety National Uniform Legislation Act 2014 (NT Government, 2014) observed asbestos removal activities and on completion of works issued and asbestos clearance certificates for each area of the Site for with remediation works were conducted.

Notwithstanding the remedial work undertaken and subsequent validation to demonstrate that the Site is suitable for the proposed Public Open Space land use, the ECP has been developed as a precaution.

Appendix H. Post remediation - exposure route assessment

H.1 Conceptual site model description

The CSM has been revised for the Site based on the current condition post remediation and proposed land use in order to assess any remaining risks to future land users. This CSM considers an assessment of contamination that may still be present and the potential routes it may take for exposure to future land users.

H.2 Source – identified contaminants of concern

Based on the remediation undertaken and results of previous investigations (refer to the SSI for the Site for further detail), chemical contaminants do not remain in soil at the Site above the adopted assessment criteria for a Public Open Space land use. In addition, exposure to groundwater is not considered to pose a risk to future land users on the basis of its seasonal availability, poor yield and the low likelihood that groundwater would be abstracted.

All apparent visible ACM was removed during the remediation works at the Site to the extent practicable. However, there remains the very low potential for fragments of bonded ACM to remain in shallow subsurface soils which may become exposed due to weathering and erosion, in particular following heavy rainfall associated with the Northern Australian tropical climate (wet season). Any such ACM is likely to be confined to localised areas of the Site that have previously been disturbed/ remediated (as presented in Figure 2).

H.3 Pathway identification

Potential routes of exposure to asbestos that may appear on the surface have been identified as inhalation of asbestos fibres and airborne dust. These pathways are summarised in Table H.1.

H.4 Receptor identification

Based on the inputs identified in the two previous sections, the CSM has been used to assess the possibility of the identified exposure routes for both identified contamination and hazardous materials identified at the Site following remediation.

For exposure to be considered possible, some mechanism ('pathway') must exist by which contamination from a given source can reach a given receptor as summarised in the table below.

Table H.1 : CSM – post remediation

Potentially Impacted Media	Contaminants of Concern	Exposure Route	Receptors	Complete Exposure Route
Air	**Human Health** · Asbestos	**Human Health** Inhalation of mobilised fibres and airborne dust	**Human health** Site users / workers	**Human Health** Unlikely to represent complete pathway – surficial ACM removed and validated by Occupational Hygienist. Site history and previous investigations do not indicate burial of ACM. There is a low potential for daylighting of ACM to occur.

NOTE:

· The CSM assumes no excavation or soil disturbance undertaken under the Public Open Space land use scenario. If disturbance takes place, this may affect complete pathway mechanisms.

H.5 Site characterisation conclusions

Based on the qualitative assessment undertaken, complete exposure pathways have not been identified for the Site in its post-remediation condition. Though the Site history, previous investigations and validation do not indicate burial of ACM, the ECP in this document outline precautionary control measures to manage bonded ACM fragments in the shallow subsurface soils.