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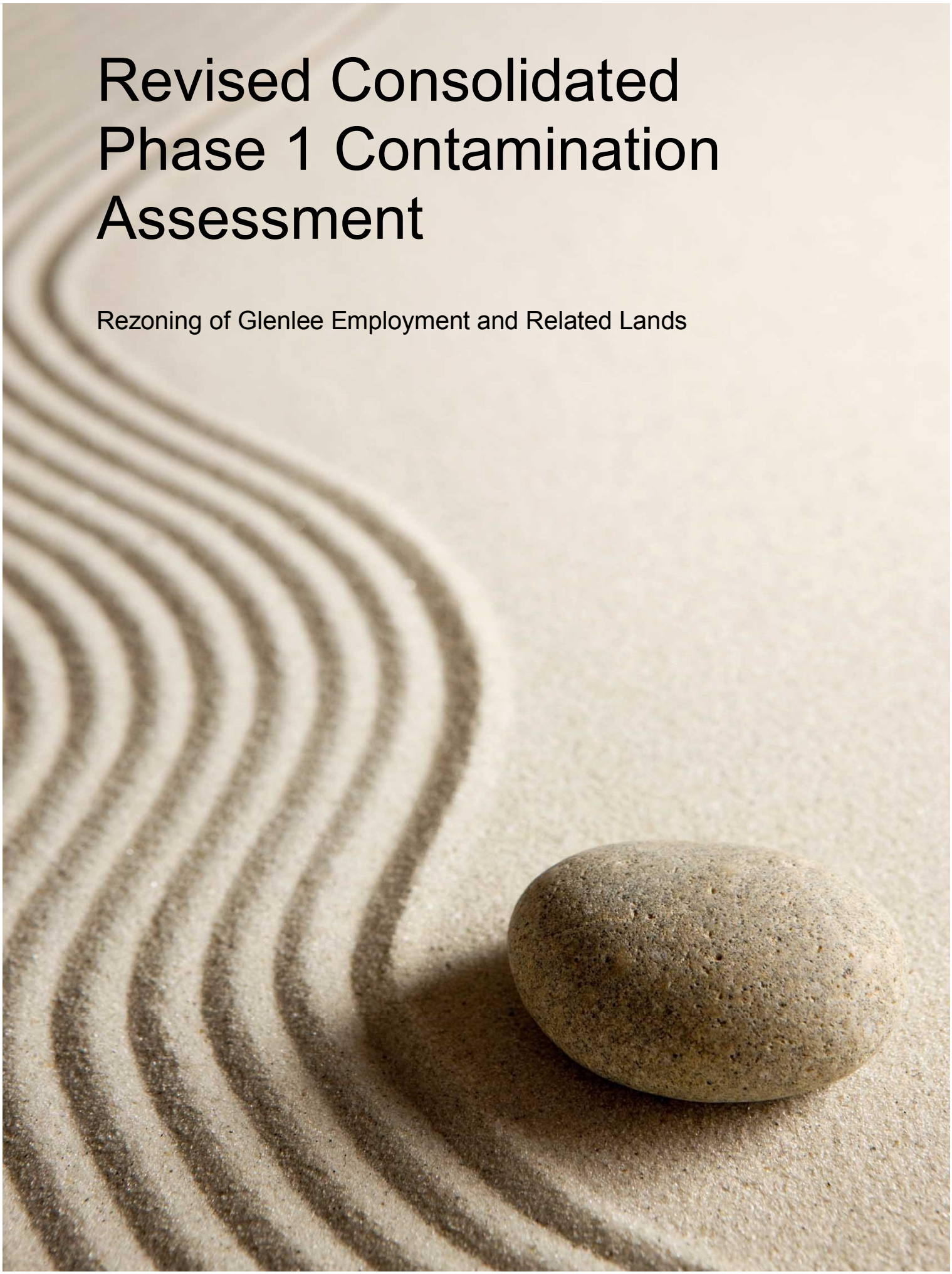
Sada Services Pty Ltd
13-May-2016

Revised Consolidated Phase 1 Contamination Assessment

Rezoning of Glenlee Employment and Related Lands



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Rezoning of Glenlee Employment and Related Lands

Client: Sada Services Pty Ltd

ABN: 48 002 984 447

Prepared by

AECOM Australia Pty Ltd
Level 21, 420 George Street, Sydney NSW 2000, PO Box Q410, QVB Post Office NSW 1230, Australia
T +61 2 8934 0000 F +61 2 8934 0001 www.aecom.com
ABN 20 093 846 925

13-May-2016

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Prepared by Kate Pigram, Andrew Rolfe

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Executive Summary

Introduction

AECOM Australia Pty Limited (AECOM) has been commissioned by the Glenlee Consortium[1] to prepare this *Rezoning of Glenlee Employment and Related Lands – Revised Consolidated Phase 1 Contamination Assessment* (AECOM, 2013) hereafter referred to as the '*Revised Phase 1 Contamination Assessment'* for the Glenlee Precinct located at Glenlee Road, Narellan, NSW ('the Precinct' - refer to **Figure 1** in **Appendix A**).

The Precinct comprises approximately 107.6 hectares of land at Glenlee and is associated with the operations of three owner companies (the Glenlee Consortium), namely Sada Services Pty Ltd (Sada), J & W Tripodi Holdings Pty Ltd (Camden Soil Mix) and Glenlee Properties Pty Ltd (TRN Group).

Preparation of this *Revised Phase 1 Contamination Assessment* is part of a broader scope of works required to update the following reports prepared by AECOM in 2009:

- *Rezoning of Glenlee Employment and Related Lands - Consolidated Phase 1 Contamination Assessment* (AECOM, 2009a);
- *Rezoning of Glenlee Employment and Related Lands - Consolidated Phase 2 Contamination Assessment Sampling and Analytical Quality Plan ([SAQP]* AECOM, 2009b);
- *Rezoning of Glenlee Employment and Related Lands – Glenlee Precinct – Remediation Strategy* (AECOM, 2009c).

The Precinct has generally been used for industrial related purposes, notwithstanding the current rural zoning of the land for a number of years. These industrial uses include the Sada Services landholding (truck maintenance and depot, coal washery and reject coal emplacement), Camden Soil Mix (truck maintenance and depot, and green waste recycling facility), and TRN (truck maintenance and depot).

The three 2009 reports listed above were reviewed and endorsed by a NSW Environment Protection Authority (EPA) Contaminated Land Auditor (accredited in accordance with the *Contaminated Land Management Act*, 1997). In the Precinct *Auditor Report* (JBS, 2009) the Auditor concluded that:

- *"Contamination-related aspects of the Glenlee Precinct environment have been appropriately investigated; and*
- *Sufficiently robust plans are in place to further investigate and deal with contamination"*.

Consequently the Auditor was "*satisfied that an appropriate framework has been established to investigate, manage and/or remediate contamination at the site in order to make the site suitable for the proposed commercial/industrial, parks/open space and standard residential uses"*.

It is noted that the three above reports previously assessed a portion of land which is now excluded from Precinct and which is now located directly to the north (refer to **Figure 1**). Consequently, this *Revised Phase 1 Contamination Assessment'* has been amended accordingly and includes the findings of a site inspection of the Precinct in May 2013.

Compliance with the Project Plan

This Phase 1 report complies with the requirements of Section 3.3 of the Camden Council (August 2013) *Glenlee – Proposed Industrial Employment Land, Project Plan (draft) – Specialist Studies Requirements* (hereafter referred to as the 'Project Plan') as it:

- satisfies the requirements of a 'preliminary Contamination Site Investigation' and has been prepared in accordance with SEPP 55 and NSW EPA guidelines (refer to **Section 1.7.1**);
- identifies PCAs and outlines a strategy for assessing 'the likely level of contamination associated with current use of the land' and recommends Phase 2 site investigations (involving intrusive soil and groundwater investigations) closer to the time of redevelopment (as opposed to during the rezoning process);

[1] Sada Services, Glenlee Properties Pty Ltd and J & W Tripodi Holdings Pty Ltd

- recommends preparation of a Remedial Strategy document ('Phase 3 reporting') be prepared after the rezoning stage to establish a framework of management strategies to demonstrate to interested parties that remedial strategies, should contamination be found through Phase 2 investigations, are available and feasible and capable of rendering the Precinct suitable for the intended uses; and
- recommends Phase 2 and 3 reports which will determine the need for further investigations and potential remediation (if required).

Conclusions and Recommendations

This Revised Phase 1 Contamination Assessment is the first in a series of three reports aimed at identifying potential contamination issues on the Precinct (Phase 1) and demonstrating that appropriate plans and strategies are in place to further investigate and remediate / validate and /or manage contamination as required through the development process (Phase 2 and 3).

The Phase 1 contamination assessment identified a range of Potentially Contaminated Areas (PCAs) across the Precinct. This assessment also found that coal reject (sourced from the Illawarra Coal Measures) is present across the majority of the Precinct. The material is considered to be is chemically benign and has previously been found to contain low metals concentrations and is usually non-detect for polycyclic aromatic hydrocarbons (PAHs). The coal reject has been confirmed by the NSW EPA to comply with the Protection of the Environment Operations (Waste) Regulation 2005 – General Exemption Under Part 6, Clause 51 and 51A *the coal washery rejects general exemption 2009*. However, other general industrial activities that supported the original coal processing (such as the workshop and fuel storage areas and the neighbouring transport depots) have the potential for contamination.

The primary PCAs are the fuel storage areas and workshop facilities. Despite all fuel storage areas being appropriately bunded there is the potential for some spillage of petroleum products outside the bunded areas over time. Similarly, the workshops within the Precinct have been equipped with concrete flooring and appropriate oil containment facilities. However, over time there is the potential for contamination to occur around the apron in front of the workshops.

Other PCAs which would need to be targeted in the Phase 2 investigation include the site of the original Coal Processing Plant, equipment storage areas and the truck washing station. These areas may contain incidental contamination levels which would need to be validated.

There are also a number of small dams and pollution control structures on the Precinct which would be included in the Phase 2 investigation. These dams contain the runoff from the primary target areas and therefore may contain contamination (in both water and sediment) as this was their designed purpose.

An appropriate Sampling, Analysis and Quality Plan (SAQP) has been prepared for future Phase 2 intrusive investigations targeting the PCAs (AECOM, 2014a).

It is considered that that such Phase 2 intrusive investigations would be more appropriately undertaken closer to the time of redevelopment (as opposed to during the rezoning process) due to the length of time before the proposed development as well as the ongoing operations and the associated potential for changes in environmental site conditions before development proceeds.

A Remedial Strategy document (Phase 3) has been prepared (AECOM, 2014b) to demonstrate to the Auditor, landowners, agencies and consent authorities that remedial strategies, should contamination be found through Phase 2 investigations, are available and feasible and capable of rendering the Precinct suitable for the intended uses (subject to appropriate validation and contingency measures).

1.0 Introduction

1.1 Background

AECOM Australia Pty Limited (AECOM) has been commissioned by the Glenlee Consortium[2] to prepare this *Rezoning of Glenlee Employment and Related Lands – Revised Consolidated Phase 1 Contamination Assessment* (AECOM, 2013) hereafter referred to as the '*Revised Phase 1 Contamination Assessment'* for the Glenlee Precinct located at Glenlee Road, Narellan, NSW ('the Precinct' - refer to **Figure 1** in **Appendix A**).

The Precinct comprises approximately 107.6 hectares of land at Glenlee and is associated with the operations of three owner companies (the Glenlee Consortium), namely Sada Services Pty Ltd (Sada), J & W Tripodi Holdings Pty Ltd (Camden Soil Mix) and Glenlee Properties Pty Ltd (TRN Group).

Preparation of this *Revised Phase 1 Contamination Assessment* is part of a broader scope of works required to update the following reports prepared by AECOM in 2009:

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- *Rezoning of Glenlee Employment and Related Lands – Glenlee Precinct – Remediation Strategy* (AECOM, 2009c).

The Precinct has generally been used for industrial related purposes, notwithstanding the current rural zoning of the land for a number of years. These industrial uses include the Sada Services landholding (truck maintenance and depot, coal washery and reject coal emplacement), Camden Soil Mix (truck maintenance and depot, and green waste recycling facility), and TRN (truck maintenance and depot).

The three 2009 reports listed above were reviewed and endorsed by a NSW Environment Protection Authority (EPA) Contaminated Land Auditor (accredited in accordance with the *Contaminated Land Management Act*, 1997). In the Precinct *Auditor Report* (JBS, 2009) the Auditor concluded that:

- *"Contamination-related aspects of the Glenlee Precinct environment have been appropriately investigated; and*
- *Sufficiently robust plans are in place to further investigate and deal with contamination"*.

Consequently the Auditor was "*satisfied that an appropriate framework has been established to investigate, manage and/or remediate contamination at the site in order to make the site suitable for the proposed commercial/industrial, parks/open space and standard residential uses"*.

It is noted that the three above reports previously assessed a portion of land which is now excluded from Precinct and which is now located directly to the north (refer to **Figure 1**). Consequently, this *Revised Phase 1 Contamination Assessment'* has been amended accordingly and includes the findings of a site inspection of the Precinct in May 2013.

The changing nature of activities at the Precinct and the evolution of the planning for the locality and service infrastructure provision required a need to review the prevailing planning controls and update the original 2009 reports listed above.

In December 2006, Camden Council and Campbelltown City Council resolved to prepare a Local Environmental Study (LES) and Draft Local Environmental Plan (DLEP) for the rezoning of the subject site. A draft LES was submitted to both councils in February 2009, which included a number of technical support studies. These studies included:

- Land Capability – AECOM
- Ecology – Hayes Environmental Services
- Noise – AECOM

[2] Sada Services, Glenlee Properties Pty Ltd and J & W Tripodi Holdings Pty Ltd

- Air Quality/Odour - AECOM
- Water Cycle Management – AECOM
- European and Aboriginal Heritage – Historyworks and Cultural Heritage Connections
- Transport/Traffic/Accessibility – AECOM
- Landscape and Visual – Musecape
- Bushfire – Eco Logical
- Civil Infrastructure/Servicing – AECOM
- Masterplanning/Urban Design – Geolyse
- Human Service – BBC Consulting

In addition to these studies, a draft Local Environmental Plan (LEP), draft Development Control Plan (DCP), was prepared for each Council area, including an Infrastructure Strategy/Section 94 Contributions Plan.

The LES, LEP and DCP were not placed on public exhibition due to a number of issues arising from the technical studies, which required additional information to be provided to Councils.

Since that time, the key issues pertaining to the development have been progressively resolved to the extent that would satisfy the requirements of the Planning Proposal (PP) to gain a Gateway Determination.

On 28 February and 23 April 2013 Campbelltown City Council and Camden Council respectively resolved to provide 'in principle' support to the intentions of the PP.

The PP received a Gateway Determination on 3 July 2013 to proceed with the rezoning of the Precinct subject to various conditions including additional/updated information for a number of specialist technical studies.

A number of these specialist studies were prepared for the rezoning application lodged with the Local Environmental Study in 2008. However, legislation has changed in respect of a number of studies and therefore there is a need for these studies to be reviewed and revised, particularly as the SITA lands no longer form part of the PP.

In August 2013, a Preliminary Draft Project Plan was submitted to Councils including an outline of the various specialist technical study requirements. Camden Council responded with comments addressing these requirements, therefore forming the basis of the sub-consultant's brief for the various specialist technical studies. AECOM has since responded to confirm requirement expectation.

1.2 The Planning Proposal

The indicative concept design is shown in **Figure 3**, **Appendix A**. The zoning request is generally in accordance with the proposed zoning map shown in **Figure 4**, highlighting General Industrial, Infrastructure and Environmental Conservation zones. Surveyed zone areas are shown in **Figure 5**.

The proposed zones and stated objectives are as follows:

Zone IN1 General Industrial

- To provide a wide range of industrial and warehouse land uses.
- To encourage employment opportunities.
- To minimise any adverse effect of industry on other land uses.
- To support and protect industrial land for industrial uses.
- To enable other land uses that provides facilities or services to meet the day to day needs of workers in the area.
- To enable non-industrial land uses that are compatible with and do not detract from the surrounding industrial and warehouse land uses.

Zone SP2 Infrastructure

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

Zone E2 Environmental Conservation

- To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values.
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.
- To provide for land uses compatible with the high ecological, scientific, cultural or aesthetic values of this zone.
- To foster the protection, enhancement and creation of natural systems corridors.

Based on the PP, the majority of the Precinct is proposed to be redeveloped for various industrial purposes. There are also proposed corridors for roads and [existing] rail (which would be considered consistent with an industrial landuse) and proposed open space areas.

Note that this Phase 1 assessment excludes the railway corridor on the basis that no change to the existing use is proposed. However, for completeness the rail corridor is described in **Section 4.4** of this report.

The assessment also excludes the existing Macarthur Resource Recovery Park (MRRP) which is located offsite to the north and is not part of the proposed redevelopment.

1.3 Objectives

The key objectives of this *Revised Phase 1 Contamination Assessment* are to identify:

- Current or historical activities or features that have the potential to have contaminated soil and/or groundwater within the Precinct;
- The areas at risk of contamination (defined hereafter as Potentially Contaminated Areas [PCAs]);
- The Contaminants of Potential Concern (CoPC); and
- Changes to the Precinct conditions since the original *Phase 1 Contamination Assessment* (AECOM, 2009), with respect to contamination.

More broadly, the objectives of the preparation of the three phases of contamination management documentation at a relatively early stage of the Precinct redevelopment are to:

- Demonstrate that appropriate research methods, including the major guidelines, have been properly and diligently implemented with respect to Phase 1-type contamination investigations;
- Prepare a SAQP outlining requirements for Phase 2 intrusive investigations to be undertaken after the rezoning process is complete prior to development of each specific part of the Precinct; and
- Demonstrate to the relevant government stakeholders that the Glenlee Precinct is suitable for its continued use as an industrial site and that should any historic contamination be found through the Phase 2 investigations that appropriate remediation strategies be developed and implemented to render the Precinct suitable for the intended uses.

As noted above, the reports have been updated to review the prevailing planning controls and assess changes to the Precinct condition since the original 2009 reports were prepared.

1.4 Compliance with the Brief and Gateway Requirements

This Phase 1 report complies with the requirements of Section 3.3 of the Camden Council (August 2013) *Glenlee – Proposed Industrial Employment Land, Project Plan (draft) – Specialist Studies Requirements* (hereafter referred to as the 'Project Plan') as it:

- satisfies the requirements of a 'preliminary Contamination Site Investigation' and has been prepared in accordance with SEPP 55 and NSW EPA guidelines (refer to **Section 1.7.1**);
- identifies PCAs and outlines a strategy for assessing 'the likely level of contamination associated with current use of the land' and recommends Phase 2 site investigations (involving intrusive soil and groundwater investigations) closer to the time of redevelopment (as opposed to during the rezoning process); and
- recommends preparation of a Remedial Strategy document ('Phase 3 reporting') be prepared after the rezoning stage to establish a framework of management strategies to demonstrate to interested parties that remedial strategies, should contamination be found through Phase 2 investigations, are available and feasible and capable of rendering the Precinct suitable for the intended uses.

1.5 Previous Land Capability Assessment

The Land Capability Assessment documented in the report *Glenlee Precinct Rezoning - Land Capability Assessment*, (Maunsell, 2008) identified, through Phase 1 assessment techniques, areas within the Precinct that, due to either historical or current practices, had the potential to be contaminated. The contamination section of the land capability assessment followed standard Phase 1 methodology (that is, site visit, site history and related document review). However, the style/manner of reporting of the contamination study and findings were consistent with a broader overall review of constraints to the development rather than standard-format Phase 1 reporting.

During the development of this *Revised Phase 1 Contamination Assessment* (which provides more detail than the summary-level contamination information set out in the *Land Capability Assessment*), additional minor clarifications have been able to be incorporated with respect to several PCAs. The additional information with respect to one of those areas (the CSM Dams) indicates that the initial nomination of that area as a PCA was conservative. Nevertheless, for completeness the CSM Dams site (identified as PCA M, refer to **Section 5.12**) remains within the scope of this *Revised Phase 1 Contamination Assessment* and subsequent Phase 2 and 3 assessments.

In response to Campbelltown and Camden Councils' requirements, the Glenlee Consortium appointed a Contaminated Site Auditor in 2009 to review and comment on the original contamination-related sections of the *Land Capability Assessment* report.

The purpose of the involvement of the Auditor was primarily to comply with Council's request, including providing an opinion whether:

- The contamination-related assessment, findings and conclusions in the *Land Capability Assessment* are defensible in the context of a rezoning application; and
- The Glenlee Consortium has in place a suitable plan to investigate the whole of the Precinct (including the identified sub-sites) during or after completion of the rezoning process and that remedial strategies, should contamination be identified through investigations at that time, are available and feasible and capable of rendering the Precinct suitable for the intended uses.

The future commissioning of a site auditor will depend on the level of contamination encountered during the Phase 2 intrusive investigation. If the results of the Phase 2 are as expected, that is, low level hydrocarbons being detected in discrete areas (such as around diesel storage tanks and workshops), the use of a site auditor may not be warranted.

It is considered that intrusive sampling would be most appropriately undertaken closer to the time of redevelopment (as opposed to during the rezoning process) due to the existing ongoing activities at the Precinct which may [or may not] alter the environmental condition of the Precinct prior to development. The scope has therefore been limited to a desktop review at this stage.

1.6 Report Format

The format of this *Consolidated Phase 1 Report* is as follows:

- **Section 1.0** provides an introduction to the project background and the factors leading to the requirement to prepare this and associated Phase 2 and 3 reports;
- **Section 2.0** describes the Precinct and local topography, geology and hydrogeology;
- **Section 3.0** provides a brief description of the Precinct history;
- **Section 4.0** identifies the PCAs;
- **Section 5.0** provides further discussion on each of the PCAs;
- **Section 6.0** sets out conclusions and recommendations;
- **Appendix A** includes the Site plan showing the concept master plan, proposed zoning, survey sites areas and the identified Potentially Contaminated Areas (PCAs);
- **Appendix B** includes photos of the identified PCAs and broader Site areas;
- **Appendix C** provides a summary of previous reports relevant to this assessment;

- **Appendix D** provides records of the registered groundwater bore search;
- **Appendix E** provides records of the WorkCover records search; and
- **Appendix F** provides the certificate for the Virgin Excavated Natural Material (VENM) imported to the Precinct; and
- **Appendix G** provides the results of the search of the NSW EPA contaminated sites database.

PCAs are generally referred to in this *Revised Phase 1 Contamination Assessment* using the same identifiers that were used in the *Land Capability Assessment.* Additional PCAs identified during a recent Site inspection in May 2013 are also included.

This report:

- Generally draws heavily from the *Land Capability Assessment* (Maunsell 2008); and
- Develops the issues of specific CoPC, exposure pathways and receptors while setting aside non-contamination sub-surface matters such as salinity, mine subsidence and geotechnical conditions.

1.7 Guidelines Used

The methodologies and principal requirements for Phase 1, 2 and 3 reports and actions followed by AECOM in preparing the three volume set of contamination documents are set out in the following guidelines:

1.7.1 State and Federal Government Framework and Duty of Care – Contamination Management

An initial evaluation of the area was conducted, consisting mainly of an appraisal of historical and current activities carried out within the Precinct. The Phase 1 method of evaluation was in accordance with guidance provided in, and AECOM's experience with, the following industry guidelines:

- NSW EPA, 1994. *Guidelines for Assessing Service Station Sites*; and
- NSW EPA, 1997. *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*;
- DECC 2006. *Contaminated Sites – Guidelines for the NSW Site Auditor Scheme (2nd Edition)*;
- DECC, 2007. *Guidelines for the Assessment and Management of Groundwater Contamination.*
- National Environment Protection Council (NEPC) National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended in 2013 (hereafter referred to as the 'ASC NEPC, 1999').

Potentially contaminated areas will be required to be managed in accordance with the relevant legislation, at a state and local level.

1.7.2 Camden Council

Camden Council's revised *Management of Contaminated Lands* Policy, which commenced in March 2008, sets out a framework for the management of contaminated land within the Camden LGA and forms part of the whole-of-government approach to contamination and remediation. The policy adopts a precautionary-based approach and specifically the *Planning Guidelines for Managing Land Contamination* (1998) and the *State Environmental Planning Policy (SEPP) 55 – Remediation of Land* both prepared by the DoP and NSW EPA .

Typically, the extent of investigation into potential contamination and subsequent remediation of a site, if required, is influenced by a site's current or proposed land use. Initial evaluation focuses on a site's previous potentially contaminating land uses and any Council and agency records. The results of the initial evaluation are used to assess the suitability of a site for the proposed use. In the event that initial evaluation indicates that contamination may be present, then Council will either:

- Require further investigation and possible subsequent activities such as remediation; or
- Make a planning decision.

The Policy states that as a result of overriding requirements in Part 3, Clause 11, subclause (4) of *Sydney Regional Environmental Plan No. 20* (SREP 20), Category 2 remediation works (as defined by SEPP 55) within its LGA automatically take on the status of Category 1 remediation works and as such require Council consent.

1.7.3 Campbelltown City Council

Campbelltown City Council has no formal contaminated land policy. Requirements in respect of contaminated land are detailed under the Contamination Management Plan requirements of Appendix 10 of the *Campbelltown (Sustainable City) Development Control Plan (DCPI, 2012)*. While Appendix 10 does not mention SEPP 55 or other NSW policies, it outlines a framework aligned with the Camden Council *Management of Contaminated Lands* Policy.

Campbelltown City Council Contamination Management Plan states that *all applications on land that has been identified as contaminated or of having the potential to be contaminated shall require the following information to be submitted:*

i. land use history;

ii. any past or present potentially contaminating activities;

iii. provide preliminary assessment of any site contamination and if required, provide a basis for a more detailed investigation; and

iv. *preliminary sampling and analysis may be required where contaminating activities are suspected or known to have occurred, or the land use history is incomplete.*

1.8 Scope of Assessment

Based on: (a) industry guidelines; (b) the requirements of the Campbelltown City Council Contamination Management Plan; (c) Camden Council's Contaminated Land Management Policy; and (d) the type of development proposed as set out in the PP, the Phase 1 evaluation included the following scope of works:

- Literature review of relevant available reports which included information on: (a) former land use ; (b) historical aerial photographs of the Precinct and surrounding area; and (c) current and former activities carried out on the area;
- Interviews with the landowners and other key personnel (in 2009 and in May 2013);
- Precinct walkovers (in 2009 and in May 2013);
- A search of the NSW EPA *Contaminated Land – Record of EPA Notices* to determine whether any statutory notices, either current or expired, relate to any land within the Precinct under the Contaminated Land Management Act (1997);
- A search of the Cattle Dip Site Locator at http://www.agric.nsw.gov.au/tools/dipsite-locator/index.html;
- A search of WorkCover records on dangerous goods licensing for the Precinct; and
- A search of Department of Natural Resources records of registered groundwater bores in the vicinity of the Precinct.

1.9 Historical Document Review

AECOM reviewed the following reports and other literature as part of this *Revised Phase 1 Contamination Assessment*:

- *'A10 Contamination Management Plan'*, Campbelltown (Sustainable City) DCP (2012), Campbelltown City Council, Campbelltown, (http://www.campbelltown.nsw.gov.au/Assets/6286/1/Appendixes.pdf).
- Camden Council, (26 February 2008). 'Management of Contaminated Lands', Policy No. 3.12.
- Campbelltown City Council, (June 2003). Preliminary Geotechnical and Soils Assessment, Camden Soil Mix Composting & Recycling Facility Local Environment Study, p i,1, 3, 4-8, 10, 11, 14-17.
- Coffey Geosciences Pty. Ltd, (November 2005). Glenlee Washery Tailings Dam Assessment of Dam Safety Issues, p 2, 3, 5 and 6.
- DLA Environmental (May 2009). Phase 2 Detailed Environmental Site Assessment, Springs Road, Glenlee.
- Douglas Partners (March 2008). Report on Preliminary Geotechnical Investigation.
- Douglas Partners (October 2008) Report on Gas Migration Investigation, Glenlee

- Douglas Partners (April 2009) Report on Glenlee Gas Migration Investigation Including installation, Sampling and Analysis of Landfill Gas Monitoring Wells
- Environmental Earth Sciences (June 2008), Limited Due Diligence Assessment at Lot 1102 DP 883495, Glenlee Road, Menangle Park, NSW
- GHD (March 2006) Environmental Assessment Proposed Alternative Waste Technology Facility at Jack's Gully Waste and Recycling Centre;
- Hayes Environmental, (2009). Draft Glenlee Precinct Rezoning Industrial and Employment Lands Ecological Assessment;
- Historyworks (February 2009) Heritage Assessment: Glenlee Precinct Local Environment Study;
- International Environmental Consultants, (February 2006). Glenlee Industrial Complex Redevelopment Preliminary Assessment Report, p1, 2, 8, 11, 12, 14, 16, 20, 22, 26 and 27.
- International Environmental Consultants, (1998). Glenlee Washery Rehabilitation Plan, p 1, 2, 7, 9, 12, 14, 38, 39 and 43.
- International Environmental Consultants, (August 2004). Glenlee Industrial Complex Environmental Issues Paper, p 3, 4 7, 10, 16-18.
- International Environmental Consultants, (June 2003). Glenlee Industrial Complex Environmental Liability Assessment, p 2, 3 and 6-10.
- mg Planning, (September 2004). Menangle Park Preliminary Local Environmental Study, p vi, 5.7, 5.67. 5.68 and 5.72.
- Michael Brown Planning Strategies (October 2006). Rezoning Request, p 14 and 27, Fig. 1-4.
- NSW Department of Planning, Locational Guidelines for Development in the Vicinity of Operating Coal Seam Methane Wells.
- Waters Historical Consultancy (Waters, K., & Letters, M., August 2004). Draft Desktop Indigenous Heritage Report – proposed Alternative Waste Treatment Facility at Jacks Gully Waste Management Centre.
- DLA (2009a). Phase 2 Detailed Environmental Site Assessment, Springs Road, Glenlee (Part Lot 38 DP 1098588), Proposed Lot 1101 DP 883495. May 2009.
- DLA (2009b). Remediation Action Plan, Glenlee, Springs Road, Glenlee, Part Lot 38 DP 1098588. June 2009.
- JBS Environmental (2009). Site Audit Report, 0503-0807, Sada Administration Building, Part Lot 38 DP 1098588 (Proposed Lot 1101 DP 883495). June 2009.
- DLA (2012). Validation Report, SADA, Administration and Maintenance Buildings, Springs Road, Glenlee, Part Lot 38 DP 1098588. September 2012.
- Enviroview (2012). Site Audit Report (including Site Audit Statement 0301-1208), Part Lot 38 DP 1098588, 214 Springs Road, Mount Annan, NSW. October 2012.

A summary of relevant information from each of these reports is presented in **Appendix C**.

The historical document review found a significant volume of previous environmental and planning investigations specifically relevant to the Precinct. The documentation includes detailed environmental investigations into reject quality, surface and groundwater quality, terrestrial and aquatic ecological studies, previous contamination investigations, rehabilitation planning and long-term monitoring data all of which provide for a robust determination of the potential for contamination on the Precinct. These studies have been utilised in this Phase 1 Contamination Assessment to assist in identifying PCAs which are discussed in **Section 4.0**. The review also highlighted that the Precinct has been subjected to contemporary environmental approvals, licensing, environmental conservation systems and controls.

2.0 Broad Precinct Description and Context

2.1 Regional Location and Adjacent Land Uses

Glenlee is located near Narellan, approximately 50 km south-west of Sydney, within the Camden and Campbelltown Local Government Areas (LGAs).

The location of the Precinct in relation to major local centres and features is as follows:

- 6 km west of Campbelltown;
- 3.5 km south of Narellan Town Centre;
- 5 km east of Camden Town Centre;
- Directly to the west of the South Western Freeway and Main Southern Railway;
- South west of Australian Botanic Garden, Mount Annan;
- Immediately south-east of the proposed Spring Farm Residential Release Area;
- Approximately 500 m south of Mount Annan residential area;
- Adjacent to Macarthur Resource Recovery Park (formerly Jacks Gully Waste and Recycling Centre (WRC));
- Directly north west and west of Menangle Park Residential Release Area; and
- North and east of the Nepean River and its expansive flood plain.

The Local Government boundary between Camden Council and Campbelltown City Council LGAs traverses the Precinct. Wollondilly Shire Council is located to the south west of the Precinct, across the Nepean River.

2.2 Ownership Details

The Precinct covers approximately 107.6 ha and comprises a number of holdings and ownerships. The ownership, Lot and Deposited Plan (DP) number for each land holding within the Precinct is summarised in **Table 1** below:

Table 1 The Precinct – Property Descriptions

Owner	Property Description	Size
Sada Services	Lot 38 DP 1098588	71.04 Ha
	Lot 1 DP 250033	3,071 m^2
	Part Lot 1 DP 405624	2,800 m^2
J&W Tripodi Holdings Pty Ltd (Camden Soil Mix leased and operated by SITA Pty Ltd)	Lot 1102 DP 883495	27.16 Ha
Glenlee Properties Pty Ltd (TRN Group)	Lot 54 DP 864754	8.836 Ha
Total Precinct Area		107.62 Ha

Source: Michael Brown Planning Strategies, *Submission to Campbelltown City Council – Planning Proposal,* October 2012

2.3 Precinct Description

2.3.1 Topography

A report by Bryant Associates, (June 2003) *Camden Soil Mix Visual Quality Assessment* stated that the Precinct predominantly faces south-east and is located in the transition between the Nepean River flats and the undulating hills of the Cumberland Plain.

The natural topography of the northern areas of the Precinct is mostly gently undulating, with the major topographical feature being Mount Annan on the eastern boundary. The surface elevation of Mount Annan is approximately Reduced Level (RL) 180m Australian Height Datum (AHD). The land generally grades to the west towards the Nepean River which has a bank elevation of approximately RL 50m adjacent to the Precinct. Two steep ridges exist directly east of the major bend in the Nepean River in the middle portion of the Precinct.

Much of the southern portion of the Precinct is overlain by fill, tailings and solid waste from the coal washery. The tailings form a relatively flat platform (the Emplacement) that is bound to the east and south by the current Precinct boundary, to the west by the Nepean River and to the north by the railway corridor. The waste from the coal washery has been built up to up to 26m depth in some areas (to approximately RL 90m as confirmed by geotechnical investigations) and has produced significant embankment heights typically battered at 2H:1V to 2.5H:1V (Coffey Geosciences, 2005).

The Emplacement is contained within a perimeter earthfill embankment constructed on the eastern, southern and western sides (see photos in **Appendix B**). The height of the embankment above the natural ground profile is variable but generally between approximately 18 and 23 metres.

The surrounding landscape has been significantly modified by wholesale clearing of vegetation by past agricultural activities.

Historyworks (*Heritage Assessment* 2009) states that:

The only significant visual intrusion by modern development into this landscape is the coal facility itself which is visible at the foot of Mounts Annan and Nadungamba. The most visible structure in the facility is the former washery, but the landscape modifications created by the facility's artificial plateau, associated dumps, compost windrows and earthworks are also evident.

To the north-west of the Precinct, the area is overlain by landfill associated with SITA's operations. Land filling has formed a mound which generally grades to the west towards the Nepean River.

In the north eastern corner of the Precinct, natural ground slopes are relatively steep with existing grades ranging from 4% to 16% from the ridges to the creek lines.

The Precinct consists of a number of distinct areas. The recent land uses of these areas have been dominated by single activities as discussed below.

2.3.2 Drainage

The following discussion of drainage features is summarised from the report *Rezoning of Glenlee Employment and Related Lands – Water Cycle and Riparian Corridor Management Strategy* (Maunsell 2008b).

2.3.2.1 Regional Drainage

An appreciation of the surface drainage regime is important in assessing issues associated with surface-water-borne contamination, if any.

Surface drainage from the Precinct ultimately discharges into the Nepean River system via a licensed discharge point, located on the western boundary of the Precinct. The Nepean River is classified Class P (Protected) Waters under the Clean Water Act 1970 (CWA).

2.3.2.2 Local Drainage

The main surface drainages from the Precinct are as follows:

- Minor drainage catchment in the top northern edge of the Precinct, which drains to the Narellan Creek system (which ultimately drains north to the Nepean River);
- The Jacks Gully upper drainage system located north of the Precinct (off-Site); and
- A major drainage system (natural and modified) draining east and south-east to Caleys Creek.

The majority of the Precinct to the north east and south drains to Caleys Creek which is ephemeral (that is, it flows only after rainfall events). The creek originates from the upper steep slopes of Mount Annan to the north east and runs generally in a south and then westerly direction towards the Nepean River. Historic topographical mapping indicates that Caleys Creek originally passed through the area of the existing coal washery emplacement. However, as a result of the stockpiling/emplacement operations, this watercourse has been re-diverted into a man-made drain which runs along the toe of the coal stockpile adjacent to the southern boundary of the Precinct. The drain has a dual role of draining stormwater from the Caleys Creek catchment, plus collecting any seepage water from the emplacement.

From the southern boundary, the drain flows to the north along the toe of the emplacement, parallel to the Nepean River, and discharges into a constructed sedimentation dam (approx 8ML capacity) and then to an existing Water Storage Dam, prior to overflowing into the Nepean River via a licensed discharge point near Bergin's Weir. The

capacity of the Water Storage Dam is approximately 24ML and the stored water was used as the main supply of non-potable wash water to the washery.

Catchment areas and 100 year Average Recurrence Interval (ARI) peak flows estimated (using Australian Rainfall and Runoff – (ARR) - 2001) at points along the existing southern toe drain are summarised in **Table 2** below.

Table 2 Existing Peak Flows along Existing Southern Toe Drain

Southern Watercourse Location	Catchment Area (ha)	100 year ARI Peak Flow (m^3/s)
Northern arm prior to discharge into toe drain	132	14.8
Eastern arm prior to discharge into toe drain	133	17.1
Water Storage Dam prior to discharge into Nepean River (including the emplacement)	342	42.8

Uncontaminated stormwater at the Precinct (that is, stormwater that does not come in contact with the Emplacement and associated surface operations) across the Precinct is collected via surface and subsurface drains, sumps and open drains and follows channels to a main stormwater collection dam located at a low point in the south-western portion of the Precinct. Any overflow from this dam is discharged into a wetland area and then off-site and is monitored in accordance with Environmental Protection License 1596.

2.3.3 Surface Water Quality

2.3.3.1 Emplacement

Surface runoff from the coal washery site (the Emplacement) percolates through the underlying coal washery reject and is expressed along the stockpile toe and collected within the existing man-made perimeter drain surrounding the Emplacement. This drain discharges into a sedimentation dam before entering the existing Water Storage Dam. This dam was used as the main water storage to supply the coal washery operations.

From the analysis of fish and aquatic macroinvertebrate data conducted during the *Ecological Assessment* (Hayes, 2009) it was concluded that *the water storage areas provide good and diverse habitat for aquatic macroinvertebrates compared to the river habitats*. The *check drain (the upper part of the main drain) provides a poor habitat compared to the river site* as would be expected for a drain that carries only occasional volumes of water.

The presence of native fish species and tadpoles within the pollution control system draining the emplacement indicates that there are limited contaminants in the water draining from the Emplacement. Slightly elevated conductivity and slightly reduced oxygen content compared with the Nepean River reflects the fact that these drains and sediment dams are designed to contain and hold runoff rather than discharge into the river. The smaller sediment control structures often evaporate completely while the main water storage dam on site only discharges following heavy rainfall. Discharges from this dam are monitored in accordance with Environment Protection Licence 1596.

During the building-up of the Emplacement, surface levels and localised movement and infiltration of surface water changed considerably. The surface of the Emplacement continues to undergo change due to:

- Sada's continual emplacement in some areas; and
- SITA's purchase of the CSM business and subsequent reorganisation of the composting operations. Subsequent to SITA's acquisition of the CSM business, CSM raised and regraded the work platform, a consequence of which was the elimination of the CSM Dams that had simply been low points in the surface of the Emplacement platform on which CSM's operations had been based.

2.3.4 Rainfall and Evaporation

2.3.4.1 Rainfall Data

Rainfall data for the Glenlee area (sourced from the Bureau of Meteorology - Brownlow Hill rainfall station number 68007 located in Camden) indicates that during the 131 year period of record between September 1882 and November 2013, the mean annual rainfall is approximately 767.8 mm.

2.3.4.2 Evaporation Data

Average evaporation (again obtained from the Bureau of Meteorology at Camden) is approximately 1,191 mm.

2.3.5 Geology

The south western corner of the Precinct is situated on low lying undulating Quaternary alluvial sediments from the Nepean River floodplain, composed of fluvial quartz/lithic sands, silts and clays. The balance of the Precinct is underlain by Bringelly Shale and carbonaceous claystone, laminate and coal. Bringelly Shale is a major formation of the Wianamatta group that outcrops over a large area of Western Sydney. The shale is comprised predominantly of claystones and siltstones with occasional sandstone layers. It is highly compacted, weakly cemented, and contains significant amounts of swelling minerals. The shale also presents an unnamed Triassic sandstone member of the Wianamatta Group particularly along the ridges on site (Wollongong – Port Hacking 1:100,000 Geological Sheet, 1985).

The Theresa Park Unit is a soil unit incorporated in the Quaternary sediments. The Blacktown Soil Unit has developed over the Wianamatta Group (Campbelltown City Council, 2003). To date, reported studies have not identified the presence of Blacktown Soil, however, for the sake of completeness the Blacktown Soil Unit is described as follows: the Blacktown Unit has built up to 1.5 m thick on lower slopes near drainage channels from the weathering of the underlying Wianamatta Group. The unit is known to contain raised salinity and is highly reactive clay. These properties are exaggerated in areas where the moisture of the soil may be high. Blacktown soils are dispersive/reactive soils which are highly erodible, impermeable and highly plastic.

The alluvium, residual soil and Bringelly Shale have not been subject to detailed subsurface examination in geotechnical investigations to date, however the descriptions of these units can be found in the report by Consulting Earth Scientists (CES, 2005) and in which they describe the alluvium and residual soils together as sandy clay, fine to medium grained, orange brown, very stiff with moisture content below the plastic limit.

2.3.6 Existing Fill – Southern Platform

The following section is relevant to Phase 1 consideration of the Emplacement, labelled PCA X and discussed in **Section 5.11**. Refer also to photos in **Appendix B**.

Much of the southern section of the Precinct (the former coal washery site and CSM area) is overlain by fill consisting of reject and tailings arising from the coal washery's former activities and imported excavated material (reportedly Virgin Excavated Natural Material [VENM]) in the south-eastern section of the Precinct owned and managed by Tripodi. It is understood that the VENM is being sourced from the Elizabeth Drive Waste Management Facility located at Kemps Creek, NSW. The VENM certificate is provided as **Appendix F**. The filled area extends to the east and south limits of the Precinct and is bound to the west by the Nepean River and to the north by the existing railway corridor (the *Glenlee Colliery Siding*) off the Main South Line.

Douglas Partners (2008) stated that the Emplacement is generally contained by a perimeter earth fill embankment constructed on the eastern, southern and western sides. The height of the embankment is approximately 18 to 23 metres. Core to the construction of the embankment is a berm approximately four metres wide with an approximate crest level of 90 m AHD. Internal embankments were also constructed and either added to or removed depending on the operations of the time which varied between wet and dry emplacement methods.

The coal reject (sourced from the Illawarra Coal Measures) is considered to be chemically benign and has previously been found to contain low metals concentrations and is usually non-detect for polycyclic aromatic hydrocarbons (PAHs). The coal reject has been confirmed by the NSW EPA to comply with the POEO (Waste) Regulation 2005 – General Exemption Under Part 6, Clause 51 and 51A *the coal washery rejects general exemption 2009*. However, other general industrial activities that supported the original coal processing (such as the workshop and fuel storage areas and the neighbouring transport depots) have the potential for contamination.

Laboratory analysis of soil samples collected from the bedrock and coal wash related to the Illawarra Coal Measures (as detailed in Hawkes, 2014) confirms that the materials are typically characterised with low metals concentrations as shown in **Table 3** below:

Table 3 Metals concentrations in the Illawarra Coal Measure lithology

Guideline*		Bedrock n = 242		Fill n = 331		Coal Wash n = 52	
Units	mg/kg	Mean	Range	Mean	Range	Mean	Range
Cu	7000	35.7	1 - 288	35.6	2 – 388	13	13 – 650
Pb	300	17.2	4 – 59	29.1	2 – 347	6	6 – 390
Zn	8000	60.2	1 – 427	137.7	3 – 3580	13	13 – 4900
Hg	200	-	<0.1 – 5.1	-	<0.1 – 4.2	<0.1	<0.1 – 0.2
Ni	400	35.5	2 – 147	35.2	2 – 255	3	3 – 158
Cd	20	-	<1 – 7	-	<1 – 2	<0.1	<0.1 – 1.9
Cr (V1)	100	21.3	1 – 122	21.5	3 – 178	3	3 – 120
As	100	7.6	1 - 40	7.0	<1 - 23	4.5	4.5 - 12

Coffey Geosciences (2005) noted that:

- The western and southern embankments are approximately 600 m long;
- The eastern embankment is approximately 850 m long;
- The embankments are typically battered at 2H:1V to 2.5H:1V;
- The faces of the embankments are generally well vegetated with grasses depending on the frequency of rainfall events in the area; and
- Upper faces of embankments consist of loose coarse reject with little or no grass cover.

The embankment batter slopes are variable, with sections in the northern part of the eastern embankment of the order of 4.5H:1V.

Episodes of placement of the coal washery reject material over time have led to sequences of very loose to loose deposits of sandy silt and sandy gravels covered in places by a thin silty clay topsoil. A number of investigations have been conducted within the study area and from these investigations; the fill deposit units can be described as follows (Coffey 2005; Consulting Earth Scientists 2005) (from top to bottom):

- 0 to 7m bgs: Sandy GRAVEL some cobbles, angular, black, carbonaceous, very loose to loose and dry to moist.
- 7 m to bottom of fill: two variable units:
  - Silty SAND with some fine gravel, medium grained, angular, black carbonaceous, low plasticity silt, moist to wet, very loose.
  - Sandy SILT with traces of fine gravel, low plasticity, fine to medium sand, black, moist to wet, soft.
- Also present at the bottom of the fill deposit: Sandy CLAY, brown, low to medium plasticity, fine to coarse moisture content greater than plastic limit, firm to stiff.

Cone Penetrometer Tests (CPT) and investigations by Douglas Partners (2008) provided results that exhibited variability in soil strength. Such heterogeneity is not unexpected given: (a) the length of time and breadth of area over which the emplacement has taken place; (b) the day-to-day variance in material types; and (c) the alternating wet and dry emplacement methods.

Douglas Partners (2008) report that both alluvial and residual soils were encountered under the emplacement. The alluvial clays and silts ranged in strength from soft to hard but typically within the firm to stiff range. The residual clays were generally within the stiff to very stiff range.

In modelling settlement characteristics of the emplacement, Douglas Partners (2008) divided the area into two zones (west and east) and further subdivided the western zone into two sub-zones, based on investigation findings:

- Zone A – west - primarily tailings;
- Zone B – west - primarily coarse reject; and
- Zone C – east – primarily coarse reject but with greater thickness of underlying alluvium.

Coffey and CES reported that the loose fill is eroding on the batter slopes with minor gully erosion on all batters. More prominent erosion gullies are also present up to four metres deep in places. These larger gullies are producing loose fan deposits of sediment at the toe of the batters. Coffey (2005) noted evidence of tension cracking at a few locations along the down-slope edge of the core berm. Consequently, the down slope area was repaired and re-profiled.

2.3.7 Groundwater

Geotechnical investigations by Douglas Partners (Douglas Partners, 2008) conducted on the Sada site encountered a perched water table above sandy silts representing contained moisture within the reject emplacement. The perched water table shows a gradual fall towards the tributary to the south of the study area. No natural groundwater table was encountered in any of the boreholes but it can be expected to be present at around the level of the Nepean River at approximately RL 50m AHD.

The cessation of coal washery operations has lowered the perched water table levels and could potentially allow it to completely dissipate. However, the *Water Cycle and Riparian Management Plan* (Maunsell 2008) recommended that a drainage system be installed in order to mitigate the risk of the perched water table reappearing during rainfall events.

The Precinct is identified on the Hawkesbury - Nepean Catchment Groundwater Vulnerability map prepared by the former Department of Land and Water Conservation (DLWC) as having a high vulnerability classification. Groundwater vulnerability mapping assesses the susceptibility of the underlying groundwater resource to contamination from surface activities. For the mapping, aquifer media and vadose zone impacts were considered most important, followed by:

- Hydraulic conductivity and depth of water table;
- Recharge and soil type; and
- Topography.

Consulting Earth Scientists (CES 2005), citing Wooley 1980 and Krumins et al 1998, stated that groundwater associated with the Wianamatta Shale is characterised by high salinity.

The *Preliminary Local Environmental Study for Menangle Park* (mg planning, September 2004) stated that a groundwater investigation recently undertaken in the Camden South area indicated that there were two distinct groundwater settings, namely:

- Groundwater within Wianamatta Group shale; and
- Groundwater within unconsolidated Quaternary deposits of the Nepean flood plain.

The report [mg planning, 2004] further stated that:

- Water levels in the hills area underlain by shale are typically shallow (two to three metres below ground level) and the water is brackish to saline; and
- The water table in the flood plain is deeper (eight to nine metres bgl) and is typically fresh.

Existing groundwater bores in the Menangle area are generally used for water supply, irrigation or monitoring.

The Department of Infrastructure Planning and Natural Resources (DIPNR, now Department of Planning and Infrastructure), in its January 2004 assessment of the Camden Gas Project Stage 2 Development Application, cites the EIS which states that the Hawkesbury Sandstone aquifers provide good quality groundwater resources and that this unit is separated from the Illawarra Coal Measures by the Narrabeen Group, which is a low permeability strata and therefore forms a hydraulic barrier.

Based on the above literature and knowledge of on-site hydrogeological conditions, the groundwater regime in the Precinct consists of the following:

- Groundwater in the shale and related beds in the (northern) E2 Environmental Conservation and TRN areas;
- Perched [falling] groundwater in the southern platform area;
- Regional; groundwater in the alluvium in the floodplain area; and
- Deep groundwater in the Illawarra Coal Measures.

Section 4.1 describes the quality of the perched groundwater below the Sada site (the southern reject emplacement platform) as it is expressed from the embankments. The water quality was found by Hayes (2009) to exhibit:

- elevated conductivity compared to river conductivity;
- variable dissolved oxygen concentrations with some supersaturated surface water in the washery dam (112% to 122%). This water stagnates in the pollution control dams; and
- pH values similar to those in the river.

The above review of groundwater indicates that the water quality parameters measured by Hayes (2009) do not indicate on their own the need for intervention. However, it should be noted that comprehensive chemical analysis was not undertaken. Another matter relevant to groundwater quality is that the water that is expressed from the sides of the embankment (as was assessed by Hayes), has passed through a significant filter in the form of the Emplacement material.

The *Water Cycle* report (sections of which are repeated below) stated that, based on initial discussions with the Department of Water and Environment (DWE) and the *Groundwater Management Handbook* (September, 2006) for a high vulnerability classification, the level of assessment required of all proposed developments within the Precinct would include all of the following tasks:

- Groundwater contamination assessment - desktop study to identify concerns and potential risks to groundwater or the environment and the need for any further action to be presented in the Development Application;
- Site investigation and monitoring - detailed groundwater investigation including an ongoing monitoring program, details on the protection design factors (natural attenuation, physical barriers etc);
- Demonstrated groundwater protection system - a protection design system incorporating natural attenuation, hydraulic barriers, physical barriers etc need to be demonstrated to be effective, and include a feasibility plan for a clean-up, in addition to a detailed monitoring and ongoing assessment program;
- Demonstrated Remedial Action Plan (RAP) - analysis on the effectiveness of the remediation approach in achieving designated water quality criteria including the financial capacity of the responsible party to enact the plan. In the event that the risk to groundwater is unacceptable, an activity/development may be banned by the responsible authority.

The level of groundwater assessment and remedial action which may be required for the Precinct will be determined by the type of development, particularly within any commercial/industrial areas. On this basis, any development would need to be designed to have a managed surface water system to minimise potentially contaminated surface waters (or accidental spills of pollutants) generated on the study area entering the underlying groundwater system.

The Glenlee Consortium has made undertakings to comply with the above water cycle management recommendations and therefore the risk of off-site movement of contamination through groundwater will be dealt with by engineering measures. The Phase 2 and 3 contamination studies will inform that design to the extent that any chemically contaminated groundwater identified through the Phase 2 site assessment process (i.e. involving intrusive soil and groundwater sampling and analysis) and which is not suitable for incorporation into water cycle management measures would be treated in accordance with its contamination status.

The NSW Natural Resource Atlas provided details of registered groundwater bores within a 5 kilometre radius of the Precinct. Twenty-four wells were identified within a 5 km radius of the Precinct, as summarised in **Table 4**, below.

Table 4 Registered Groundwater Bore Information

Bore ID	Drilled Depth (m bgs)	SWL (m bgs)	Distance/Direction from Site	Purpose	Comments
GW031438	23.9	2.4	2.3 km /northwest	Irrigation	Installed in 1968 for Irrigation
GW034450	190.5	-	2.2 km / north	Not known	Encountered shale at 6 m bgs and sandstone at 128 m bgs. Use is unknown
GW111102	8.5	2.0	2.3 km /northwest	Monitoring bore	Installed in 2010
GW111103	8.5	2.0	2.3 km /northwest	Monitoring bore	Installed in 2010
GW034351	182.9	-	2.0 km / north-northwest	Irrigation	Encountered shale at 5.5 m bgs and sandstone at 115 m bgs. Use is unknown
GW112482	-	-	2.0 km / north	Industrial	Installed in 2009
GW112824	12.5	4.17	2.5 km / northeast	Monitoring bore	Installed in 2011
GW112822	11.0	4.32	2.5 km / northeast	Monitoring bore	Installed in 2011
GW100329	32.3	9.0	2.4 km / west-northwest	Domestic Stock	Installed in 1993
GW026239	22.8	-	2.5 km / west	Irrigation	-
GW109704	14.5	9.5	2.1 km / west	Monitoring bore	Installed in 2001
GW102486	-	-	0.8 km / west	Monitoring bore	Installed in 1995
GW026474	26.1	-	0.5 km /west	Irrigation stock	Installed in 1965
GW026472	28.9	-	0.5 km /west	Irrigation stock	-
GW112476	682.0	-	0.7 km / southwest	Industrial	Installed in 2005
GW111974	18.0	-	0.1 km / south	Monitoring bore	Installed in 2012
GW111976	15.0	-	0.1 km / east	Monitoring bore	Installed in 2012
GW111975	15.0	-	0.1 km / east	Monitoring bore	Installed in 2012
GW111977	21.0	-	0.1 km / east	Monitoring bore	Installed in 2012
GW101106	280.0	17.0	1.2 km / southeast	Test bore	Installed in 1997
GW112477	2619.3	-	2 km / south	Industrial	Installed in 2007
GW110413	152.0	17.0	2.4 km / south	Industrial	Installed in 2009
GW024354	21.3	-	2.5 km / south	Recreation (groundwater)	Installed in 1966
GW024353	24.3	4.5	2.5 km / south	Recreation (groundwater)	Installed in 1966

Note: (-) denotes no information available

Results of the search indicate the bores located within a 5 km radius of the Precinct are registered for a range of purposes, including industrial, monitoring, irrigation and recreation. None of the registered bores were located on the Precinct. There are four bores located down-gradient of the Precinct and between the Precinct and an unnamed tributary of the Nepean River. These bores however are for monitoring purposes only and it is therefore unlikely that groundwater would be extracted for beneficial purposes prior to discharge to the Nepean River.

The above uses should be considered when assessing groundwater. A plan showing locations of the bores and information regarding the bores installation and usage are presented in **Appendix D**.

3.0 Information Review and Searches

3.1 Interviews

3.1.1 May 2013 Interviews

An interview was conducted with Mr Mark Brackenbury during a site inspection of the Precinct on 10 May 2013. A summary of the interview is provided below:

- Tripodi Site - new workshop and bunded re-fuelling station – above-ground storage tank; visible black staining on and around the fuel pump;
- Hydrocarbon odour on ridge at decommissioned Sada tank farm, when dust was sprayed down with water. Pieces of concrete, metal pipes protruding from edges of compacted ground level in some areas, and rock at surface in other parts;
- Insulation fibres protruding from burnt disused machinery in the plant and machinery "graveyard" on Sada portion of emplacement, large truck tyres, and rusting plant/machinery (including fuel tanks) with potential to still contain remnant oils or fuels;
- Multiple truck wash sites with stagnant water points;
- Uncovered loads – container wagons which travel through the middle of the Precinct were stationed on the Sada owned operational rail easement and multiple trucks entering and exiting the site. The trucks were covered when loaded except when tipping;
- Reports of building demolitions and re-constructions;
- Reports of illegal asbestos dumping in bushland on road edge at western entrance to the Precinct with off-site disposal coordinated by Sada;
- Significant re-grading of site topography in the Emplacement area;
- No physical access to the SITA/CSM site was possible during the inspection;
- Disused machinery, intermediate bulk containers (IBCs) and truck tyres on the TRN workshop site against eastern fenced boundary;
- TRN re-fuelling depot at driveway entrance to the Precinct - some ground staining and staining on the fuel bowsers. The ASTs appeared to be well maintained within secure fencing and in good condition;
- Large white survey markers in and around emplacement were observed to monitor settlement of coal washery reject;
- Organic / greenwaste piles comprised of non-degradable waste including plastic which was being picked at the time of inspection. Anecdotal information suggests biodegradation process active and gas accumulation in green waste; and
- On-site personnel gave anecdotal information of previous ecological study that drainage line was more bio-diverse than the neighbouring Nepean River.

3.2 Regulatory Instrument Search

A search was conducted in 2009 and November 2013 of the *Contaminated Land - Record of EPA Notices* for any records of written notices issued by the EPA under the *Contaminated Land Management Act* (1997), in relation to the investigation or remediation of site contamination. No records were found that applied to the Precinct

A review of the NSW Department of Primary Industries "Agriculture" Cattle Dip Site Locator did not reveal any dip sites within the Precinct.

A search was conducted of the EPA Public Register for any instruments issued that may be current on the Precinct under the *Protection of the Environment Operations Act* (1997). Instruments, including Environment Protection Licences and associated Notices were identified for the following sites within or directly adjacent to the Precinct:

- Glenlee Coal Preparation Plant (Licence No 1596); and
- Camden Soil Mix (Licence N^{o} 5647).

The regulatory instrument search did not identify any additional areas of concern.

3.2.1 Council Records

The s149 certificate indicated that there are no specific constraints associated with the Precinct or the proposed development, as would be detailed under s149 of the *Environmental Planning and Assessment Act* (EP&A Act 1979). Section 24, *Contaminated Land*, in the certificate highlighted Council's adoption of its policy on contaminated land.

Based on discussions with Council officers, it is understood that Agricultural Use is an activity listed in Appendix A (*Some Activities That May Cause Contamination)* of the Contaminated Land Policy. Section 7.2.2 part (a) of that Policy states that an investigation is necessary when the land is used for a listed activity, such as Agriculture. However, Appendix A of the Policy differentiates between extensive agriculture (for example, grazing of livestock) and intensive agriculture (for example, dairy farms, market garden and turf farm).

3.2.2 Site Environmental Protection Licences

Environmental Protection Licence (EPL) No. 1596 is in place for the land owned by Sada Services Pty Ltd. The EPL, issued under the *POEO Act* 1997, covers the premises described as the *Glenlee Coal Preparation Plant*. The current *Scheduled Activity* is *Waste Disposal by application to land*.

The EPL was varied by a number of notices as summarised in the table below:

Table 5 Summary of EPL Notices - Licence Variations

Licence Number	Issue Date	Requirements
1015090	4 June 2002	The notice varied the licence by: - Updating the premises address; - Updating the monitoring and discharge descriptions; - Removal of volume limits; - Updating noise limit conditions; - Updating dust minimisation conditions; - Amending frequency of water quality and volume monitoring; and - Editorial and formatting changes.
1084502	29 May 2008	The licence requires monitoring of wet weather discharge from the *overflow weir to the Nepean River from the N° 2 reclaimed water pond*. Monitoring parameters consist of pH (limit 6.5 to 8.5), total suspended solids (limit 30 mg/L) and biochemical oxygen demand (BOD, limit 20 mg/L). Sada is also required to measure [water] discharge volume and noise. The director of Sada Services has advised that no exceedences of licence limits have occurred.
1109653	14 January 2010	The notice varied the licence by the following: - The original licence 1596 was issued under the *Protection of the Environment Operations Act 1997*; - The *Protection of the Environment Operations Amendment (Scheduled Activities and Waste) Regulation 2008* commenced on 28 April 2008; and - Licence 1596 was varied to reflect the new list of scheduled activities and new waste classifications in the Act.

Licence Number	Issue Date	Requirements
1123898	21 January 2011	The notice varied the licence by the following: - An application for variation of the licence was received on 18 January 2011; - The application resulted in a reduction in the area and an adjustment to the boundary within which the licensed activities are undertaken; and - Areas to be removed were within Lot 38 DP 1098588 (formerly Lot 1101 DP 883495).
1126456	14 July 2011	The notice varied the licence by the following: - On 14 February 2011 the EPA received a report Douglas Partners (2011) *Report on Glenlee Emplacement Area Closure Plan*, February 2011; and - Following assessment of the report, variations were made to the licence to: add conditions that require the construction of the landfill capping as detailed in the report and; add conditions requiring the licensee to submit a report to EPA within three months of the completion of the landfill capping works.

EPL No 5647 is in place for the CSM area (now a SITA Australia business[3]). The EPL, issued to *SITA Australia Pty Ltd* covers the CSM premises, Scheduled Activity *Waste storage – other types of waste*.

The EPL was varied by a number of notices as summarised in the table below:

Table 6 Summary of EPL Notices - Licence Variations

Licence Number	Issue Date	Requirements
1005522	24 May 2001	The notice varied the licence by the following: - The EPA had received odour complaints from members of the Mount Annan and Narellan community over a period of 15 months; - On 14 August 2000, the licensee responded to the EPA request for an odour reduction plan for the premises in compliance with section 129 of the POEO Act 1997; - An inspection on 16 March 2001 by the EPA indicated odour was being emitted from the premises. It is understood that the odours were generated from the composting operations.
1016427	29 July 2002	The notice varied the licence by the following: - In response to ongoing odour emissions the EPA was provided with *Odour Impact Assessment of Current and Proposed Operation*, September 2001 and associated letters on 31 August 2001, 19 September 2001 and 28 February 2002. These documents proposed relocation of the composting operation to the furthest southerly point of the Precinct and enclosure of the composing process in 3 to 5 years; and - Changes to the licence consider the proposals and to ensure they will be carried out in a timely manner.

[3] CSM was previously owned by WSN Environmental Solutions until being purchased by SITA in February 2011.

Licence Number	Issue Date	Requirements
1019778	19 September 2002	The notice varied the licence by the following: - An application to vary the licence was received by the EPA on 16 March 2001. The variation included the addition of waste types that are permitted to be received onto the premises to enable product development and commissioning of a Vertical Composting Unit; - One 2 May 2002 and 9 July 2002 additional applications to vary the licence were received. The variation included the additional waste type that can be received on the premises be added to the licence; and - The licence was also variated as an outcome of the Licence Review conducted by the EPA as required under section 78 of the POEO Act 1997.
1025207	7 March 2003	The notice varied the licence by the following: - As a result of variation 1016427, the licensee was required to have lodged a development application with Campbelltown City Council by 30 December 2002 to allow permanent relocation of the composting activities to the coal fines salvage area at the most southerly part of the Precinct; - The licensee was seeking to rezone 27 hectares to permit composting and recycling operations to be carried out on the whole of the Precinct to allow for the movement of activities southwards as an odour mitigation strategy. Campbelltown Council advised that a Local Environment Study (LES) was required as part of the rezoning process, which was in progress at the time of the variation; and - The licensee lodged a section 96 application with Campbelltown Council on 20 January 2003, to relocate the outdoor greenwaste receival area and windrow composting operations to the southern end of the Precinct pending the rezoning.
1032889	2 December 2003	The notice varied the licence by the following: - As a result of variation 1016427, the Pollution Reduction Program (PRP) condition U1.1 of the licence set out a timetable requiring 1) the licensee submit a development application to relocate the composting operations; and 2) to submit to the EPA a detailed design for the proposed enclosed composting system with supporting documentation outlined in the PRP; - On 20 November 2003 the licensee advised that the PRP requirements had been advanced but was requesting an extension to the deadline whilst the LES was being completed; - The extension was granted and the licence amended accordingly including the changes to the PRP.
1034270	4 February 2004	The notice varied the licence by the following: - On 16 January 2004, the EPA received a request to vary licence condition U1 to extend the timeframe to enclose composting activities at the premises, due to unforeseen delays in obtaining the required development consent.

Licence Number	Issue Date	Requirements
1043014	10 December 2004	The notice varied the licence by the following: - On 11 November 2004 the licensee advised the EPA the rezoning application was still being processed by Campbelltown City Council and requested the licence variation to extend the remaining dates for fulfilling the PRP accordingly; and - In response to the latest licence variation application the EPA decided to rewrite the PRP to that timelines for the remaining PRP requirements were linked to the approval date of the rezoning approval, rather than a specific date, therefore negating the requirement to issue further licence variations in relation to timelines and target dates.
1052990	24 October 2005	The notice varied the licence by the following: - On 20 October 2005, the EPA received an application for the variation of the licence to conduct a trial of source separation of organic wastes received at the premises and the licence was varied to allow the trial to take place.
1096555	3 February 2009	The notice varied the licence by the following: - On 20 November 2003 and 13 January 2004 the licensee applied for a variation for the same reasons as notices 1032889 and 1034270 to extend the PRP dates to take into consideration delays being experienced in the rezoning and development application
1109891	16 December 2009	The notice varied the licence by the following: - On 23 November 2009 the EPA received an application for the variation of the licence. The application sought to vary licence condition A2.1 by amending the area of the scheduled activity to reflect that the licensed activities occur on the part lot leased by the licensee.
1114416	27 July 2010	The notice varied the licence by the following: - The DECCW has identified a number of activities with the potential to create offsite odour impacts. DECCW varied the licence to require modification to operational practices and included a PRP to identify and provide options for mitigating potential odour sources; and - A draft version of these modifications to the licence was provided to the licensee for comment on 21 May 2010 and the licensees comments have been considered as part of this variation.
1119461	15 September 2010	The notice varied the licence by the following: - On 14 September 2010, the EPA received an application for variation of the licence; - WSN Environmental Solutions has requested a variation to licence condition U1.1. The variation includes the assessment of timeframe for the completion of the odour impact assessment study from 16 September 2010 to 24 September 2010 and the odour mitigation study from 16 September 2010 to 15 October 2010 with the final report due on 16 November 2010; and - The licence was amended accordingly to reflect the above requests.

Licence Number	Issue Date	Requirements
1129416	15 June 2011	The notice varied the licence by the following: - On 30 May 2011, the EPA received an application for the variation of the licence, the application provided an Odour Management Plan for the Precinct and requested the removal of odour related to operating hour restrictions in Condition O.3; and - The following variations were made to the licence: removal of the operating hour restrictions, addition of a new PRP requiring the licensee validate that the odour mitigation measures proposed be implemented at the premises, removal of condition U1 PRP as this has been complied with, and remove poultry mortalities from the licence as this waste is no longer received at the premises.
1505549	22 May 2013	The notice varied the licence by the following: - The NSW EPA has received a significant volume of odour complaints from the four SITA operated waste facilities at Spring Farm. The EPA commissioned independent consultants to undertake an *Odour Impact and Mitigation Study* of the premises in accordance with the methodologies set out in the NSW DEC guidance; - The key findings were that the block style primary composting process and green waste shredding are creating offsite odour impacts under certain conditions and that significant improvements could be made by amending these sources through establishing regularly turned windrows of the primary composting and shredding of greenwaste in a shed; - On 20 April 2012 the EPA provided the licensee with a draft variation incorporating the key findings of the *Odour Impact and Mitigation Study for Camden Soil Mix*; - The licensee proposed to provide an alternative to solution in response to shredding activities by 17 June 2013; and - The EPA amended the notice and finalised the changes.

3.3 Past Land Uses – Review of Heritage Report

Historyworks (February 2009) prepared a *Heritage Assessment: Glenlee Precinct Local Environment Study*, which sets out the historical uses of the subject land back to the time of the British settlement. The report describes the Precinct history and land uses as follows:

The area is part of an alluvial floodplain, with shale deposits at Mount Annan resulting in a unique vegetation community. At the time of arrival of Europeans, the [Precinct] was part of the lands of the Tharawal people. The first squatters arrived in the district after 1800. Gradually thereafter the number of Aborigines diminished. By the mid 1790s the line of the first road, Cowpasture Road, was surveyed and Governor King granted John Macarthur 5,000 acres to establish a sheep farm. By 1810 John Macarthur held 7,000 acres at Camden Park eventually to expand to 28,000 acres on both sides of the Nepean River. The Macarthur property was a major rural enterprise. In 1818 Governor Macquarie granted 3,000 acres on the eastern side of the river to William Howe, a Scottish free settler. By the 1830s Glenlee Estate was one of the best dairy farms in the colony, half a century before dairying was generally practised in the district. Within Howe's estate, called Glenlee that the Glenlee facility is located. By 1820 Howe had expanded his property to over 7,000 acres and was shipping wool to London. In 1837 the Precinct was described as a large extent of cleared land on the Glenlee Estate, the greater part of which has been laid down with English grasses, the paddocks being separated from each other by hedges of quince or lemon tree. The property was sold to James Fitzpatrick in 1859 and it remained in Fitzpatrick's family (with various subdivisions to members of the family) until 1968 when it was purchased by the State Planning Authority which gazetted it as a place of historic interest.

Until the 1950s the Glenlee and Camden Park estates comprised an uninterrupted rural landscape spanning the Nepean River. Glenlee was still a major working dairy farm.

However, increasing production of coal from the Burragorang/Nattai River mines to the south-west, and the need to transport it to the export loading plant at Balmain in Sydney, led to purchase of part of the Glenlee Estate and

construction of a washery and transhipment facility between Mount Annan and the river, in the 1950s. A two-kilometre rail spur to the facility (called Clinton's siding) was constructed from the Main Southern Railway and opened in December 1958. The use of the coal facility peaked in the 1960s and 1970s but was scaled down from the late 1980s due to decline and ultimate closure of the Burragorang Valley mines, though the infrastructure still remains in use and as a significant element in the local landscape.

In 1993 the Glenlee Composting Facility commenced operation on the Precinct, producing soil mixes, mulches and topdressing material for rehabilitation of the coal facility and for the horticultural and landscape industries. The process used the coal tailing as an additive to the soils to improve carbon content and texture.

To the north of the coal facility site, other industrial uses developed, the TRN Group facility and, the largest, Jacks Gully (now known as the Macarthur Resource Recovery Park). After the State Planning Authority purchase of the Glenlee estate in 1968, the land within Jacks Gully was sold to Clutha Development Pty. Ltd. who quarried the land for sand and shale. In April 1975, the Metropolitan Waste Disposal Authority commenced operation of the waste management centre at the Precinct, following several years of negotiations with Camden Council. The Centre's land was leased from Clutha until 1995 when it was purchased by the Authority's successor, the Waste Recycling and Processing Corporation (Waste Service NSW, now SITA). In recent years the former Glenlee Estate lands to the north and north-west of Jacks Gully have been designated urban release areas and have become the residential estate precincts comprising the suburbs of Mount Annan and Spring Farm.

3.4 WorkCover Records Search

At AECOM's request WorkCover undertook a search of their records in 2009 of the dangerous goods licensing history for the Precinct.

A summary of the findings of the search are as follows:

- Various chemicals and gasses are stored on the adjacent SITA landfill site associated with the Alterative Waste Treatment Plant on that site. Records also show a fuel storage area on the landfill site.
- The TRN site had a licence for storage of ammonium nitrate.
- There are various plans showing the TRN Tank Area relatively consistent although with some differences in the details. They show three ASTs in close proximity in the north-eastern part of this area two around 250,000L and one around 55,000L capacities. There is an additional 55,000L Above-ground Storage Tank (AST) in a bund in the south-eastern part of the area. Each of the AST areas is shown to be connected by underground pipework to two bowser islands (four islands in total) with two bowsers per island.

WorkCover records are presented in **Appendix E**.

Based on the findings of the May 2013 site inspection, AECOM understands that a diesel AST has been installed on the Tripodi operated portion of the Precinct.

3.5 Historical Land Uses

The Precinct is generally recognised as having originally been occupied by the speakers of the Dharawal (Tharawal) language until the early 19th century. Land use during the 19th and early 20th centuries typically involved cattle and sheep grazing.

The majority of the Precinct is heavily disturbed by historical and current industrial-related activities.

The coal washery commenced operation in the 1950s. Volumes of coal processed peaked in the 1960s and 1970s before the operation was scaled down in the 1980s and recently ceasing altogether. In September 1973, development consent was issued for the emplacement of reject to construct dam walls to retain coal slurry, formalising both historical and ongoing emplacement operations.

In the 1980s, recycling of the coarse reject material commenced for the purpose of recovering coal fines, an operation that had previously been uneconomical. Current site operations include the receipt of reject from the Metropolitan Colliery at Helensburgh and the emplacement of that reject material to a high standard of compaction, with a view to future site development. Laboratory analysis of the coal reject indicates that it is environmentally benign and has been used extensively throughout the Illawarra region with no reported detrimental environmental effects.

The Camden Soil Mix (CSM) business (now a SITA business) is located within the historic boundary of the former coal washery, and has been developed on the coal washery reject platform (the emplacement). CSM is a soil, sand and coal reject mixing and embellishing facility that processes and treats a range of materials including green waste and manure to produce compost. The CSM business uses a range of process plant for the processing of raw materials incorporated in the compost product, as well as plant for loading and unloading of trucks. [Note the matter of changes in surface levels and gradients mentioned in Section 2.3.4.2 *Emplacement*.]

A number of fuel tanks and workshops are located onsite for the support and servicing of plant and equipment.

TRN Group Earthmoving operates a truck depot, and has facilities for fleet service and maintenance, administration and parking and storage of plant and equipment. The depot has been built on a platform of coal washery reject that is separate to and at a higher elevation than the more prominent southern washery reject platform. Most of the plant and equipment on the TRN site at any one time is either in temporary storage while in transit between jobs or brought to the workshop for maintenance. TRN also operates above-ground fuel tanks at the entry to the Precinct, adjacent to SITA.

A prominent east-west aligned linear feature in the approximate centre of the Precinct is a railway siding (the Glenlee rail siding) off the Main South Line (excluded from the contamination assessment, refer to **Figure 2**). The junction with the Main South Up Line is approximately 60 [rail] kilometres from Sydney. The 300 m long triangular junction leads to a 337 m long Master Siding which in turn splits to two sidings of 1,428 m and 1,364 m length.

3.6 NSW EPA Contaminated Lands Database

A search of the NSW EPA contaminated lands database conducted on 26 September 2013 to evaluate whether the Precinct or surrounding properties were listed under Section 58 of the *Contaminated Land Management Act* (1997). A search was conducted for both the Camden and Campbelltown Local Government Areas. No listings for the Precinct or properties in the immediate area were indicated. Copies of the EPA searches are provided in **Appendix G**.

4.0 Potentially Contaminating Activities / Areas

PCAs have been identified at the Precinct within the following areas:

- The TRN Site, mainly the workshop and apron areas;
- That part of the CSM area on which composting operations, fuel storage and plant maintenance activities are carried out; and
- The Sada services area associated with plant maintenance and fuel storage.

For completeness, the balance of the Precinct (lying outside of the identified PCAs) is also considered in this Phase 1 assessment.

The identified PCAs are described in the following sub-sections. Descriptions of the various areas of the Precinct and the associated activities and site histories are drawn from the documents listed in **Section 1.9**.

4.1 Sada Coal Washery

Sada is the current owner and operator of the former Glenlee Washery and Industrial Complex (the coal washery site). Coal was imported by road from the Burragorang Valley mines which all mine Bulli seam coal. After being processed in the coal washery, the prepared coal was loaded onto trains for transport to coal loaders at Port Kembla and Balmain.

In September 1973, development consent was issued for the emplacement of reject to construct dam walls to retain coal slurry, formalising both historical and ongoing emplacement operations. No specification for the means and quantity of emplacement of the coal washery reject was identified during this Phase 1 study. The coal washery reject is generally 15 to 20 m in depth, but is reported as being up to 26 m in depth (Coffey Geosciences, 2005).

In the 1980s, recycling of the coarse reject material commenced for the purpose of recovering coal fines, an operation that had previously been uneconomical. Current site operations include the receipt of reject from the Metropolitan Colliery at Helensburgh and the emplacement of that reject material to a high standard of compaction, with a view to future site development.

A number of environmental studies in relation to the Precinct have reported that, due to the low acid generation potential of the source of the Bulli seam coal which has been the only coal treated at the coal washery, negligible potential exists for acid formation by the coal washery reject. International Environmental Consultants (IEC) (2003, 2004, 2006 & 2008) cites analysis of Metropolitan Colliery reject material by the Department of Mineral Resources in 2002 reporting a Net Acid Producing Potential (NAPP) of “negative15” which Indicates that *there is no prospect of acid mine drainage occurring* (IEC, 2008). IEC (2004) also states that:

Reject produced from the Illawarra Coal Measures, which includes both the Bulli and Wongawilli seams is stable, contains low concentrations of metals and has no propensity to produce acid leachate.

IEC reported that the coal reject from the same seam is (environmentally) benign and has been used extensively throughout the Illawarra region with no reported detrimental environmental effects. IEC has cited the following specific projects where the material has been utilised with no apparent adverse issues:

- Stage 2 West Dapto Urban Release; and
- Road construction sub-base for the F6 Freeway and the M5 Motorway tollgate developments.

In its 2004 report, IEC states that:

- The reject materials are non-saline;
- pH values are alkaline (7.3 to 8.6) and within the normal range for healthy plant growth; and
- Nutrient levels are generally low but non-hazardous.

As part of the *Ecological Assessment* for the Precinct, Hayes Environmental (2009) assessed the aquatic habitat within the drains and dams at the Precinct. In several cases, the water that was sampled and reported was seepage water that is considered to represent water that is perched within the fill platform being expressed out of the embankments. The water quality results, which include pH, turbidity, BOD and EC, are within site-specific licence limits and are consistent with other studies cited by IEC, including water analyses performed for and

reported in a 1994 EIS. IEC (2008) states that: (a) *the data indicates that the washery site is not affecting water quality immediately downstream*; and (b) *this reject has been on site for up to 50 years and is not showing any signs of generating acid mine drainage*.

A range of process plant is located onsite, including both current and disused plant associated with the former coal washery, coal winning and loading and unloading of trucks and trains. In addition, a number of above ground fuel tanks (ASTs) and works shops are located onsite for the support and servicing of plant and equipment. A spray-type truck wash is located onsite to wash down vehicles leaving the facility.

Literature review (refer Section 1.7 *Historical Document Review*) indicated the following areas on the former coal washery site to be potentially contaminated:

- Sada Refuelling areas and drum storage – leaks, spills and/or historical operational practices;
- The Sada workshop – historical operational practices;
- The Sada truck wash - historical operational practices; and
- The Sada rail easement/loading areas - historical operational practices.

The term “historical practices” refers to known, assumed or speculated practices, for example storage of oils and cleaning materials in non-bunded areas that would present greater risk of pollution than may be the case using current practices.

Given the age of buildings and structures these would also be considered to be potential contamination sources due to the potential presence of hazardous materials such as lead paint and asbestos in the structures and the associate potential for introduction of these to surrounding soils through weathering, leaching or demolition.

Mark Brackenbury of Sada advised in 2009 the Sada Workshop has been onsite since the 1960’s, is made up of three abutting buildings and is used for the maintenance of Sada’s trucks and earthmoving equipment which generally operate on the adjacent emplacement. In the past, when Sada’s operations included coal washing, the workshops were also used for steel fabrication and repair. The floor of the workshop is concrete in good condition. Work such as welding and grinding is done mainly in the workshop but also may be carried out outside on the apron area occasionally. The following above ground bulk oil tanks are contained within the workshops: Bulk Engine Oil 1440L , Bulk Hydraulic Oil 1300L, Bulk Gear oil tank 650L, Waste Oil tank 2000L. The oil and hydraulic fluid collection trays gravity feed to the waste oil tank on a lower level (but above ground). The waste oil from that tank is collected at regular intervals by an oil recycler. Fluids and chemicals used in the workshop include small quantities of transmission and engine oils, hydraulic oil, grease, engine coolant and detergents stored in small containers or drums.

Two ASTs were observed at the Precinct during the May 2013 site inspection. One red AST at the rear of the Sada workshop in a bunded facility and another white, fully bunded AST labelled diesel (disused and not identified during the 2009 inspection) located on grass adjacent to the Sada car park labelled diesel.

4.2 Camden Soil Mix - CSM

The Camden Soil Mix (CSM) business is located within the historic boundary of the former coal washery, and has been developed on the coal washery reject platform. The CSM business (leased and operated by SITA) which continues the same activities carried out by CSM, but in a larger scale. The CSM area covers 27 ha.

A pre-acquisition contamination assessment was carried out on the operational part of the CSM area by Environmental and Earth Sciences (EES) in 2008. The footprint of the operational area is 7 ha. The pre-acquisition contamination assessment of the subject 7 ha is documented in the report *Limited Due Diligence Assessment at Lot 1102 DP 883495, Glenlee Road, Menangle Park* (Environmental Earth Sciences - EES – June 2008). The EES report states as follows:

The objective of the assessment was to determine the contamination status of the Precinct prior to lease entry and to establish baseline data. The work undertaken included desktop review of available geological, soil and hydrogeological maps and a limited intrusive soil investigation. Fill material was encountered across the Precinct up to at least 3 m depth and comprised coal washery fines with some ash, gravels and yellow silts, sands and clays. Natural material was encountered within the northern portion of the Precinct at depths between 0.3 m and 2 m and consisted of yellow brown silty clays. The layers of fill material and the underlying natural soils were sampled and analysed for various identified contaminants of concern. The analytical results for heavy metals, PAHs, BTEX and OCPs for all soil samples were below site criteria (NEPM F – commercial/industrial). Elevated

TPH (in excess of criteria) were found near the diesel AST to a maximum depth of 0.9 m and are attributed to localised spillage during refuelling activities.

Part of the changes to the CSM area associated with the business acquisition involved regrading of the surface, thus eliminating the CSM Dams. The operations are covered by Environmental Protection Licence No 5647.

Brown (2006) describes CSM as a soil mixing and embellishing facility that processes and treats a range of materials including green waste and manure to produce compost. While the CSM operation retains all surface water onsite for reuse, the volume of water that might be lost to infiltration through the underlying coal washery reject platform is unknown. Water stored in dams onsite and that may infiltrate through the reject material and down to the perched and lower aquifer may potentially be contaminated with nutrients and possibly other contaminants in manure. The composting operation also uses fine coal reject as an additive to improve carbon content and texture.

EES (2008) states that approximately 4.5 ha of the CSM area was used for stockpiling of a range of processed landscaping products while the balance of the 7 ha is workshop, machinery parking and transition between stockpiles and machinery-related areas.

Mark Brackenbury of Sada advised in 2009 that the CSM Workshop was built in the year 2000 is used for the maintenance of CSM's conventional compost-moving and compost-stockpile management equipment. There was no workshop on this site before that time. The floor of the workshop is concrete in good condition with grates across all doorways to the workshop to direct any runoff from the floor to an oil separator. Water from the wash down area is also directed to the oil separator. Oil from the oil separator is plumbed to an underground waste oil tank as is used oil and hydraulic fluid from workshop processes. Work such as welding and grinding is done mainly in the workshop but also may be carried out outside on the apron area occasionally. Areas outside of the workshop complex are used for parking of mobile equipment and storage of operations-related equipment and gear. Minor quantities of fuels, oils and solvents are stored in small containers within the workshop.

A range of process plant is used at the CSM site for the processing of raw materials incorporated in the compost product, as well as plant for loading and unloading of trucks. In addition, there are a suspected number of fuel tanks in this area, (one white AST in a bunded facility was visible outside the first workshop in the northern portion of the Precinct) and workshops located onsite for the support and servicing of plant and equipment. As AECOM were unable to inspect this area during the 2013 inspection, there is uncertainty regarding the presence of additional above or underground tanks within this area.

Literature review, interviews, inspection and reference to auditor guidelines indicates that the following sections in the CSM area may potentially be contaminated:

- CSM nutrient laden surface water dams potentially impacting underlying groundwater and soils;
- CSM refuelling areas and tanks - (the potentially contaminating processes being leaks and/or historical operational practices);
- The CSM workshop - (the potentially contaminating processes being historical operational practices and potential leakage from the waste oil tank); and
- The materials processing and stockpiling areas to the extent that residual odours may be an issue to be dealt with during the future redevelopment.

Note that the name *CSM Dams* in the Land Capability Assessment report might have been better expressed as the CSM Ponds as clarification of the Phase 1 research with respect to this area indicates that the "Dams" were no more than surface low points or ponds down gradient of the composting operations.

4.3 TRN

TRN Group Earthmoving operates a truck depot, and has facilities for fleet service and maintenance, administration and parking and storage of plant and equipment. The depot has been built on a platform of coal washery reject that is separate to and at a higher elevation than the more prominent southern washery reject platform. While a range of plant is located onsite, this is for temporary storage between jobs offsite or for maintenance. TRN also operates a fuel storage facility (above-ground tank farm) at the entry to the Precinct, adjacent to SITA.

Nathan Fordham of TRN Group advised in 2009 that the TRN workshop is utilised as a truck and repair centre by TRN Group. In addition, AECOM was advised during the 2013 site inspection that the TRN site is leased/utilised

by other businesses for various purposes. As such the storage of oils, cleaning solvents (small quantities stored in containers at various locations inside the workshop) and spare parts occurs within the facility. The workshop was built in the early 1990s and originally used as a truck repair centre for Bulkhaul (later HBL). Interior floors are concrete while external areas are bitumen sealed. The workshop features drive over bays with tanks to collect used engine oil which is then collected at a later date by a contractor for recycling. The workshop is bunded with concrete dish drains which drains into an above ground oil water separator at the eastern end of the workshop. There is an underground tank (approximately 10,000L) in front of the workshop which collects engine oil from trucks connected by pipes to oil tins in the workshop maintenance pits. Oil from within this underground tank is pumped out by contractors. Mr Fordham advised that all repair and workshop activities occur within the workshop.

The literature review indicated that the following areas on the TRN site may potentially be contaminated.

- The TRN workshop and apron - (the potentially contaminating processes being historical operational practices including potential leaks from vehicles and equipment and potential leakage from the underground waste oil tank); and
- The TRN tank farm and refuelling area - (the potentially contaminating processes being leaks and/or historical operational practices).

4.4 Rail Corridor

A prominent east-west aligned linear feature in the approximate centre of the Precinct is a railway siding (the Glenlee rail siding) off the Main South Up Line. The junction with the Main South Up Line, which is approximately 60 [rail] kilometres from Sydney, is triangular and consists of north and south forks each approximately 300 m long. The 337 m long Master Siding leads from the junction of the forks. The Master Siding in turn splits to two sidings of 1,428 m and 1,364 m length.

With respect to the Glenlee rail siding, development planning indicates that the railway corridor will remain in its current location and therefore no change in land use [of the corridor] is anticipated. No documented or visual evidence of spill events exists. Given that the landuse of the railway corridor is not changing (i.e. it is proposed to continue to be used as a railway corridor), at the request of the client the corridor has been excluded from further consideration.

4.5 Asbestos

Asbestos products were banned in the late 1970s and therefore, it is possible that buildings on-site which pre-date that time may contain building materials or fittings with some asbestos content. Actions such as building refurbishment or simple long term weathering may have contributed to loss of fragments to the surface. Such materials will be included in hazardous materials surveys (pre-demolition) and in Phase 2 site characterisation.

The *Geotechnical* section of the Land Capability Assessment report stated that:

Fill materials are present over sections of steeper slopes such as in the east-west oriented Green Link/TRN area. The fill materials appear to be non-engineered sidecast materials overlying the formed (cut) slopes. Such materials are generally considered to be undesirable for permanent development due to their unknown, variable and unpredictable nature.

Asbestos will be managed by specialist asbestos removal operators. No evidence of asbestos (fibro) contamination was observed during AECOM's site inspections, however the scope of Phase 2 investigations of areas where buildings have been demolished, and more broadly at the identified PCAs assessment will include collection and analysis of soil samples for asbestos.

4.6 Remainder of Site

This assessment has identified a number of areas that as a result of past industrial and emplacement activities are considered to have the potential to be contaminated.

Potentially contaminating activities were not identified in the remaining parts of the Precinct which have comprised unused land including steep slopes, flood plain, the main coal reject emplacement and heavily vegetated areas.

Nevertheless to address the potential for as yet unidentified contaminating activities to have been undertaken in other parts of the Precinct a strategy should be put in place to check the bulk of the Precinct for which there was no reason to suspect contamination. This strategy should include inspections plus targeted sampling based on observations of circumstances such as non-natural ground profiles, evidence of past demolition or industrial activities, fly tipping, atypical vegetation areas, odorous areas and surface runoff areas etc.

4.7 Identified Potentially Contaminated Areas

The following table

Table 7 lists the PCAs and associated CoPC within the Precinct identified through the Phase 1 investigation process:

Table 7 Potentially Contaminated Areas

PCA Reference	PCA Description	Activity	Potential Contamination	Environmental Media
A	Sada Tank	Refuelling and drum storage	Metals, PAH, TPH, BTEX	Soil, Groundwater
B	Sada Workshops	Vehicle Maintenance	Metals, PAH, TPH, BTEX, Phenols, VOCs, SVOCs, Asbestos	Soil, Groundwater
C	Sada Truck Wash	Truck Wash	PAH, TPH	Soil, Groundwater
D	Sada Rail Easement	Rail Easement	TPH, BTEX, Metals, Asbestos, PAHs	Soil
E	Sada Decommissioned Coal Washery	Transformer Storage	PCBs, TPH, BTEX, Metals	Soil, Groundwater
F	CSM/Tripodi Tank	Refuelling	Metals, PAH, TPH, BTEX	Soil Groundwater
G	CSM/SITA Workshops	Vehicle Maintenance	Metals, PAH, TPH, BTEX, Phenols, VOCs, SVOCs	Soil, Groundwater
H	TRN Workshop and Truck Wash	Vehicle Maintenance, underground waste oil tank and truck wash	Metals, PAH, TPH, BTEX, Phenols, VOCs, SVOCs	Soil, Groundwater
I	TRN Tank Farm	Refuelling	Metals, PAH, TPH, BTEX	Soil, Groundwater
J	CSM/SITA Stockpiling Areas	Composting Operations	Odours	Aesthetics
M	CSM/Tripodi Dams	Ephemeral Storage of Surface Water	Nutrients, Metals, PAHs, TPH	Groundwater, Former Sediments, Soil
P*	CSM/Tripodi Tank	Refuelling	Metals, PAH, TPH, BTEX	Soil, Groundwater
Q*	CSM/Tripodi Workshop	Vehicle Maintenance	Metals, PAH, TPH, BTEX, Phenols, VOCs, SVOCs	Soil, Groundwater
S*	Sada Plant and Machinery “Graveyard”	Vehicle, buildings, plant, tyres and machinery storage	PAHs, BTEX, TPH, Metals	Soil, Groundwater
X	Emplacement	Consolidation of coal washery reject	PAHs, TPH, Metals	Soil/coal wash, Groundwater
Z	Remainder of Site	As yet unidentified potentially contaminating activities (if any) or potential area of filling	Based on nature of an identified potentially contaminating activity (if any)	Based on nature of an identified potentially contaminating activity (if any)

Source: Land Capability Assessment report, Maunsell 2008, plus PCA X nominated by the Auditor

Notes: *Sampling and analysis of soil for asbestos assessment to be included in surface soil samples based on environmental scientist field observations of prevalence of surface debris and/or obvious fibro.*

The extent of filling soil (refer Section 2.3) nor its source is unable to be determined at this stage. Where fill is found to be present it should be assessed for potential contaminants.

Metals include As, Cd, Cr, Cu, Ni, Pb, Zn and Hg

** New areas identified during 2013 inspection not previously present on Site during the 2007 and 2009 site inspections*

With respect to the issue of landfill gas migration from the SITA landfill located offsite to the north of the Precinct, SITA (a member of the Glenlee Landholders Group) is currently managing Phase 2 landfill gas investigations which will be reported and audited separately.

4.8 Previous Remediation and Validation Works

It is noted that former 'PCA L - Sada Decommissioned Tank Farm' which was identified in the original *Phase 1 Contamination Assessment* (AECOM, 2009) was subsequently investigated and identified to have minor petroleum impacts in the shallow soils. Remediation and validation works were undertaken within the impacted area and David Lane Environmental concluded that the remediated area was validated '*suitable for an end land use consistent with NEPM 1999 Table 5a Column F - Commercial / Industrial*'. The Phase 2 site investigations, remediation, validation and auditing works are detailed in the following reports:

- DLA (2009a). Phase 2 Detailed Environmental Site Assessment, Springs Road, Glenlee (Part Lot 38 DP 1098588), Proposed Lot 1101 DP 883495. May 2009;
- DLA (2009b). Remediation Action Plan, Glenlee, Springs Road, Glenlee, Part Lot 38 DP 1098588. June 2009;
- JBS Environmental (2009). Site Audit Report, 0503-0807, Sada Administration Building, Part Lot 38 DP 1098588 (Proposed Lot 1101 DP 883495). June 2009;
- DLA (2012). Validation Report, SADA, Administration and Maintenance Buildings, Springs Road, Glenlee, Part Lot 38 DP 1098588. September 2012; and
- Enviroview (2012). Site Audit Report (including Site Audit Statement 0301-1208), Part Lot 38 DP 1098588, 214 Springs Road, Mount Annan, NSW. October 2012.

Based on the investigation, remediation, validation and auditing works detailed in the above reports former PCA L is no longer considered to be an area of concern and, subsequently, is not discussed further in this report.

4.9 Proposed Land Use Zones and Potentially Contaminated Areas

The following **Table 8** sets out the proposed land use categories/zones within which each of the identified PCAs are located based on current master planning. This land use categorisation is important with respect to establishing the soil investigation levels for future Phase 2 investigations.

Health Investigation Levels (HIL) for contaminants in soil as presented in the Schedule B7 of the *NEPM Amendment Measure* (ASC NEPC, 1999) will be adopted for site investigation works to be conducted at the Precinct. The HILs are appropriate for the following land use categories:

- HIL A - residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake, (no poultry), also includes children's day care centres, preschools and primary schools.
- HIL B - residential with minimal opportunities for soil access includes dwellings with fully and permanently paved yard space such as high-rise buildings and flats.
- HIL C - public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths. It does not include undeveloped public open space (such as urban bushland and reserves) which should be subject to a site-specific assessment where appropriate.
- HIL D - commercial/industrial such as shops, offices, factories and industrial sites.

Based on the proposed land uses for the Precinct, the ASC NEPM (1999) HILs HIL D (commercial/industrial) are likely to apply.

Should there be any changes to the proposed PP then the following should be reviewed and updated where required.

Table 8 Applicable Soil Investigation Levels

PCA Reference	PCA Description	Proposed Land Use *NEPM* (ASC NEPC, 1999) Category HIL	*NEPM* (ASC NEPC, 1999) Exposure Setting
A	Sada Tank	Commercial/Industrial	D
B	Sada Workshops	Commercial/Industrial	D
C	Sada Truck Wash	Commercial/Industrial	D
D	Sada Rail Easement	Commercial/Industrial	D
E	Sada Decommissioned Coal Washery	Commercial/Industrial	D
M	CSM Dams	Commercial/Industrial	D
J	CSM/SITA Compost Storage and Processing Areas	Commercial/Industrial	D
F	CSM/SITA Tank	Commercial/Industrial	D
G	CSM/SITA Workshops	Commercial/Industrial	D
H	TRN Workshop and Truck Wash	Commercial/Industrial	D
I	TRN Tank Farm	Commercial/Industrial	D
P*	CSM/Tripodi Tank	Commercial/Industrial	D
Q*	CSM/Tripodi Workshop	Commercial/Industrial	D
S*	Sada plant and Machinery "Graveyard"	Commercial/Industrial	D
X	Emplacement	Commercial/Industrial	D
Z	Remainder of Precinct	Commercial/Industrial	D

Notes: ** New areas identified during 2013 inspection not previously present on Site*

5.0 Individual Potentially Contaminated Area Descriptions

5.1 Introduction

The following sections describe factors relevant to:

- Identification of potential contaminated areas (PCAs) under discussion with respect to property identifier/s, location in relation to nearby landmarks (for example site buildings and roads etc);
- Potentially contaminating land uses and activities; and
- Surface features.

Detailed plans of the PCAs identified in this Phase 1 investigation are provided in **Appendix A** as follows:

- Figure 6: PCA A B C - Sada Tank Workshops Truck Wash
- Figure 7: PCA E - Former Transformer Area
- Figure 8: PCA F and G - Workshop Yard and CSM Tank
- Figure 9: PCA H - TRN Workshops
- Figure 10: PCA I - TRN Tank Farm
- Figure 11: PCA J - Raw Materials and Compost Storage
- Figure 12: PCA S - Plant Machinery Material and AST Graveyard
- Figure 13: PCA P & Q - Workshop and Diesel Refuelling Facility

5.2 PCA A – Sada Tanks

5.2.1 Property Descriptor

The Sada Tank is located within Lot 38 DP 1098588.

5.2.2 Location within the Precinct

One above ground tank is located adjacent to the Sada workshops, south of the TRN workshops and on the northern edge of the [coal washery reject] emplacement. During the 2013 inspection of the Precinct, a second diesel AST (fully bunded) was observed on the grassed area south of the Sada car park.

Refer to **Figure 4.1** in **Section 4.0** which provides a sketch of Phase 1 investigation site locations.

5.2.3 Description

The Sada Tank is a single above ground fuel storage tank (AST) within a bund structure approximately 15 m x 5 m in plan view and approximately 1.5 m height. The floor of the bund is concrete and the walls are constructed from reinforced and concrete-filled concrete blockwork.

The floor of the bund displays minor cracking. Minor staining is slightly discernible on the washery reject platform material alongside the bund.

The capacity of the AST is approximately 50,000 litres.

5.2.4 Operations

The AST was, and continues to be, used for refuelling of site earthmoving equipment. Bulk fuel is delivered directly to the AST. Diesel fuel is dispensed from the AST.

5.2.5 Contamination Mechanism

The primary contamination mechanism is spillage to ground within and outside of the bunded area. The surrounding area is flat and general groundwater flow is towards the Nepean River, although subsurface conditions are expected to be variable. Ground consists of coal washery reject and therefore spillage is expected to be contained within the filling (coal washery reject) material.

5.2.6 Potential Contaminants

As the history of usage of the AST is the receipt and distribution of diesel fuel, the potential contaminants include:

- Metals;
- TPH;
- BTEX; and;
- PAH.

5.2.7 Exposure Pathways

Human exposure pathways consist of dermal exposure to dust and free phase fuel (if any), and minor inhalation risk through generation of vapours in areas directly adjacent to fuel storage areas.

Distance of several hundred metres to where seepage is expressed from the walls of the Emplacement and the significant depth of washery reject is such that human and ecological exposure to groundwater has a low likelihood in light of the expected filtering role played by the body of the Emplacement material.

5.2.8 Photos

Refer to **Appendix B** for photos of the Sada Tank.

5.3 PCA B – Sada Workshops

5.3.1 Property Descriptor

The Sada Workshops are located within Lot 38 DP 1098588.

5.3.2 Location within the Precinct

The Sada Workshops are located adjacent to the Sada Tank, south of the TRN workshops and on the northern edge of the [coal washery reject] emplacement.

5.3.3 Description

The workshops are a complex of steel-sheet-clad and concrete floor sheds and intermediate/apron areas covering a footprint of approximately 80 m x 80 m (including apron/parking areas). Access to the sheds is via an internal roadway and roller shutter openings.

5.3.4 Operations

Mark Brackenbury of Sada advised in 2009 the Sada Workshop has been onsite since the 1960's, is made up of three abutting buildings and is used for the maintenance of Sada's trucks and earthmoving equipment which generally operate on the adjacent emplacement. In the past, when Sada's operations included coal washing, the workshops were also used for steel fabrication and repair. The floor of the workshop is concrete in good condition. Work such as welding and grinding is done mainly in the workshop but also may be carried out outside on the apron area occasionally. The following above ground bulk oil tanks are contained within the workshops: Bulk Engine Oil 1440L , Bulk Hydraulic Oil 1300L, Bulk Gear oil tank 650L, Waste Oil tank 2000L. The oil and hydraulic fluid collection trays gravity feed to the waste oil tank on a lower level (but above ground). The waste oil from that tank is collected at regular intervals by an oil recycler. Fluids and chemicals used in the workshop include small quantities of transmission and engine oils, hydraulic oil, grease, engine coolant and detergents stored in small containers or drums.

5.3.5 Contamination Mechanism

The primary contamination mechanisms are:

- Spillage of liquids to ground within and outside of the workshops; and
- Loss of debris to ground, such as welding and grinding residues.

The surrounding area is flat and gently graded towards the emplacement.

Minor staining of floors is apparent.

General groundwater flow is towards the site perimeter drains and pollution control dams, although subsurface conditions are expected to be variable. Ground outside of the workshops consists of coal washery reject and therefore spillage and debris-related contamination are expected to be contained within the filling (coal washery reject) material adjacent to the workshops.

5.3.6 Potential Contaminants

As the history of usage of the Sada Workshops is the maintenance and fabrication of fixed and mobile plant, the potential contaminants include:

- Metals;
- TPH;
- BTEX;
- PAH;
- Phenols;
- VOCs;
- SVOCs; and
- Asbestos.

5.3.7 Exposure Pathways

Human exposure pathways consist of dermal exposure to contamination-impacted dust and soil and to free phase fuel, oil and solvents (if any) and potential inhalation of vapours in areas directly adjacent to fuel storage areas.

5.3.8 Photos

Refer to **Appendix B** for photos of the Sada Workshop.

5.4 PCA C – Sada Truck Wash

5.4.1 Property Descriptor

The Sada Truck Wash is located within Lot 38 DP 1098588.

5.4.2 Location within the Precinct

The Sada Truck Wash is located adjacent to and north-west of the Sada workshops, south of the TRN workshops and on the northern edge of the [coal washery reject] emplacement. The truck wash forms part of the complex including Sada Workshop and fuel AST.

5.4.3 Description

The Sada Truck Wash comprises a bitumen paved parking area adjacent to the main access road to the emplacement. The truck wash equipment consists of water sprays. Wash residues run to ground and dissipate on washery reject (emplacement) surface. Built up residues are recovered by earthmoving plant and placed within operating areas of the emplacement. The flow path of waste water extends approximately 40 metres downstream of the wash facility.

5.4.4 Operations

Washing of truck and trailer bodies by pressure water spray, detergent is not used.

5.4.5 Contamination Mechanism

The primary contamination pathway is incorporation of grease and oil from truck under-body areas in coal and soil dust washed off vehicles, discharging on the surface downgradient of the facility.

The surrounding area is flat and gently graded towards the emplacement.

Impacts could be spread along the wash down water flowpath.

General groundwater flow is towards the site perimeter drains and pollution control dams, although subsurface conditions are expected to be variable. Oil and grease-related contamination is expected to be contained within the downgradient filling (coal washery reject) material.

5.4.6 Potential Contaminants

As the history of usage of the truck wash is the simple pressure washing of vehicle external surfaces, the potential contaminants include:

- TPH; and;
- PAH.

5.4.7 Exposure Pathways

Human exposure pathways consist of dermal exposure to dust and free phase oil and grease (if any), and minor inhalation risk.

The wash water flow path appears to cease some 40m from the truck wash with the water presumably infiltrating.

5.4.8 Photos

Refer to **Appendix B** for photos of the Sada Truck Wash.

5.5 PCA D – Sada Rail Easement

5.5.1 Property Descriptor

The Sada Rail Easement is located within Lot 38 DP 1098588.

5.5.2 Location within the Precinct

The Sada Rail Easement is a prominent east-west aligned linear feature in the approximate centre of the Precinct is a railway siding.

5.5.3 Description

The Glenlee rail siding enters the Precinct off the Main South Up Line. The junction with the Main South Up Line, which is approximately 60 [rail] kilometres from Sydney, is triangular and consists of north and south forks each approximately 300 m long. The 337 m long Master Siding leads from the junction of the forks. The Master Siding in turn splits to two sidings of 1,428 m and 1,364 m length.

5.5.4 Operations

Coal was imported by road from the Burragorang Valley mines which all mine Bulli seam coal. After being processed in the coal washery, the prepared coal was loaded onto trains for transport to coal loaders at Port Kembla and Balmain

Development planning indicates that the railway corridor will remain in its current location and therefore no change in land use [of the corridor] is anticipated. Therefore, at this stage no Phase 2 investigation has been proposed for this area.

5.5.5 Contamination Mechanism

Used approximately 15 times per week by interstate freight transport, potential for trains to contain ACM and transport loads of unknown content.

5.5.6 Potential Contaminants

No documented or visual evidence of spill events exists. Detailed contamination investigation of the corridor would only be required in the event that the railway infrastructure were to be demolished and the corridor converted to another land use. The nature and fate of any removed soil or rail ballast from the easement/corridor would be dealt with in materials management plans in any future development. Assessment of such material would include contaminants typical to railways, including metals, PAHs, herbicides, asbestos fibres, oil and grease etc.

5.5.7 Exposure Pathways

Human exposure pathways consist of dermal exposure to dust, and minor inhalation risk.

5.5.8 Photos

Refer to **Appendix B** for photos of the Sada Rail Easement.

5.6 PCA E – Sada Decommissioned Coal Washery/Loader

5.6.1 Property Descriptor

The Sada Decommissioned Coal Washery/Loader is located within Lot 38 DP 1098588

5.6.2 Location within the Precinct

The Sada Decommissioned Coal Washery/Loader is located south of the ridge between the former Jacks Gully landfill (now MRRP), west of the TRN workshops and north of the emplacement.

5.6.3 Description

The subject area is now substantially demolished. Some concrete pavement and partially demolished retaining wall remain. Prior to demolition the area was occupied by the main washery plant, consisting of surge bin, conveyors and washing plant. The area is set into the side of the ridge and is elevated above the Emplacement platform.

The area on which the transformers are believed to have been stored is approximately 10 m x 30 m.

5.6.4 Operations

While the principal use of the area was as the washery, the reason for the nomination of this site is that electrical transformers are thought to have been stored in a corner of the area.

During discussions with site staff it was reported that a number of electrical transformers were stored to the north of the current Sada offices, either in or around a facility thought to be the decommissioned coal washery. Sada staff stated that the storage and removal of the transformers, and any subsequent cleanup, occurred prior to the commencement of Sada's operations. Given the time period in question, it is possible that the transformers contained PCB laden oil. In terms of identifying possible sources of contamination, the storage of decommissioned transformers is associated with oil leakage. While Sada staff have indicated that the area was cleaned after the removal of the transformers, there is no evidence of soil sampling, analysis or any reports relating to PCB impacts. No visual indication of oil staining was observed on the surface of this area.

5.6.5 Contamination Mechanism

As surface grades are moderate and surface soils have not been removed in demolition operations, it is possible that spillage of transformer oil, if any, would be contained locally in soil. The area is concrete-paved and the pavement is effectively acting as a barrier to soil and groundwater exposure. In this context, the endpoint of loss of transformer oil would be expected to be cracks or other breaches of pavement or surface runoff leading to localised impacts on soil.

No aquifers are expected to exist in and around the area, however transient perched groundwater may occur during and immediately after rainfall events.

5.6.6 Potential Contaminants

As the focus of this period of history of usage of the former coal washery relates to storage of transformer/s, the primary potential contaminant is PCB.

Further, while intrusive investigation may concentrate on the presence of PCB oil, it may also consider potential contaminants such as hydrocarbons and asbestos that would be associated with the age of the structure and the use of the area as a coal loader.

5.6.7 Exposure Pathways

Human exposure pathways consist of dermal exposure to PCB impacted soil and dust, plus inhalation risk.

Oil spillage is expected to be contained within surface soils and behind the adjacent retaining wall structure. As little or no permanent groundwater exists in the area, groundwater risk is considered to have a low likelihood. Nevertheless in the event significant contamination is detected in soil then groundwater should also be considered.

5.6.8 Photos

Refer to **Appendix B** for photos of the Sada Decommissioned Coal Washery.

5.7 PCA F – CSM Tank

5.7.1 Property Descriptor

The CSM Tank is located within Lot 1102 DP 883495.

5.7.2 Location within the Precinct

The CSM operations are located in the south-east corner of the Site. Facilities in the area include workshops, outdoor storage of equipment plus the subject bunded AST.

5.7.3 Description

The Camden Soil Mix (CSM) business is located within the historic boundary of the former coal washery, and has been developed on the coal washery reject platform. Brown (2006) describes CSM as a soil mixing and embellishing facility that processes and treats a range of materials including green waste and manure to produce compost.

The CSM Tank Farm is a single AST within a bund structure approximately 15 m x 5 m in plan view and approximately 1.5 m height. The floor of the bund is concrete and the walls reinforced and concrete-filled concrete blockwork.

The floor of the bund displays minor cracking.

The AST is approximately 20,000+ litre capacity.

5.7.4 Operations

The AST was, and continues to be, used for refuelling of site earthmoving equipment. Bulk fuel is delivered directly to the AST. Diesel fuel is dispensed from the AST.

5.7.5 Contamination Mechanism

The primary contamination mechanism is localised spillage to ground within and outside of the bunded area. The surrounding area is flat and general groundwater flow is south east towards the external drain and pollution control dams, although subsurface conditions are expected to be variable. Ground consists of coal washery reject and therefore any localised spills are expected to be contained within the filling (coal washery reject) material.

EES (2008) states that elevated TPH concentrations were found in excess of site criteria (EPA and NEPM F) at one borehole near the diesel AST to a depth of 0.9 metres and attributable to localised spillage during refuelling activities.

5.7.6 Potential Contaminants

As the history of usage of the AST is the receipt and distribution of diesel fuel, the potential contaminants include:

- Metals;
- TPH;
- BTEX; and;
- PAH.

5.7.7 Exposure Pathways

Human exposure pathways consist of dermal exposure to dust and free phase fuel (if any), and minor inhalation risk through vapour generation in areas directly adjacent to fuel storage areas.

5.7.8 Photos

Refer to **Appendix B** for photos of the CSM Tank.

5.8 PCA G – CSM Workshops

5.8.1 Property Descriptor

The CSM Workshops are located within Lot 1102 DP 883495.

The footprint of the workshop area is approximately 50 m x 100 m.

5.8.2 Location within the Precinct

The CSM operations are located in the south east corner of the Precinct. Facilities in the area include workshops, outdoor storage of equipment plus the subject bunded AST. The CSM portion of the Precinct is presently operated by SITA.

5.8.3 Description

The workshops consist of two steel-sheet-clad and concrete floor sheds, constructed over the emplacement. Access to the sheds is via an internal roadway and roller shutter openings. Minor staining of concrete floor of the workshops is apparent.

The potential for USTs to be present beneath the workshops is unknown, due to restricted access during the 2013 inspection.

5.8.4 Operations

Mark Brackenbury of Sada advised in 2009 that the CSM Workshop was built in the year 2000 is used for the maintenance of CSM's conventional compost-moving and compost-stockpile management equipment. There was no workshop on this site before that time. The floor of the workshop is concrete in good condition with grates across all doorways to the workshop to direct any runoff from the floor to an oil separator. Water from the wash down area is also directed to the oil separator. Oil from the oil separator is plumbed to an underground waste oil tank as is used oil and hydraulic fluid from workshop processes. Work such as welding and grinding is done mainly in the workshop but also may be carried out outside on the apron area occasionally. Areas outside of the workshop complex are used for parking of mobile equipment and storage of operations-related equipment and gear. Minor quantities of fuels, oils and solvents are stored in small containers within the workshop.

5.8.5 Contamination Mechanism

The primary contamination mechanisms are:

- Spillage of liquids to ground within and outside of the workshops;
- Loss of debris to ground, such as welding and grinding residues;
- Leakage from the underground waste oil tank.

The surrounding area is flat and gently graded towards the emplacement.

General groundwater flow is towards the main perimeter drain and the pollution control dams, although subsurface conditions are expected to be variable. Ground outside of the workshops consists of coal washery reject and therefore spillage and debris-related contamination are expected to be contained within the filling (coal washery reject) material. However, this will be tested as a function of Phase 2 investigations.

Note that as the workshop is less than 15 years old it is considered there is a low likelihood of widespread contamination to be present associated with the workshop.

5.8.6 Potential Contaminants

As the historical use of the CSM Workshops is the maintenance and fabrication of fixed and mobile plant, the potential contaminants include:

- Metals;
- TPH;
- BTEX;
- PAH.
- Phenols;
- VOCs; and
- SVOCs.

5.8.7 Exposure Pathways

Human exposure pathways consist of dermal exposure to dust and free phase fuel, oil and solvents (if any), and minor inhalation risk through vapour generation in areas directly adjacent to fuel storage areas.

5.8.8 Photos

Refer to **Appendix B** for photos of the CSM Workshop.

5.9 PCA H – TRN Workshop and Truck Wash

5.9.1 Property Descriptor

The TRN Workshop and Truck Wash is located within Lot 54 DP 864754.

The footprint of the workshop area is approximately 250 m x 150 m. The major workshop shed is approximately 100 m x 40 m and a smaller shed 40 m x 25 m.

The workshops were constructed in the early 1990s.

5.9.2 Location within the Precinct

The TRN workshops are located:

- North of the rail corridor; and
- In the approximate centre-east of the Precinct.

The TRN Truck Wash is located on the west to east road running through the northern-middle portion of the Precinct connecting the TRN tank farm to the TRN workshops on the northern edge of the (coal washery reject) emplacement.

5.9.3 Description

The TRN workshops are a large metal clad and concrete floor workshops. They are located centrally on a flat, cleared platform which was constructed from emplacement material in 1989. Equipment, spares and scrap are stored around the north, east and south outer edges of the platform. Access is via a dedicated single internal road and then via roller shutter openings to the buildings. The main workshop shed includes an oily water separator. An underground waste oil tank is located outside the workshop.

As the workshops were constructed in the early 1990s there is a low likelihood of occurrence of asbestos. However, some soil samples from the apron area should be analysed for the presence of asbestos in the event that demolition waste was included in the material used to form the platform.

The TRN Truck Wash comprises a bitumen and concrete paved roadway area adjacent to the main access road to the emplacement. The truck wash equipment consists of water sprays. Wash residues run to ground and dissipate onto concrete/bitumen hardstand and exposed grass and soil surfaces adjacent to the roadway.

5.9.4 Operations

TRN Group Earthmoving operates the area as a truck depot, and has facilities for fleet service and maintenance, administration and parking and storage of plant and equipment. The depot has been built on a platform of coal washery reject that is separate to and at a higher elevation than the more prominent southern washery reject platform (emplacement). Most of the plant and equipment on the TRN site at any one time is either in temporary storage while in transit between jobs or brought to the workshop for maintenance. TRN also operates above-ground fuel tanks at the entry to the Precinct, adjacent to CSM site operated by SITA. Anecdotal evidence obtained during the May 2013 site inspection suggests the TRN Site is leased and used by various other companies for transport related uses.

The truck wash involves washing of truck and trailer bodies by pressure water spray, detergent is not used.

5.9.5 Contamination Mechanism

The primary contamination mechanisms are:

- Spillage of liquids to ground within and outside of the workshops;
- Leakage from the underground waste oil tank; and

- Loss of debris to ground, such as welding and grinding residues;
- Incorporation of grease and oil from truck under-body areas in coal and soil dust washed off vehicles, discharging on the surface down-gradient of the facility. Impacts could be spread along the wash down water flowpath.

The surrounding area is flat and grades moderately towards the emplacement.

General groundwater flow is towards the site perimeter drains and pollution control dams, although subsurface conditions are expected to be variable. Ground outside of the workshops consists of coal washery reject and therefore localised spills and debris-related contamination are expected to be contained within the coal washery reject material.

5.9.6 Potential Contaminants

As the history of usage of the TRN Workshops is the maintenance and fabrication of fixed and mobile plant, the potential contaminants include:

- Metals;
- TPH;
- BTEX;
- PAH;
- Phenols;
- VOCs; and
- SVOCs.

5.9.7 Exposure Pathways

Human exposure pathways consist of dermal exposure to dust and free phase fuel, oil and solvents (if any), metals and minor inhalation risk through vapour generation in areas directly adjacent to fuel storage areas.

5.9.8 Photos

Refer to **Appendix B** for photos of the TRN Workshop.

5.10 PCA I – TRN Tank Farm

5.10.1 Property Descriptor

The TRN Tank Farm is located within Lot 54 DP 864754.

5.10.2 Location within the Precinct

The TRN tank farm is located in a shallow arc (by plan view) at the western entrance to the Precinct and is accessed by paved road off to the north side of the main entry.

5.10.3 Description

The TRN tank farm at the entry to the Precinct consists of two large vertical above ground storage tanks (ASTs) with an additional smaller (approximately 55,000L) AST immediately adjacent. One of these large ASTs and the smaller AST are no longer in use.

An additional approximately 55,000L tank AST is located in a bunded area south of the above major tanks. A number of smaller tanks are also located in this area storing engine oil.

Four separate bowser islands (two of which are still in use) are located downgradient of the tank installations. It is understood that the transfer pipes between tanks and bowsers pass under the concrete road pavement. It is further understood that the two main tank areas are connected by a pipe not referred to on WorkCover plans.

The series of tanks were and are used to supply diesel fuel to TRN's fleet of heavy vehicles.

The overall dimensions of the area are 80 m x 40 m.

The two main interviewees confirmed that no fuel infrastructure was demolished from the late 1970s but were not aware of that the status of the area prior to that date.

5.10.4 Operations

The tank farm receives bulk deliveries of diesel fuel and was constructed at a time when fuel deliveries were less reliable that current circumstances. Fuel was dispensed from a series of bowsers. While historical research indicates that only diesel was used, the possibility of storage of leaded fuel cannot be discounted.

5.10.5 Contamination Mechanism

The primary contamination mechanism is spillage to ground within a range of locations, including at pumping equipment, connection points, along transfer lines and at bowsers.

The Precinct area has a moderate grade down towards the Emplacement area. Groundwater flow is inferred as being toward the site perimeter drains and pollution control dams and is unlikely to be influenced by the emplacement. Ground downgradient is natural and relatively undisturbed once beyond the road platform. Movement of any bulk and/or long term spillage is expected to move downgradient either within surface soils or at the soil/rock interface.

5.10.6 Potential Contaminants

As the history of usage of the ASTs is the receipt and distribution of diesel fuel and possibly gasoline, the potential contaminants include:

- Metals;
- TPH;
- BTEX; and;
- PAH.

5.10.7 Exposure Pathways

Human exposure pathways consist of dermal exposure to dust and free phase fuel (if any), and inhalation risk through vapour generation in areas directly adjacent to fuel storage areas.

5.10.8 Photos

Refer to **Appendix B** for photos of the TRN Tank Farm.

5.11 PCA J – CSM Compost Storage and Processing Areas

5.11.1 Property Descriptor

The composting area is located within Lot 1102 DP 883495.

The footprint of the area is approximately 150 m x 300 m.

5.11.2 Location within the Precinct

The CSM area is located in the south-eastern portion of the Precinct.

5.11.3 Description

The CSM composting operation takes place on a flat platform of compacted coal washery reject south east of the CSM workshop area and is leased and operated by SITA. The area is bounded by open land to the south (also reject material), open lightly vegetated land to the east, a private road to the north and the CSM workshop and blending building to the west and north-west.

5.11.4 Operations

CSM receives waste organic materials (in accordance with licence constraints) and holds the material in stockpiles for processing and blending. Processing involves the picking/removal of general household waste/garbage mixed with green waste. Once blended, the material is placed in windrows to mature and is then sold as landscaping material.

5.11.5 Contamination Mechanism

The primary contamination mechanism is release of vapours and gases generated from decomposition and odours. In addition, the importation of general waste mixed with greenwaste during the sorting process and the contact of these materials with underlying soils.

5.11.6 Potential Contaminants

Organic vapour release and odour (Aesthetic Issue), unknown contaminant contact with underlying soils.

5.11.7 Exposure Pathways

Human exposure pathways consist of olfactory reception from above ground stockpiles and from soil gas if disturbed.

5.12 PCA M – CSM Dams

5.12.1 Property Descriptor

The CSM Dams were located within Lot 1102 DP 883495 on the Tripodi owned portion of the Precinct.

5.12.2 Location within the Precinct

The CSM dam area is located in the south-eastern portion of the Precinct. Refer also to **Figure 1** *Stormwater Drainage and Flooding Plan* in **Section 2.3.2.2**.

5.12.3 Description

The CSM surface water storage "dams' were an incidental part of daily operations as unlined ponds, on the Emplacement along surface run-off pathways.

The name "CSM Dams" in the Land Capability Assessment report might have been better expressed as the *CSM Ponds* as clarification of the Phase 1 research with respect to this area indicates that the "Dams" were no more than surface low points or ponds down gradient of the composting operations.

This portion of the Precinct is presently owned and managed by Camden Soil Mix (CSM) business (now SITA's).

5.12.4 Operations

The CSM business is located within the historic boundary of the former coal washery, and has been developed on the coal washery reject platform (the emplacement). Brown (2006) describes CSM as a soil mixing and embellishing facility that processes and treats a range of materials including green waste and manure to produce compost.

The EPL for the operations allows receipt and processing of the following materials:

- Garden waste;
- Manure;
- Grade A stabilised biosolids;
- Coal wash fines;
- Sand;
- Sawdust;
- Washed coal-fired boiler ash;
- Topsoil;
- Grain dust;
- Paper pulp;
- Poultry mortalities; and
- General or specific exempted waste

A range of process plant is used at the Precinct for the processing of raw materials incorporated in the compost product, as well as plant for loading and unloading of trucks. In addition, a fuel tank and workshops are located onsite for the support and servicing of plant and equipment.

When the business operations of CSM were taken over, the platform was raised and the ponds lost. Operations continue in accordance with the relevant EPL.

Anecdotal evidence indicates that the ponds were rarely seen to overflow, the stored water instead being lost through downwards infiltration plus evaporation. The area is currently (May 2013) overlain by 20-25 metres of excavated materials imported from Eastern Creek.

5.12.5 Contamination Mechanism

The primary contaminant mechanisms relating to the conservative inclusion of the CSM Dams (Ponds) consisted of potential impacts of composting-related residues on localised surface soil [washery reject platform materials], water infiltration from the ponds through the reject platform, and infrequent surface water overflows.

The material that was used to regrade the compost working area and hence the CSM Dams (Ponds) was won from the Emplacement. In light of the CSM area and operations being located and conducted on the Emplacement, the regrading works are not considered to constitute a contamination risk over and above that which might exist in the Emplacement itself.

5.12.6 Potential Contaminants

As coal-fired boiler ash has been incorporated into composting operations, it would be prudent to assess local soil for the potential for metal and PAH contamination.

Moderately elevated nutrient concentrations were measured by Hayes (2009). The potential for an adverse environmental impact exists in the event that excessive nutrients were to enter the groundwater system and/or the Nepean River. However, it should be noted that the path of infiltration water from the surface of the ponds to expression from the side banks of the embankment or to the river involves passage through a significant body of coal washery reject.

Assessment of the environment-related quality of groundwater beneath the Precinct as part of detailed site planning efforts should include analysis of nutrients and related water quality parameters including pH. The results of future groundwater quality assessment/s should inform improvements to composting operations and infrastructure and include elimination of infiltration of surface water. Water stored in the CSM ponds that in the past and nowadays may infiltrate through the reject material and down to the perched and lower aquifer may potentially be contaminated with nutrients and possibly other contaminants in the manure.

The volume of water that might in the past or nowadays be lost to infiltration through the underlying coal washery reject platform (below and around the dam) is unknown.

No water is available in CSM-related former storages for neither analysis for nutrients nor the standard water quality parameters.

TPH and possibly metals should also be considered as a potential contaminant of concern due to possible past migration from the CSM tank area or workshops. It should be noted that EES (2008) found only low level TPH contamination at one location adjacent to the CSM AST.

The assessment of potential contamination related to past and current composting operations is best achieved through construction of groundwater monitoring wells and collection of drill cuttings for soil analysis.

5.12.7 Exposure Pathways

Elevated nutrient concentrations such as those reported by Hayes (2009) are not a human exposure concern.

Human exposure may result from dermal contact with soil and inhalation of dust.

The principal ecological exposure pathways are surface water and groundwater, both of which are inferred to discharge to the main pollution control dam.

5.13 PCA P –Tripodi Tank

5.13.1 Property Descriptor

The Tripodi Tank is located within Lot 1102 DP 883495.

5.13.2 Location within the Precinct

The Tripodi operations are located in the south-east corner of the Precinct. Facilities in the area include workshops, outdoor storage of equipment plus the subject bunded AST.

5.13.3 Description

The Tripodi Tank is a single AST approximately 15 m x 5 m in plan view and approximately 3 m height. The AST is contained within a bunded shipping container with an external refuelling pump and computer.

Some minor staining was observed around the refuelling point located outside the bunded shipping container.

The tank is approximately 20,000+ litre capacity.

It is understood the AST was installed at the Precinct between 2009 and 2013.

5.13.4 Operations

The AST was, and continues to be used for refuelling of site earthmoving equipment. Bulk fuel is delivered directly to the AST. Diesel fuel is dispensed from the AST.

5.13.5 Contamination Mechanism

The primary contamination mechanism is likely to be spillage to ground within and outside of the bunded area during refuelling and filling operations. The surrounding area is flat exposed emplacement and general groundwater flow is towards the main perimeter drain and pollution control ponds, although subsurface conditions are expected to be variable. Ground cover consists of coal washery reject and therefore any localised spills are expected to be contained within the immediate surrounding filling (coal washery reject) material.

As this area was newly identified during the 2013 site inspection, no previous investigations or sampling have occurred in this area.

5.13.6 Potential Contaminants

As the history of usage of the AST is the receipt and distribution of diesel fuel, the potential contaminants include:

- Metals;
- TPH;
- BTEX; and
- PAH.

5.13.7 Exposure Pathways

Human exposure pathways consist of dermal exposure to dust and free phase fuel (if any), and minor inhalation risk, that is, soil and vapour in areas directly adjacent to fuel storage areas.

5.13.8 Photos

Refer to **Appendix B** for photos of the Tripodi Tank.

5.14 PCA Q - Tripodi Workshop

5.14.1 Property Descriptor

The Tripodi Workshop is located within Lot 1102 DP 883495.

The footprint of the workshop area is approximately 50 m x 20 m.

The workshops were constructed between 2009 and 2013.

5.14.2 Location within the Precinct

The Tripodi operations are located in the south-east corner of the Precinct. Facilities in the area include a bunded AST, outdoor storage of equipment plus the subject workshop.

5.14.3 Description

The Tripodi workshop is a large metal clad and concrete floor workshop. It is located centrally on a flat portion of emplacement material and constructed between 2009 and 2013. The workshop has been built on a platform of coal washery reject as part of the emplacement area. Equipment, spares and scrap are stored around the north, east and south outer edges of the workshop area. The main workshop shed includes underground platforms for the servicing and maintenance of machinery and plant. Caltex labelled drums and machinery spares were stored immediately outside and to the west of the workshop.

5.14.4 Operations

The Tripodi workshop is used for the maintenance of Tripodi plant and machinery which operate in the adjacent emplacement area. The floor of the workshop is in good condition with underground maintenance bays to allow for servicing. Caltex labelled drums and machinery spares were stored immediately outside and to the west of the workshop.

Possible fluids and chemicals used in the workshop likely include small quantities of transmission and engine oils, hydraulic oil, grease, engine coolant and detergents stored in small containers or drums.

5.14.5 Contamination Mechanism

The primary contamination mechanisms are:

- Spillage of liquids to ground within and outside of the workshops;
- Leakage from stored drums, plant and machinery; and
- Loss of debris to ground, such as welding and grinding residues.

The surrounding area is flat and grades moderately towards the south-east.

General groundwater flow is towards the main perimeter drain and pollution control ponds, although subsurface conditions are expected to be variable. Ground outside of the workshops consists of coal washery reject and therefore localised spills and debris-related contamination are expected to be contained within the immediate area of filling (coal washery reject) material.

5.14.6 Potential Contaminants

As the Tripodi Workshop is for the maintenance and fabrication of fixed and mobile plant, the potential contaminants include:

- Metals;
- TPH;
- BTEX;
- VOCs
- SVOCs (including phenols); and
- PAH.

5.14.7 Exposure Pathways

Human exposure pathways consist of dermal exposure to dust and free phase fuel, oil and solvents (if any), metals and minor inhalation risk through vapour generation in areas directly adjacent to fuel storage areas.

5.14.8 Photos

Refer to **Appendix B** for photos of the Tripodi Workshop.

5.15 PCA S - Sada Plant and Machinery 'Graveyard'

5.15.1 Property Descriptor

The Sada Plant and Machinery 'Graveyard' is located within the Sada Coal Washery reject Emplacement area located within Lot 1102 DP 883495 and Lot 38 DP 1098588.

5.15.2 Location within the Precinct

The Emplacement occupies the bulk of the south western corner of the Precinct.

5.15.3 Description and Operations

Much of the southern section of the Precinct (the former coal washery site) is overlain by fill consisting of washery reject and tailings arising from the Sada coal washery's former activities and those of its predecessor.

The "graveyard" was observed to comprise disused plant, machinery and spares including stockpiles of truck tyres, steel, fuel tanks, storage trucks, excavators, demountable office buildings and various coal washery-related plant; likely from the decommissioned coal loader and Sada tank farm.

The content of fuel tanks and machinery at the time of inspection was unknown.

5.15.4 Contamination Mechanism

The primary contamination mechanisms are:

- Spillage of liquids to ground in the Emplacement area;
- Type of exposed insulation material used from burnt out machinery; and
- Age/degeneration of plant and machinery, rusting to ground in the Emplacement area.

The surrounding area is flat and grades moderately towards the Emplacement.

5.15.5 Potential Contaminants

The potential contaminants associated with the use of this area of emplacement for the storage of disused plant and machinery, include:

- Metals;
- TPH;
- BTEX; and
- PAH.

5.15.6 Exposure Pathways

Human exposure pathways consist of dermal exposure to dust and free phase fuel, oil and solvents (if any), metals and minor inhalation risk through vapour generation in areas directly adjacent to fuel storage areas.

5.15.7 Photos

Refer to **Appendix B** for photos of the Sada machinery and plant "Graveyard".

5.16 PCA X – Emplacement

5.16.1 Property Descriptor

The Sada Coal Washery Reject and Tripodi Excavated Natural Material (ENM) Emplacement areas are located within Lot 1102 DP 883495 and Lot 38 DP 1098588.

5.16.2 Location within the Precinct

The Emplacement occupies the bulk of the southern section of the Precinct.

5.16.3 Description and Operations

As discussed in **Section 2.3.6**, much of the southern section of the Site (the former coal washery site and CSM) is overlain by fill consisting of washery reject and tailings arising from the Sada coal washery's former activities and those of its predecessor. The south-eastern section of the Precinct is overlain by imported ENM from Eastern

Creek (refer to **Appendix F**). The filled area extends to the east and south limits of the Precinct and is bound to the west by the Nepean River and to the north by the existing railway spur (the *Glenlee Colliery Siding*) off the Main South Up Line.

5.16.4 Contamination Mechanism

Contamination pathways consist of:

- Surface water runoff with entrained coal fines;
- Leaching to perched and regional groundwater; and
- Loss of dust to air during high wind events.

Influences of bulk tailings on groundwater quality have been investigated at other regional sites that have used such tailings as fill. However the local impacts of tailings on groundwater require investigation.

5.16.5 Potential Contaminants (to be analysed)

As the volume of washery reject material is a dominant feature of the Precinct, it is worthwhile citing International Environmental Consultants, (IEC, 1998). *Glenlee Washery Rehabilitation Plan* which describes the subject material as follows:

Reject Quality

Reject quality is important in determining the future environmental risks and designing appropriate rehabilitation and pollution control systems. Of particular relevance is the potential for acid formation from the final reject emplacement.

Glenlee Washery received coal from mines in the Burragorang Valley, including Brimstone and Oakdale Collieries.

The reject material at Wollondilly washery [which washes coal from the same source as washed at Glenlee] has been previously analysed by Dames & Moore. Samples were taken of [Wollondilly] tailings; (a) from the existing tailings dam wall (weathered coarse rejects); and (b) fresh coarse rejects – sampled and analysed. The data show that these materials are non-saline, low in total and soluble metals and have a very high organic carbon content. The acid-base account is shown in **Table 9**.

Table 9 Potential Acid Generation

Material Type	% S	ANC % $CaCO_3$	BNC % $CaCO_3$	APP (ANC-BNC) % $CaCO_3$
Tailings	0.21	0.13	0.66	- 0.53
Weathered Reject	0.14	0.53	0.44	+ 0.09
Fresh Reject	0.18	0.15	0.56	- 0.41

APP: Acid producing potential
BNC: Base neutralising capacity
ANC: Acid neutralising capacity

The results show that the tailings and fresh reject have a slight deficiency in neutralising capacity. However, this result is based on the assumption that all sulphur is present as sulphide. If organic and sulphate sulphur are subtracted from the total sulphur value, then the deficiency in neutralising capacity will probably be eliminated.

The pH values, low sulphate concentration and presence of alkalinity in saturation extracts support the prediction that these wastes are non-acid forming. This is important given the location of the Glenlee Washery within the Nepean River Catchment and the need to maintain acceptable water quality not only during the life of the operation but on completion and final rehabilitation of the Precinct.

A summary of other chemical analyses undertaken on coarse and fine reject material as well as fresh reject as produced from Wollondilly Washery is contained in the following tables. This data is directly relevant to Glenlee washery since the reject produced will be derived from same source mines.

Table 10 Chemical Analyses

Sample Type	LOD %	pH	Conductivity	Alkalinity *
Tailings	39.4	8.4	452	26
Coarse Reject	25.6	8.3	577	23
Fresh Reject	28.7	8.2	441	12

Note: * Titrateable Alkalinity of the Saturation Extract to pH 4.5 as $CaC0_3$
LOD = Moisture content of Saturation Paste to AS 1289
Conductivity in microsiemens per cm

Table 11 Nutrient Analyses

Sample Type	Se	B	Al	Fe	S	OrgM
Tailings	0.5	<20	2.0	1.2	0.21	99
Coarse Reject	0.6	40	8.0	1.4	0.14	67
Fresh Reject	0.5	20	8.4	3.1	0.18	51

Note: All figures in percent
OrgM = Organic Matter determined in accordance with AS 1289.D1.1

Table 12 Saturation Extracts

Parameter	Tailings	Coarse Reject	Fresh Reject
Zinc	<0.003	0.005	<0.003
Nickel	<0.001	<0.001	<0.001
Cadmium	<0.005	<0.005	<0.005
Arsenic	<0.05	<0.05	<0.05
Selenium	<0.1	<0.01	<0.1
Barium	0.09	0.26	0.08
Aluminium	0.12	<0.03	0.09
Iron	<0.02	<0.02	<0.02
Calcium	25	30	15
Magnesium	20	20	5
Sodium	22	40	41
Potassium	26	27	23
Chloride	20	46	40
Sulfate	50	80	70
Copper	<0.01	<0.01	<0.01
Lead	<0.05	<0.05	<0.05
SAR *	0.93	1.51	2.38

Note: SRA = Sodium Absorption Ratio

All results in mg/L

Table 13 Metal Analyses

Material	Cu	Pb	Zn	Ni	Mn	Cd	As
Tailings	<10	<10	<10	<10	20	<1	<2
Coarse Reject	20	90	40	30	270	<1	6
Fresh Reject	30	30	100	60	850	<1	16

Note: All results in parts per million

Based on the result of chemical tests (and including other testing of the Illawarra Coal Measures) the coal reject is considered to be chemically benign and are unlikely to produce contaminated leachate or to restrict vegetation growth. The material has previously been confirmed by the NSW EPA to comply with the POEO (Waste) Regulation 2005 – General Exemption Under Part 6, Clause 51 and 51A *the coal washery rejects general exemption 2009*.

Typically the material contains low metals concentrations and is usually non-detect for PAHs. Placement of a thin layer of topsoil over these wastes will provide a suitable medium for plant growth (extracted from IEC Report 1998).

As the primary contaminants in coal-derived waste are likely to consist of PAHs and metals, some limited validation testing should be conducted for these potential contaminants.

For completeness, a percentage of samples should also be analysed for TPH.

5.16.6 Exposure Pathways

Human exposure pathways consist of dermal exposure to dust and inhalation risk.

Perched groundwater has been shown to exist within the mass body of tailings that constitute the emplacement.

5.16.7 Photos

Refer to **Appendix B** for photos of the Emplacement area.

5.17 PCA Z - Remainder of the Precinct

This assessment has identified a number of areas that as a result of past industrial and emplacement activities are considered to have the potential to be contaminated.

Potentially contaminating activities were not identified in the remaining parts of the Precinct which have comprised unused land including steep slopes, flood plain and heavily vegetated areas.

Nevertheless to address the potential for as yet unidentified contaminating activities to have been undertaken in other parts of the Precinct a strategy should be put in place to assess the remainder of the Precinct if future changes in land use change or potentially contaminating activities occur. This strategy should include inspections to assess fly tipping, atypical vegetation areas, odorous areas and surface runoff areas etc.

6.0 Conclusions and Recommendations

This Revised Phase 1 Contamination Assessment is the first in a series of three reports aimed at identifying potential contamination issues on the Precinct (Phase 1) and demonstrating that appropriate plans and strategies are in place to further investigate and remediate / validate and /or manage contamination as required through the development process (Phase 2 and 3).

The Phase 1 contamination assessment identified a range of Potentially Contaminated Areas (PCAs) across the Precinct. This assessment also found that coal reject (sourced from the Illawarra Coal Measures) is present across the majority of the Precinct. The material is considered to be is chemically benign and has previously been found to contain low metals concentrations and is usually non-detect for polycyclic aromatic hydrocarbons (PAHs). The coal reject has been confirmed by the NSW EPA to comply with the Protection of the Environment Operations (Waste) Regulation 2005 – General Exemption Under Part 6, Clause 51 and 51A *the coal washery rejects general exemption 2009*. However, other general industrial activities that supported the original coal processing (such as the workshop and fuel storage areas and the neighbouring transport depots) have the potential for contamination.

The primary PCAs are the fuel storage areas and workshop facilities. Despite all fuel storage areas being appropriately bunded there is the potential for some spillage of petroleum products outside the bunded areas over time. Similarly, the workshops within the Precinct have been equipped with concrete flooring and appropriate oil containment facilities. However, over time there is the potential for contamination to occur around the apron in front of the workshops.

Other PCAs which would need to be targeted in the Phase 2 investigation include the site of the original Coal Processing Plant, equipment storage areas and the truck washing station. These areas may contain incidental contamination levels which would need to be validated.

There are also a number of small dams and pollution control structures on the Precinct which would be included in the Phase 2 investigation. These dams contain the runoff from the primary target areas and therefore may contain contamination (in both water and sediment) as this was their designed purpose.

An appropriate Sampling, Analysis and Quality Plan (SAQP) has been prepared for future Phase 2 intrusive investigations targeting the PCAs (AECOM, 2014a).

It is considered that that such Phase 2 intrusive investigations would be more appropriately undertaken closer to the time of redevelopment (as opposed to during the rezoning process) due to the length of time before the proposed development as well as the ongoing operations and the associated potential for changes in environmental site conditions before development proceeds.

A Remedial Strategy document (Phase 3) has been prepared (AECOM, 2014b) to demonstrate to the Auditor, landowners, agencies and consent authorities that remedial strategies, should contamination be found through Phase 2 investigations, are available and feasible and capable of rendering the Precinct suitable for the intended uses (subject to appropriate validation and contingency measures).

7.0 References

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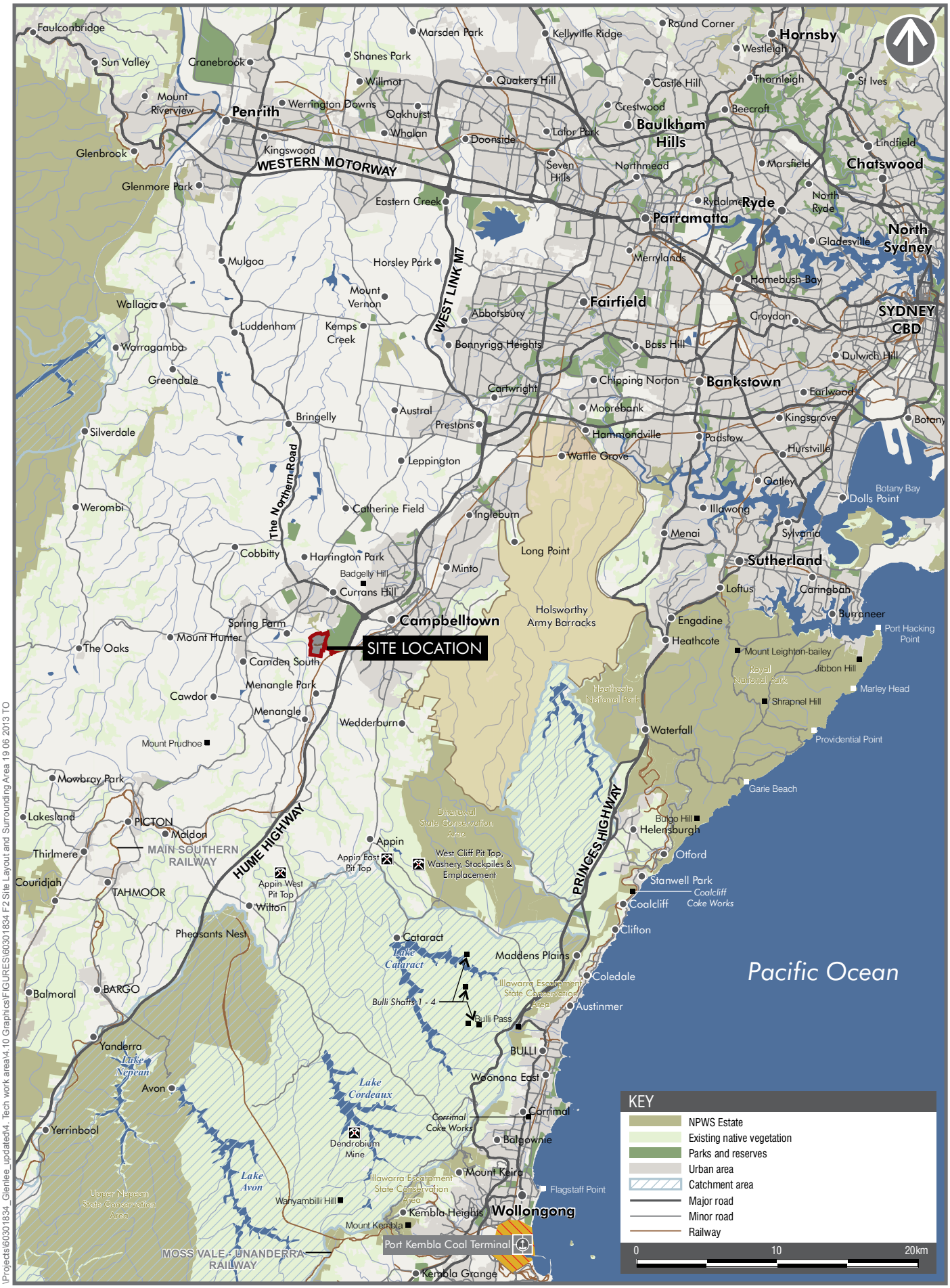
Appendix A

Figures



\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F2 Site Layout and Surrounding Area 19 06 2013 TO

AECOM

SITE LOCATION

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 1

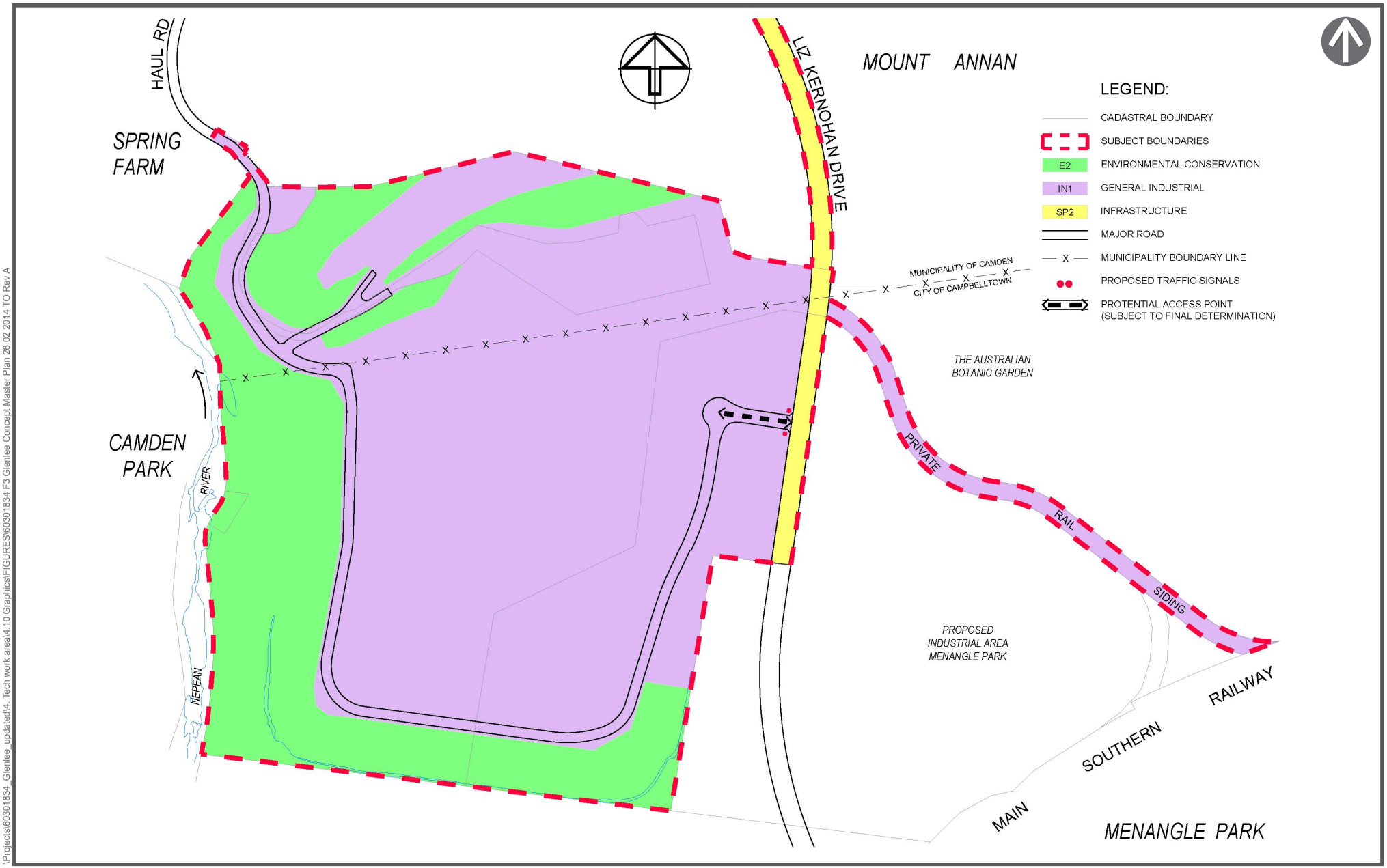
\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F2 Site Layout and Surrounding Area 19 06 2013 TO

AECOM

SITE LAYOUT AND SURROUNDING AREA

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 2



\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F3 Glenlee Concept Master Plan 26 02 2014 TO Rev A

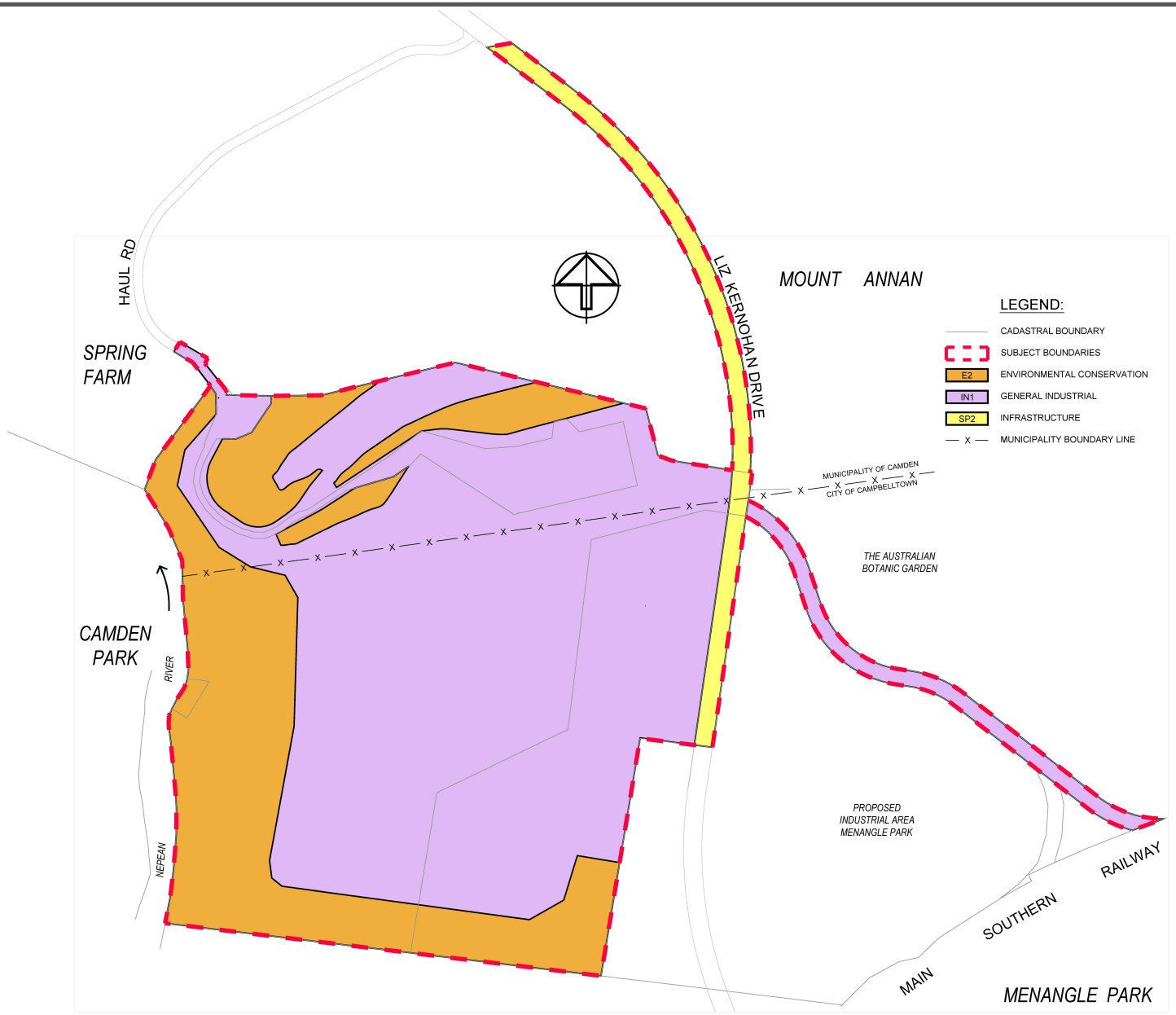
AECOM

GLENLEE CONCEPT MASTER PLAN - INDICATIVE CONCEPT

Revised Consolidated SAQP for Phase 2 Contamination Assessment
Glenlee Road, Narellan, New South Wales

Source: Inspire Urban Design and Planning, 2014

FIGURE 3



\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F4 Glenlee Concept Proposed Zoning 26 02 2014 TO

AECOM

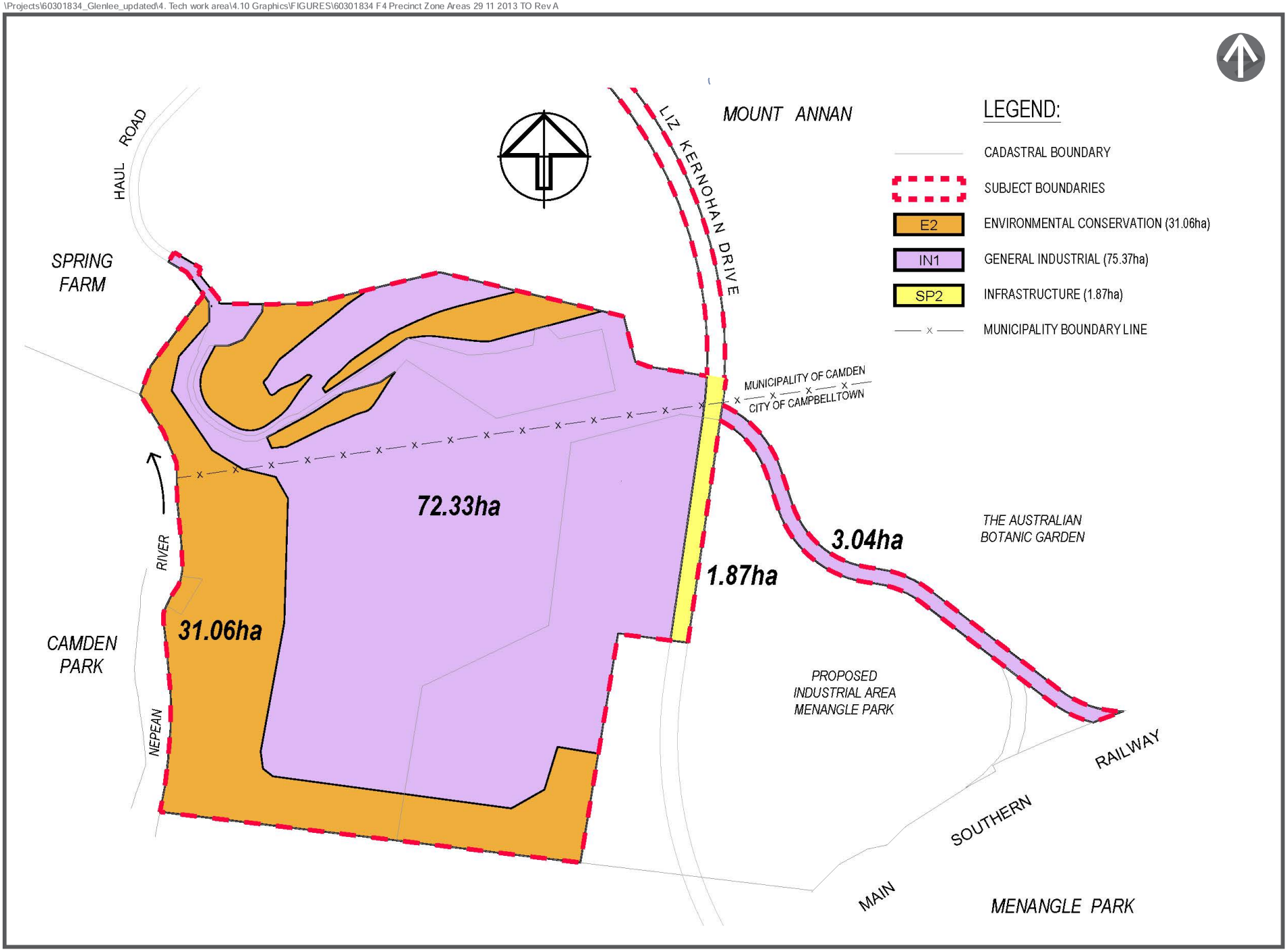
GLENLEE CONCEPT MASTER PLAN - PROPOSED ZONING

Revised Consolidated SAQP for Phase 2 Contamination Assessment
Glenlee Road, Narellan, New South Wales

Source: Inspire Urban Design and Planning, 2014

FIGURE 4

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F4 Precinct Zone Areas 29 11 2013 TO Rev A



AECOM

PRECINCT ZONE AREAS

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 5

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F6 PCA ABC Sada Tank Workshops and Truck Wash 02 04 2014 TO

AECOM

PCA A B C - SADA TANK WORKSHOPS AND TRUCK WASH

Revised Consolidated Phase 1 Contamination Assessment

Glenlee Road, Narellan, New South Wales

FIGURE 6

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F7 PCA E Former Transformer Area 04 04 2014 TO Rev A

AECOM

PCA E - FORMER TRANSFORMER AREA

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 7

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F8 PCA F and G Workshop Yard and CSM Tank 04 04 2014 TO Rev A

AECOM

PCA F AND G WORKSHOP YARD AND CSM TANK

Revised Consolidated Phase 1 Contamination Assessment

Glenlee Road, Narellan, New South Wales

FIGURE 8

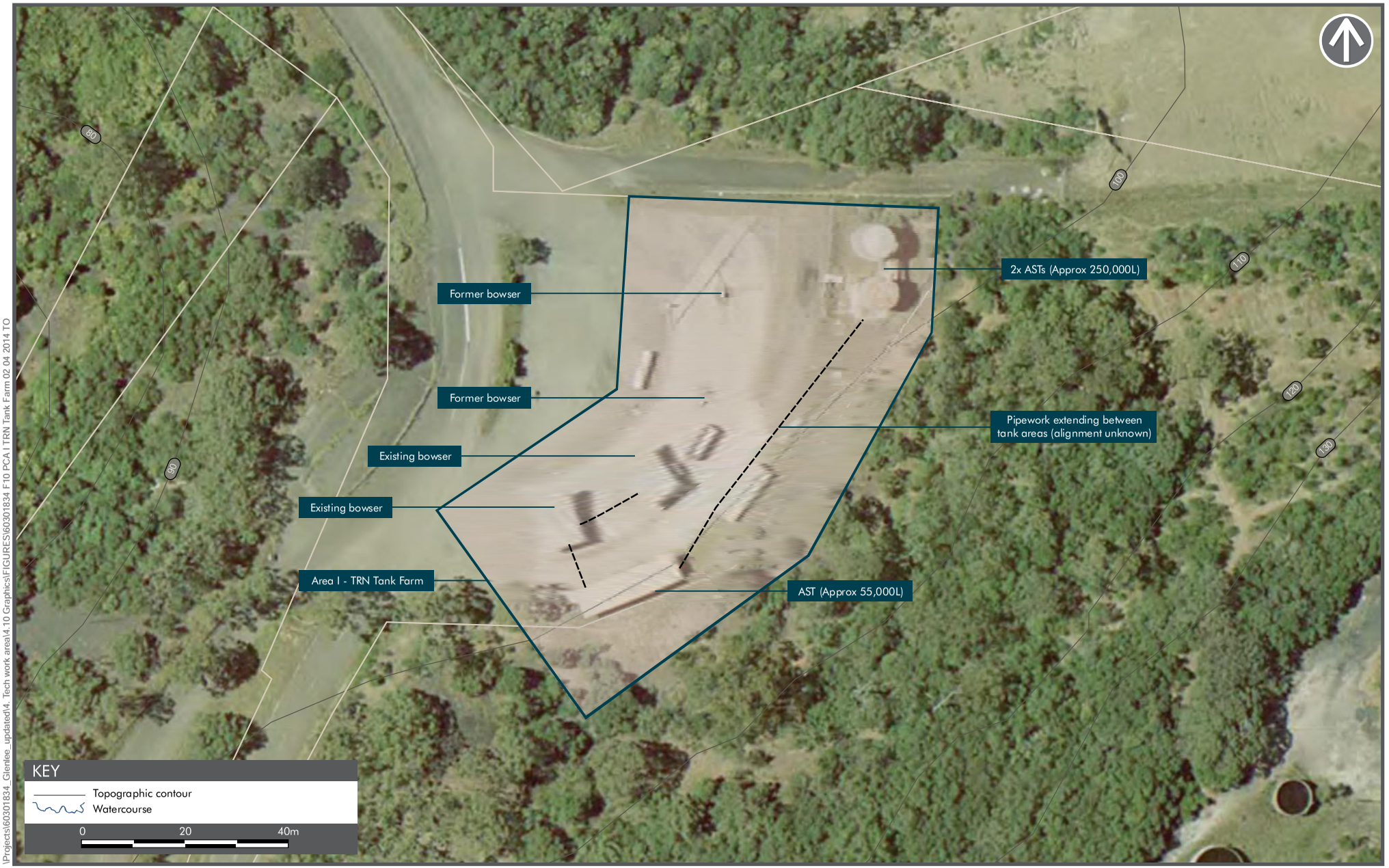
\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F9 PCA H TRN Workshops 02 04 2014 TO

AECOM

PCA H - TRN WORKSHOPS

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 9



\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F10 PCA I TRN Tank Farm 02 04 2014 TO

AECOM

PCA I - TRN TANK FARM

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 10

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 PCA J Area J Raw Materials and Compost Storage 02 04 2014 TO

AECOM

PCA J - RAW MATERIALS AND COMPOST STORAGE

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 11

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F12 PCA S Plant Machinery Materials and AST Graveyard 27 11 2013 TO

AECOM

PCA S - PLANT MACHINERY MATERIAL AND AST GRAVEYARD

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 12

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F13 Area x Workshop and Diesel Refuelling Facility 02 04 2014 TO

AECOM

PCA P & Q - WORKSHOP AND DIESEL REFUELLING FACILITY

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 13

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F14 2003 Aerial Photograph 19 06 2013 TO Rev A

AECOM

AERIAL PHOTOGRAPH - 2003

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 14

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F15 2003 Aerial Photograph 19 06 2013 TO Rev A

AECOM

AERIAL PHOTOGRAPH - 2004

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 15

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F16 2006 Aerial Photograph 19 06 2013 TO

AECOM

AERIAL PHOTOGRAPH - 2006

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 16

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F17 2007 Aerial Photograph 19 06 2013 TO

AECOM

AERIAL PHOTOGRAPH - 2007

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 17

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F18 2009 Aerial Photograph 19 06 2013 TO

AECOM

AERIAL PHOTOGRAPH - 2009

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 18

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F19 2011 Aerial Photograph 19 06 2013 TO

AECOM

AERIAL PHOTOGRAPH - 2011

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 1

\Projects\60301834_Glenlee_updated\4. Tech work area\4.10 Graphics\FIGURES\60301834 F20 2012 Aerial Photograph 19 06 2013 TO

AECOM

AERIAL PHOTOGRAPH - 2012

Revised Consolidated Phase 1 Contamination Assessment
Glenlee Road, Narellan, New South Wales

FIGURE 20

Appendix B

Phase 1 Site Photos

SADA FUEL TANK 2007 v 2013 COMPARISON

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
1	2007

Direction Photo Taken:

South-east

Description:

PCA A - SADA Fuel tank. Other tank at far end of bund is empty and placed for storage, not used

Plate No.	Date:
2	10/05/2013

Direction Photo Taken:

North

Description:

PCA A - No significant change to infrastructure – SADA fuel tank since 2007 inspection

SADA CARPARK 2007 v 2013 COMPARISON

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
3	2007

Direction Photo Taken:

South-west

Description:

Diesel tank not present (refer below) - Wide view of SADA area constructed over emplacement

Plate No.	Date:
4	10/05/2013

Direction Photo Taken:

South-west

Description:

Include as part of PCA A - Diesel tank at end of carpark noted. Not in photo from 2007. Clarification required regarding use status

SADA TRUCK WASH 2007 v 2013 COMPARISON

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
5	2007

Direction Photo Taken:

West

Description:

Previously unidentified PCA - TRN truck wash site

Plate No.	Date:
6	10/05/2013

Direction Photo Taken:

South-west

Description:

PCA R - Embankment to north of truck wash since excavated so that road on upper side of embankment is now level with road entering truck wash

SADA SECONDARY TRUCK WASH 2007 v 2013 COMPARISON

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
7	2007

Direction Photo Taken:

West

Description:

PCA C - Secondary truck wash site – not considered in assessment as primarily for truck body dirt. Water is recycled

Plate No.	Date:
8	10/05/2013

Direction Photo Taken:

East

Description:

PCA C - No significant changes to infrastructure since 2007 inspection

AECOM (2013) ADDITIONAL PHOTOS FROM AREA SURROUNDING SADA WORKSHOP

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
9	10/05/2013

Direction Photo Taken:

North

Description:

PCA A - Plant, machinery and metal waste in yard behind SADA workshop

Plate No.	Date:
10	10/05/2013

Direction Photo Taken:

South-west

Description:

PCA A - Additional diesel tank, located within carpark of SADA workshop

SADA DECOMMISSIONED TANK FARM 2007 v 2013 COMPARISON

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
11	2007

Direction Photo Taken:

West

Description:

PCA L - SADA Decommissioned tank farm - View at end of ridge area

Plate No.	Date:
12	10/05/2013

Direction Photo Taken:

West

Description:

PCA L - Excavation of surface gravels and approximately 0.5 to 1.0 of material refer exposed embankment beneath tanks in photo.
Surface materials inspected refer Plates 15 and 16

AREA ADJACENT SADA DECOMMISSIONED TANK FARM 2007 v 2013 COMPARISON

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
13	2007

Direction Photo Taken:

East

Description:

PCA L - View along the length of the Decommissioned Tank Farm area on the ridge above the broader site

Plate No.	Date:
14	10/05/2013

Direction Photo Taken:

North

Description:

PCA L - Wetting down of excavated area adjacent decommissioned SADA tank farm during Site inspection. Slight to moderate hydrocarbon odour noted.

AECOM (2013) ADDITIONAL PHOTOS FROM SADA DECOMMISSIONED TANK FARM

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
15	10/05/2013

Direction Photo Taken:

Above

Description:

PCA L - Stockpiled excavated material from area adjacent SADA decommissioned tank farm

Plate No.	Date:
16	10/05/2013

Direction Photo Taken:

Above

Description:

PCA L - Exposed Claystone/Shale following excavation of overlying materials – adjacent SADA decommissioned tank farm since 2007 inspection

SADA RAIL EASEMENT AND DECOMMISSIONED COAL LOADING INFRASTRUCTURE COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
17	2007

Direction Photo Taken:

East

Description:

PCA E - Rail (coal) wagons within the rail easement, at left of photo

Plate No.	Date:
18	10/05/2013

Direction Photo Taken:

Top – East
Bottom - West

Description:

PCA E - Decommissioned Coal loader, some infrastructure on southern side of road has been removed since 2007 inspection

SADA DECOMMISSIONED WASHERY (FORMER TRANSFORMERS) INFRASTRUCTURE 2007 v 2013 COMPARISON

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
19	XX/XX/2007

Direction Photo Taken:

North

Description:

PCA E - Former coal washery building at left of photo. Reported transformer storage area at extreme left

Plate No.	Date:
20	10/05/2013

Direction Photo Taken:

North

Description:

PCA E - Area not accessible at time of inspection due to presence of train.

ADDITIONAL SADA INFRASTRUCTURE PHOTOS 2007

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
21	2007

Direction Photo Taken:

North

Description:

PCA B - SADA workshop (external view)

Plate No.	Date:
22	2007

Direction Photo Taken:

North

Description:

PCA B - SADA workshop (internal view)

AECOM (2013) ADDITIONAL PHOTOS FROM PLANT AND MACHINERY STORAGE AREA

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
23	10/05/2013

Direction Photo Taken:

East

Description:

Previously unidentified PCA. New PCA S. Machinery, plant, materials and ASTs "Graveyard"

Plate No.	Date:
24	10/05/2013

Direction Photo Taken:

South-west

Description:

Previously unidentified PCA. New PCA S. Machinery, plant, materials and ASTs "Graveyard"

AECOM (2013) ADDITIONAL PHOTOS FROM PLANT AND MACHINERY STORAGE AREA

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
25	10/05/2013

Direction Photo Taken:

West

Description:

Previously unidentified PCA. New PCA S. Machinery, plant, materials and ASTs "Graveyard"

Plate No.	Date:
26	10/05/2013

Direction Photo Taken:

South-west

Description:

Previously unidentified PCA. New PCA S. Insulative material beneath bonnet of burn out machinery – potential to contain asbestos

AECOM (2013) ADDITIONAL PHOTOS FROM PLANT AND MACHINERY STORAGE AREA

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
27	10/05/2013

Direction Photo Taken:

East

Description:

PCA X - Fragment of possible fibre cement containing material in south-eastern portion of emplacement area

Plate No.	Date:
28	10/05/2013

Direction Photo Taken:

South-west

Description:

Previously unidentified PCA. New PCA S. Machinery, plant, materials and ASTs “Graveyard”

AECOM (2013) ADDITIONAL PHOTOS FROM PLANT AND MACHINERY STORAGE AREA

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
29	10/05/2013

Direction Photo Taken:

North

Description:

Previously unidentified PCA. New PCA S. Machinery, plant, materials and ASTs “Graveyard”

Plate No.	Date:
30	10/05/2013

Direction Photo Taken:

South-west

Description:

Previously unidentified PCA. New PCA S. Machinery, plant, materials and ASTs “Graveyard”

AECOM (2013) ADDITIONAL PHOTOS FROM PLANT AND MACHINERY STORAGE AREA

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
31	10/05/2013

Direction Photo Taken:

North-east

Description:

PCA X - Stockpiles of tyres on eastern portion of SADA site

Plate No.	Date:
32	10/05/2013

Direction Photo Taken:

North-west

Description:

PCA X - Stockpiles of tyres on eastern portion of SADA site

AECOM (2013) ADDITIONAL PHOTOS FROM PLANT AND MACHINERY STORAGE AREA

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
33	10/05/2013

Direction Photo Taken:

North

Description:

New PCA S - Demountable office buildings near machinery and plant storage area

Plate No.	Date:
34	10/05/2013

Direction Photo Taken:

North-west

Description:

New PCA S - Machinery – likely disused in storage area, SADA portion of Site

AECOM (2013) ADDITIONAL PHOTOS FROM SADA EMPLACEMENT AREA

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
35	10/05/2013

Direction Photo Taken:

North-east

Description:

PCA X – Emplacement. Coal reject stockpiles on eastern portion of Site

Plate No.	Date:
36	10/05/2013

Direction Photo Taken:

East

Description:

PCA X Emplacement - Stockpile close up of emplacement material/coal reject

CSM ABOVE GROUND FUEL STORAGE TANK COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
37	2007

Direction Photo Taken:

South-east

Description:

PCA F - CSM above ground fuel tank, bowsers and bund

Plate No.	Date:
38	10/05/2013

Direction Photo Taken:

North-east

Description:

No access onto Site allowed during Site inspection.

PCA F - Formerly referred to as CSM – Camden Organic Resource Recovery Facility operated by SITA above ground fuel tank

CSM WORKSHOP COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
39	2007

Direction Photo Taken:

South-east

Description:

PCA G - Wide view of CSM workshop

Plate No.	Date:
40	10/05/2013

Direction Photo Taken:

East

Description:

No access onto Site allowed during Site inspection.

PCA G - Formerly referred to as CSM – Camden Organic Resource Recovery Facility operated by SITA Workshop

AECOM (2013) ADDITIONAL PHOTOS ASSOCIATED WITH CSM SITE

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
41	2007

Direction Photo Taken:

South-east

Description:

PCA J - CSM building on left hand side of photo and green waste sorting area centre of photo and green waste stockpiled beside road to CSM site.

Plate No.	Date:
42	10/05/2013

Direction Photo Taken:

East

Description:

PCA J - Green waste being handpicked for household rubbish and sorted on CSM Site

AECOM (2013) ADDITIONAL PHOTOS ASSOCIATED WITH CSM SITE

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
43	2007

Direction Photo Taken:

South

Description:

PCA X - Materials stockpiled beside road leading to CSM Site

Plate No.	Date:
44	10/05/2013

Direction Photo Taken:

North

Description:

PCA J - Stockpiles of green waste being sorted and excavated generating dust/steam

AECOM (2013) NEW INFRASTRUCTURE PHOTOS ASSOCIATED WITH TRIPODI SITE

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
45	2007

Direction Photo Taken:

South

Description:

New Infrastructure - Tripodi Workshop – PCA Q

Plate No.	Date:
46	10/05/2013

Direction Photo Taken:

South

Description:

Caltex drums stored outside Tripodi Workshop – PCA Q

AECOM (2013) NEW PHOTOS ASSOCIATED WITH TRIPODI SITE

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
47	2007

Direction Photo Taken:

East

Description:

North of Tripodi new Workshop area adjacent CSM stockpile area – PCA Q

Plate No.	Date:
48	10/05/2013

Direction Photo Taken:

South

Description:

South of Tripodi new Workshop area adjacent CSM stockpile area – PCA Q

AECOM (2013) NEW PHOTOS ASSOCIATED WITH TRIPODI SITE

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
49	2007

Direction Photo Taken:

South-east

Description:

New Tripodi Diesel refueling facility – PCA P

Plate No.	Date:
50	10/05/2013

Direction Photo Taken:

North-west

Description:

Southern view of new Tripodi workshop – PCA Q

AECOM (2013) NEW PHOTOS ASSOCIATED WITH TRIPODI SITE

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
51	2007

Direction Photo Taken:

South-east

Description:

Extent of VENM infilling towards SADA portion of Site with coal reject infilling

Plate No.	Date:
52	10/05/2013

Direction Photo Taken:

South

Description:

VENM infilling/placement towards southern boundary of Site with Landcom site in distance

AECOM (2013) NEW PHOTOS ASSOCIATED WITH TRIPODI SITE

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
53	2007

Direction Photo Taken:

Above

Description:

Close up of material type. Stockpile of VENM imported from SITA waste management facility at Eastern Creek

Plate No.	Date:
54	10/05/2013

Direction Photo Taken:

East

Description:

VENM infilling/placement in south-eastern embankment of Site at time of inspection

TRN WORKSHOP EXTERIOR COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
55	2007

Direction Photo Taken:

North-west

Description:

PCA H – TRN Workshop

Plate No.	Date:
56	10/05/2013

Direction Photo Taken:

North

Description:

PCA H - Stockpiled tyres, plant and machinery outside TRN Workshop

PLANT, MACHINERY AND WASTE OUTSIDE TRN WORKSHOP COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
57	2007

Direction Photo Taken:

North-east

Description:

PCA H - East of TRN Workshop – plant/machinery storage area

Plate No.	Date:
58	10/05/2013

Direction Photo Taken:

North-east

Description:

PCA H - Current state of stockpiled plant, machinery and spares on eastern boundary of TRN compound – multiple lease users

AECOM (2013) ADDITIONAL PHOTOS ASSOCIATED WITH TRN SITE

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
59	2007

Direction Photo Taken:

North

Description:

PCA H - IBCs (unknown contents), gas bottles and additional warehouse for storage behind TRN Workshop building

Plate No.	Date:
60	10/05/2013

Direction Photo Taken:

South

Description:

PCA R - TRN truck wash on access road to TRN compound not previously identified by AECOM in 2007 Site inspection

AECOM (2013) ADDITIONAL PHOTOS ASSOCIATED WITH TRN SITE

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
61	2007

Direction Photo Taken:

North

Description:

PCA H - Rear of TRN Workshop

Plate No.	Date:
62	10/05/2013

Direction Photo Taken:

West

Description:

PCA H - Above-ground storage tank for possibly water for firefighting purposes

TRN REFUEL AREA COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
63	2007

Direction Photo Taken:

West

Description:

PCA I - Above ground fuel tanks and old bowsers at TRN tank farm

Plate No.	Date:
64	10/05/2013

Direction Photo Taken:

West

Description:

PCA I - TRN Site infrastructure – above ground fuel tanks and bowsers in similar condition to 2007 inspection

TRN ABOVE GROUND BULK FUEL STORAGE COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
65	2007

Direction Photo Taken:

North

Description:

PCA I - Above ground bulk fuel storage at TRN tank farm

Plate No.	Date:
66	10/05/2013

Direction Photo Taken:

North

Description:

PCA I - Inspection of above ground fuel storage infrastructure indicates no significant changes since 2007 inspection

DOWN-GRADIENT OF TRN TANK FARM/REFUELLING FACILITY AND JACK GULLY WASTE MANAGEMENT FACILITY COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
67	2007

Direction Photo Taken:

West

Description:

PCA I - View of paved surface down-gradient of TRN tank farm

Plate No.	Date:
68	10/05/2013

Direction Photo Taken:

West

Description:

PCA I - View of paved surface down-gradient of TRN tank farm with Jacks Gully waste management facility in distance

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
69	2007

Direction Photo Taken:

East

Description:

Previously PCA O - Landcom development adjacent to and viewed from Broadacres

Plate No.	Date:
70	10/05/2013

Direction Photo Taken:

East

Description:

Mount Annan Botanical Gardens South of Broadacres residential

COAL SEAM GAS WELL(S) IN BROADACRES AND MOUNT ANNAN BOTANICAL GARDENS AREA COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
71	2007

Direction Photo Taken:

North-east

Description:

Previously PCA O - Coal seam gas collection infrastructure in Broadacres area

Plate No.	Date:
72	10/05/2013

Direction Photo Taken:

North-east

Description:

Previously PCA O - Coal seam gas well in area north of rail easement south of TRN yard

SOUTHERN EMBANKMENT OF SITE COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
73	2005

Direction Photo Taken:

East

Description:

Southern embankment

Plate No.	Date:
74	10/05/2013

Direction Photo Taken:

West

Description:

Additional filling on south-eastern embankment corner occurring at the time of inspection.

WESTERN EMBANKMENT OF SITE COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
75	2005

Direction Photo Taken:

South-east

Description:

Western embankment

Plate No.	Date:
76	10/05/2013

Direction Photo Taken:

South-east

Description:

Western embankment adjacent Perimeter dam and Site discharge point in south-western portion of Site

SITE OVERVIEW EAST COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
77	2007

Direction Photo Taken:

East

Description:

View over emplacement from SADA Decommissioned Tank Farm site on ridge. CSM workshop immediately behind coal surge bin at left top of photo

Plate No.	Date:
78	10/05/2013

Direction Photo Taken:

East

Description:

Coal loading infrastructure connecting to surge bin on southern side of road has been removed. Emplacement area has been significantly filled since previous inspection.

SITE OVERVIEW SOUTH COMPARISON 2007 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
79	2007

Direction Photo Taken:

South

Description:

View over emplacement for SADA Decommissioned tank Farm site on ridge.

SADA workshop at bottom left top of photo

Plate No.	Date:
80	10/05/2013

Direction Photo Taken:

South

Description:

View over emplacement indicates significant filling – particularly from imported VENM on Tripodi portion middle of photo (south-eastern portion of Site).

SADA Workshop not visible due to growth of trees.

New Tripodi infrastructure – Workshop and associated machinery visible in middle left of photo.

COMPACTED EMPLACEMENT – COAL REJECT COMPARISON 2008 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
81	2008

Direction Photo Taken:

East

Description:

PCA X - Portion of emplacement that has been trimmed and compacted

Plate No.	Date:
82	10/05/2013

Direction Photo Taken:

South-east

Description:

PCA X - Compacted coal reject

EMPLACEMENT – SHOWING COAL PROFILE COMPARISON 2008 v 2013

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No:
Glenlee Precinct	Glenlee Road, Narellan NSW	60301834

Plate No.	Date:
83	2008

Direction Photo Taken:

East

Description:

PCA X - In emplacement showing profile of tailings

Plate No.	Date:
84	10/05/2013

Direction Photo Taken:

East

Description:

PCA X - Current emplacement showing profile of coal reject or tailings or stockpiled coal for export

Appendix C

Summary of Reviewed Reports

Appendix C Summary of Reviewed Reports

Doc No	Doc Name / Brief Summary
1	A10 Contamination Management Plan', Campbelltown (Sustainable City) DCP, Campbelltown City Council, Campbelltown, viewed October 2007, <http://www.campbelltown.nsw.gov.au/upload/bphpc98163/DCP%20-%20Appendicies%20-%2031-8-2005.pdf > This document sets out contamination assessment and management requirements for sites in the Campbelltown Area. All applications on land, that has been identified as contaminated or of having the potential to be contaminated shall require the following information to be submitted: (a) Land use history; (b) Any past or present potentially contaminating activities; (c) Provide preliminary assessment of any site contamination and if required, provide a basis for a more detailed investigation; and (d) Preliminary sampling and analysis may be required where contaminating activities are suspected or known to have occurred, or the land use history is incomplete. Where a preliminary investigation determines the land is contaminated, a detailed investigation shall be carried out by a suitably qualified professional and submitted to Council with the development application and shall define the: (a) Nature, extent and degree of contamination; (b) Assess the potential risk posed by contaminants to human health and the environment; and (c) A Remedial Action Plan which details i) Remediation objectives; ii) The process and standards by which the land will be remediated; iii) Details of necessary approvals to be obtained from regulatory authorities; and iv) An environmental management plan for ongoing monitoring and maintenance requirements where the proposed remediation involves on site containment or encapsulation of contaminated material. Upon completion of the required remediation, a validation report shall be submitted to Council to demonstrate that the objectives stated in the remedial action plan have been achieved and that any relevant conditions of development consent have been complied with, prior to the commencement of any activity/development.
2	Camden Council, (26 February 2008). 'Management of Contaminated Lands', Policy No. 3.12. The [Camden Council] Contaminated Land Policy sets out a framework for the management of contaminated land within the Camden Local Government Area. The Policy provides practical advice for members of the community as well as professionals involved in the planning and development process within the Camden Local Government Area. The Policy has been amended to reflect the current approach in the development of lands within the Camden Local Government Area. It has been framed in such a fashion to better suit the 'greenfield' development that sees rural lands changed to residential land. The Policy builds on written advice received from Department Environment and Climate Change (DECC)and the Department of Planning (DoP) particularly in terms of what constitutes 'Agriculture' and the introduction of the engagement of 'Accredited Site Auditors'.

Doc No	Doc Name / Brief Summary
3	Campbelltown City Council, (June 2003). Preliminary Geotechnical and Soils Assessment, Camden Soil Mix Composting & Recycling Facility Local Environment Study, p i,1, 3, 4-8, 10, 11, 14-17. Camden Soil Mix Pty Ltd (CSM) operates an existing soil composting and recycling facility in part known as the Glenlee Resource Recycling Facility (GRRF). CSM proposed to shift some of its operations onto their adjoining land to the south, which would increase the size of their currently zoned site and the rezoning would allow the expansion of current uses onto adjoining land. A preliminary assessment of the geological and hydrogeological conditions at the proposed site was undertaken as part of the CSM LES to identify potential constraints to determine the capability and suitability of the land for employment uses based on resource recovery. A review of relevant available literature pertaining to the proposed GRRF site and the Glenlee Coal Preparation Plant (GCPP) and consultations with the NSW EPA and the former NSW Department of Land and Water Conservation (DLWC) was undertaken to identify likely constraints associated with the local geological and hydrological conditions associated with the Draft CSM LES. The review considered the following geological and hydrogeological related issues: Existing ground conditions; Local geology, soil and topography; Slope stability, settlement and subsidence; Local hydrogeology; Salinity; and Subsurface landfill gas migration. The preliminary assessment involved consultation with relevant statutory authorities, a site visit and review of available literature. A more comprehensive investigation of the Precinct's ground conditions would be undertaken as part of a Development Application (DA) for future development of the Precinct.
4	Coffey Geosciences Pty. Ltd, (November 2005). Glenlee Washery Tailings Dam Assessment of Dam Safety Issues, p 2, 3, 5 and 6 Coffey assesses the long term stability of the perimeter berm (termed the "tailings dam") around the Emplacement, taking into consideration the depth of groundwater below the washery reject materials, erosion stability of the outer faces of the berm and the materials of construction, This is mainly a geotechnical report but it does touch on groundwater and perched water.
5	DLA Environmental (May 2009). Phase 2 Detailed Environmental Site Assessment, Springs Road, Glenlee. This report records a Phase 2 detailed environmental assessment of: (a) a former AST on the ridge north of the Emplacement; and (b) the broader ridge area in preparation for relocation of workshop and administration facilities to the subject area. The study found "very little sign of contamination" with the exception of fill materials associated with the former use of part of the area for fuel storage and distribution from a single AST.
6	Douglas Partners (March 2008). Report on Preliminary Geotechnical Investigation Relevant information from the Douglas Partners assessment is summarised in Section 2 of this report.

Doc No	Doc Name / Brief Summary
7	Environmental Earth Sciences (June 2008), Limited Due Diligence Assessment at Lot 1102 DP 883495, Glenlee Road, Menangle Park, NSW In May 2008 EES undertook soil sampling over a 7 ha area on which CSM undertakes composting operations to establish the baseline condition prior to a new lessee taking over. The selected sample grid density was 50% of that recommended in the EPA Sample Design Guideline. All samples results were below the commercial/industrial land use criteria except for a single sample contaminated by TPH (at depth 0.2 m to 0.3 m and 0.7 m to 0.9 m) at concentration 3,000 mg/kg and 4,000 mg/kg respectively. EES concludes that: the results of the soil samples collected from the northern portion of the Precinct and analysed for heavy metals, PAHs, BTEX and OCPs were either non-detectable or below the Precinct criteria for human health. TPH (C10-C36) were elevated above the Precinct criteria at one location to a depth of 0.9 m in fill and disturbed natural material. A sample from below this depth in the natural soil (2.5 to 2.7m) did not contain detectable levels of TPH. It is likely that the impact is localised and due to spills occurring during re-fuelling activities. Based on the limited investigation carried out, the northern half of the Precinct is considered suitable for continued commercial/industrial use.
8	Hayes Environmental, (February 2009). Draft Glenlee Precinct Rezoning Industrial and Employment Lands Ecological Assessment Relevant information from the Hayes assessment is summarised in Section 2 of this report.
9	Historyworks (February 2009) Heritage Assessment: Glenlee Precinct Local Environment Study Historyworks describes the heritage aspects of the Site and documents the history of land use in the region and specifically the Site. Relevant information from the historical review is summarised in this report.
10	International Environmental Consultants, (February 2006). Glenlee Industrial Complex Redevelopment Preliminary Assessment Report, p1, 2, 8, 11,12, 14, 16, 20, 22, 26 and 27 The preliminary assessment report was prepared for the purpose of briefing the Department of Planning and other government agencies, on the proposed Glenlee redevelopment project with an aim of obtaining Director General Requirements for the necessary Environmental Assessment. The report was also used to assist with a Planning Focus Meeting. The report briefly discusses land and groundwater contamination from a development constraint perspective and not through detailed assessment. Water samples from the Nepean River, both upstream and downstream of the Site are used to infer no impact from the Site on the main river receptor. The report presents analysis of washery reject material (tailings).
11	International Environmental Consultants, (1998). Glenlee Washery Rehabilitation Plan, p 1, 2, 7, 9, 12, 14, 38, 39 and 43 A condition of Council approval in 1994 to permit expansion of washery capacity was the need to prepare environmental management measures. IEC describes those measures including erosion and pollution control, progressive rehabilitation, waste management and leachate control, weed control and decommissioning following completion of operations.

Doc No	Doc Name / Brief Summary
12	International Environmental Consultants, (August 2004). Glenlee Industrial Complex Environmental Issues Paper, p 3,4 7, 10, 16-18 The introduction to the report states that it provides an overview of the environmental issues relating to the future development of the Glenlee Washery and Industrial Complex. The assessment was based on existing information on the Precinct and potential future uses. The issues addressed by IEC included transportation, air quality issues, noise issues, Mount Annan Botanic Gardens, biophysical environment, surface water management, site contamination issues, engineering and geotechnical issues, groundwater issues, planning issues, environmental issues to be addressed in future approvals. Site contamination issues identified were as follows: Reject produced from the Bulli Seam is not considered a contaminated or hazardous waste. It is suitable for building purposes and can be easily rehabilitated. There is direct evidence of this on site at present with the separately owned composting operation. This business mixes some of the fine coal reject into the compost which is sold as topdressing material. Indeed, it is well known that Bulli Seam reject has been used to create golf courses, playing fields, public parks and general fill for residential and industrial developments. Given the amount of reprocessing of reject on site, it is considered highly unlikely that there are any areas of dumped hazardous materials as these would have been uncovered. There is minor level of hydrocarbon contamination within the diesel tank bund and immediate surrounds. The level is typical of refuelling facilities and would require either complete removal or on site bioremediation prior to final site closure. Bioremediation would represent the best option and could be achieved by blending the contaminated material with fresh soil and fertiliser and subsequently using the material within the rehabilitation areas. It would also be expected that some hydrocarbon contamination would exist near and perhaps beneath the workshop. Based on other contamination surveys undertaken at nearby mines with similar workshop facilities, the level of contamination would be limited and remediation options similar to the bunded fuel storage area. It should also be noted that there was no evidence of hydrocarbon release from site. If there were heavy subsurface contamination, the evidence would present itself [downstream]. The quality of the reject on site is not considered an environmental constraint to future development, however the obvious problems of colour contamination with white sand and kaolin products would need to be examined.

Doc No	Doc Name / Brief Summary
13	International Environmental Consultants, (June 2003). Glenlee Industrial Complex Environmental Liability Assessment, p 2, 3 and 6-10. The Environmental Liability Assessment for the Glenlee Washery complex and associated infrastructure was prepared for the purposes of securing finance. The assessment covers material items which might influence the valuation of the property or would otherwise be of interest to a lending institution. This report covers the following issues: Current rehabilitation liability based on the existing approved Rehabilitation Plan, but covering two scenarios, namely, closedown and completely rehabilitate as is in accordance with Department of Mineral Resources guidelines and re-use for an industrial complex utilising the existing road/rail interchange and related infrastructure; Assessment of existing site contamination issues. This has involved analysis of historical activities on site, chemical analysis of the existing reject material and review of water quality monitoring data. Assessment of current environmental performance based on monitoring data, information from government agencies and a review of existing approval documents including EPA licence and Planning Consent; and Assessment of potential environmental risks associated with the operation. This has included a review of existing pollution control systems and historic performance records and monitoring data. They concluded that reject quality is important in determining the future environmental risks and designing appropriate rehabilitation and pollution control systems. Of particular relevance is the potential for acid formation. Reject produced from this [Bulli] seam has been emplaced at various locations throughout the Illawarra Region for nearly 100 years. It is known to be non hazardous and chemically inert. There has been several chemical tests undertaken on reject produced by the individual source mines since the mid 1980s, with the latest results being sourced from fresh reject produced at Metropolitan Colliery which is currently being emplaced at Glenlee. The chemical results show that the reject materials are non saline, low in total and soluble heavy metals and low potential to produce acids or other hazardous leachate over time.
14	mg Planning, (September 2004). Menangle Park Preliminary Local Environmental Study, p vi, 5.7, 5.67. 5.68 and 5.72. The *Preliminary Local Environmental Study for Menangle Park* (mg planning, September 2004) states that a groundwater investigation recently undertaken in the Camden South area indicated that there were two distinct groundwater settings, namely: Groundwater within Wianamatta Group shale; and Groundwater within unconsolidated Quaternary deposits of the Nepean flood plain. The report further states that: Water levels in the hills area underlain by shale are typically shallow (two to three metres below ground level) and the water is brackish to saline; and The water table in the flood plain is deeper (eight to nine metres bgl) and is typically fresh.
15	Michael Brown Planning Strategies (October 2006). Rezoning Request, p 14 and 27, Fig. 1-4. The report sets out the need for redevelopment and the need to prepare a draft LEP. The report provides background information including summary-level information with respect to constraints including contamination and geotechnical issues, based on consultant reports. The report states that preliminary environmental investigations have identified potential environmental impacts associated with redevelopment to be within a manageable order of magnitude. Further, elements of a framework for environmental management have been advanced. The report is primarily a planning document. Discussion of contamination primarily involves a description of the role of *SEPP 55* Remediation of Land. The report states that "It should be noted that extensive testing of the Precinct over recent years has not identified any level of contamination.
16	NSW Department of Planning, Locational Guidelines for Development in the Vicinity of Operating Coal Seam Methane Wells A NSW Government policy document describing security, buffer and access requirements for coal seam methane wells.

Doc No	Doc Name / Brief Summary
17	Waters Historical Consultancy (Waters, K., & Letters, M., August 2004). Draft Desktop Indigenous Heritage Report – proposed Alternative Waste Treatment Facility at Jacks Gully Waste Management Centre Waters describes the indigenous history of the Glenlee area and establishes the identity and language of the original indigenous inhabitants.
18	DLA (2009a). Phase 2 Detailed Environmental Site Assessment, Springs Road, Glenlee (Part Lot 38 DP 1098588), Proposed Lot 1101 DP 883495. May 2009. This report details the Phase 2 investigations undertaken within PCA L. It was recommended that the fill materials associated with the former AST location be excavated and remediated (by land farming) and the area be validated appropriately.
19	DLA (2009b). Remediation Action Plan, Glenlee, Springs Road, Glenlee, Part Lot 38 DP 1098588. June 2009. This report details the remediation works required within PCA L to address identified TPH contamination related to the AST previously located in this area. The impacts were estimated to extend to less than 2.5 m in depth across an area of 1,000 m^2.
20	JBS Environmental (2009). Site Audit Report, 0503-0807, Sada Administration Building, Part Lot 38 DP 1098588 (Proposed Lot 1101 DP 883495). June 2009. The SAR provided comment on the DLA reports (2009a and 2009b) and concluded that successful implementation of the DLA RAP (2009b) would make the Precinct (PCA L) suitable for the proposed commercial/industrial landuse.
21	DLA (2012). Validation Report, SADA, Administration and Maintenance Buildings, Springs Road, Glenlee, Part Lot 38 DP 1098588. September 2012. The Validation Report detailed the remediation and validation works conducted in PCA L and concluded that that the remediated area was validated '*suitable for an end land use consistent with NEPM 1999 Table 5a Column F - Commercial / Industrial*'.
22	Enviroview (2012a). Site Audit Report (including Site Audit Statement 0301-1208), Part Lot 38 DP 1098588, 214 Springs Road, Mount Annan, NSW. October 2012. The SAR reviewed the DLA (2012) report and concluded that the remediation works had been completed in accordance with NSW EPA guidelines and the Precinct (PCA L) was suitable for the proposed land use. The Precinct Audit Statement confirmed the Precinct to be suitable for commercial/industrial land use.

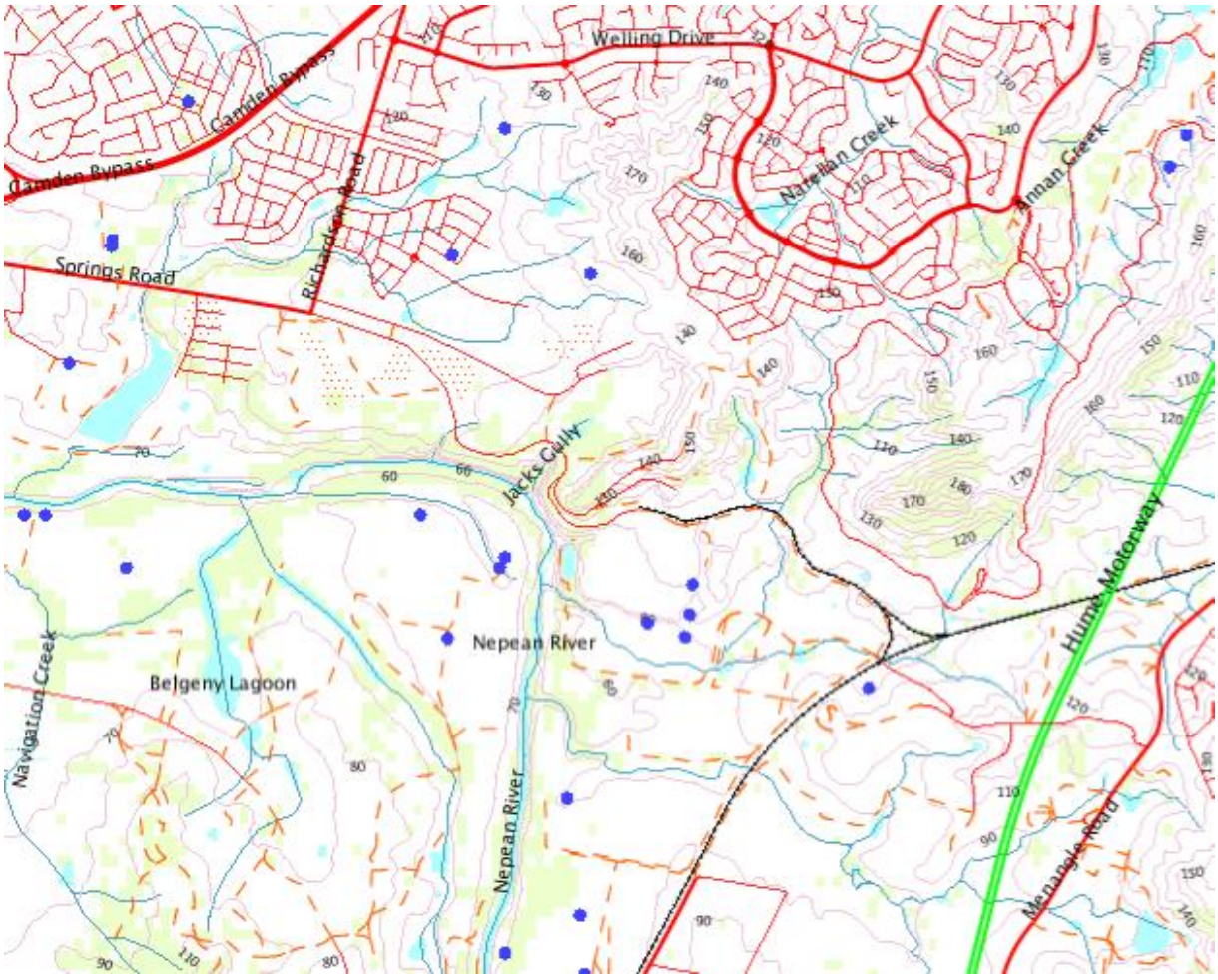
Appendix D

Groundwater Bore Records Search

Map from the NSW Natural Resource Atlas

Map created with NSW Natural Resource Atlas - http://www.nratlas.nsw.gov.au

Thursday, September 26, 2013



0 5 Km

Legend

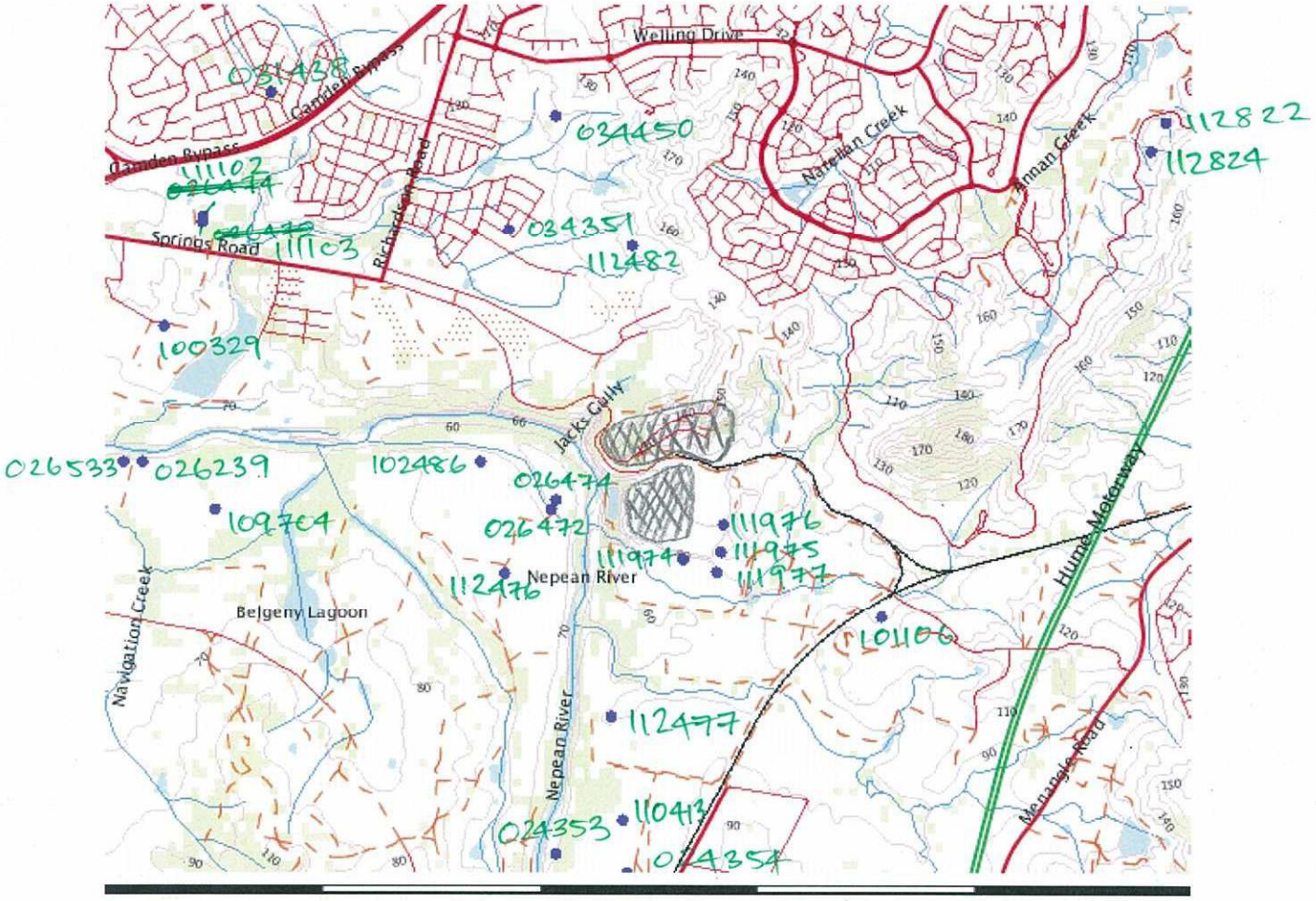
Symbol	Layer	Custodian
	Groundwater Bores	
	Groundwater Bores	
	Cities and large towns renderImage: Cannot build image from features	
Cowra	Populated places renderImage: Cannot build image from features	
	Towns	
Primary/arterial road Motorway/freeway Railway Runway Contour Background	Topographic base map	

Copyright © 2013 New South Wales Government. Map has been compiled from various sources and may contain errors or omissions. No representation is made as to its accuracy or suitability.

Map from the NSW Natural Resource Atlas

Map created with NSW Natural Resource Atlas - http://www.nratlas.nsw.gov.au

Thursday, September 26, 2013



0 5 Km

Legend

Symbol	Layer	Custodian
	Groundwater Bores	
	Groundwater Bores	
	Cities and large towns renderImage: Cannot build image from features	
Cowra	Populated places renderImage: Cannot build image from features	
	Towns	
Primary/arterial road Motorway/freeway Railway Runway Contour Background	Topographic base map	

Approximate extent of the site

Copyright © 2013 New South Wales Government. Map has been compiled from various sources and may contain errors or omissions. No representation is made as to its accuracy or suitability.

Appendix E

WorkCover Records Search

Application for Licence to Keep DG1

Dangerous Goods

Application for: New Licence ☐ Amendment ☑ Transfer ☐ Renewal of expired licence ☐

PART A - *Applicant and site information* (See page 2 of Guidance Notes)

1 Name of applicant | ~~ACN~~ ABN

WASTE SERVICE NSW | 93 524 709 106

2 Postal Address of Applicant | Suburb/Town | Postcode

LOCKED BAG 7699 | CHATSWOOD DC | 2067

3 Trading Name or Site Occupier's Name

WASTE RECYCLING & PROCESSING SERVICE OF NSW

4 Contact for Licence Inquiries

Phone | Fax | Name

(02) 9934 7000 | (02) 9934 7155 | BRIAN BARTON

5 Previous Licence Number (if known) | 35/ 035 770

6 Previous Occupier (if known) |

7 Site to be Licensed (Please include photocopy page from a local Street Directory with the site marked **X**)

No Street

275 Richardson Road Spring Farm

8 *Main Business of Site* | WASTE DISPOSAL

9 Site staffing: Hours per day | Various | Days per week | 7

6am - 4pm Mon to Fri
8am - 4 pm Sat
9am - 1 pm Sun

10 Site Emergency Contact

Phone | Name

( ) | SCOTT HAGAN

11 Major Supplier of Dangerous Goods | Mobil

12 If a new site or for amendments to depots - see page 4 of Guidance Notes.

Plans Stamped by: | Signature of Competent Person | Printed Name | Date stamped

R T BENBOW | R T Benbow | R T BENBOW | 29/10/04

I certify that the details in this application (including any accompanying computer disk) are correct and cover all licensable quantities of dangerous goods kept on the premises.

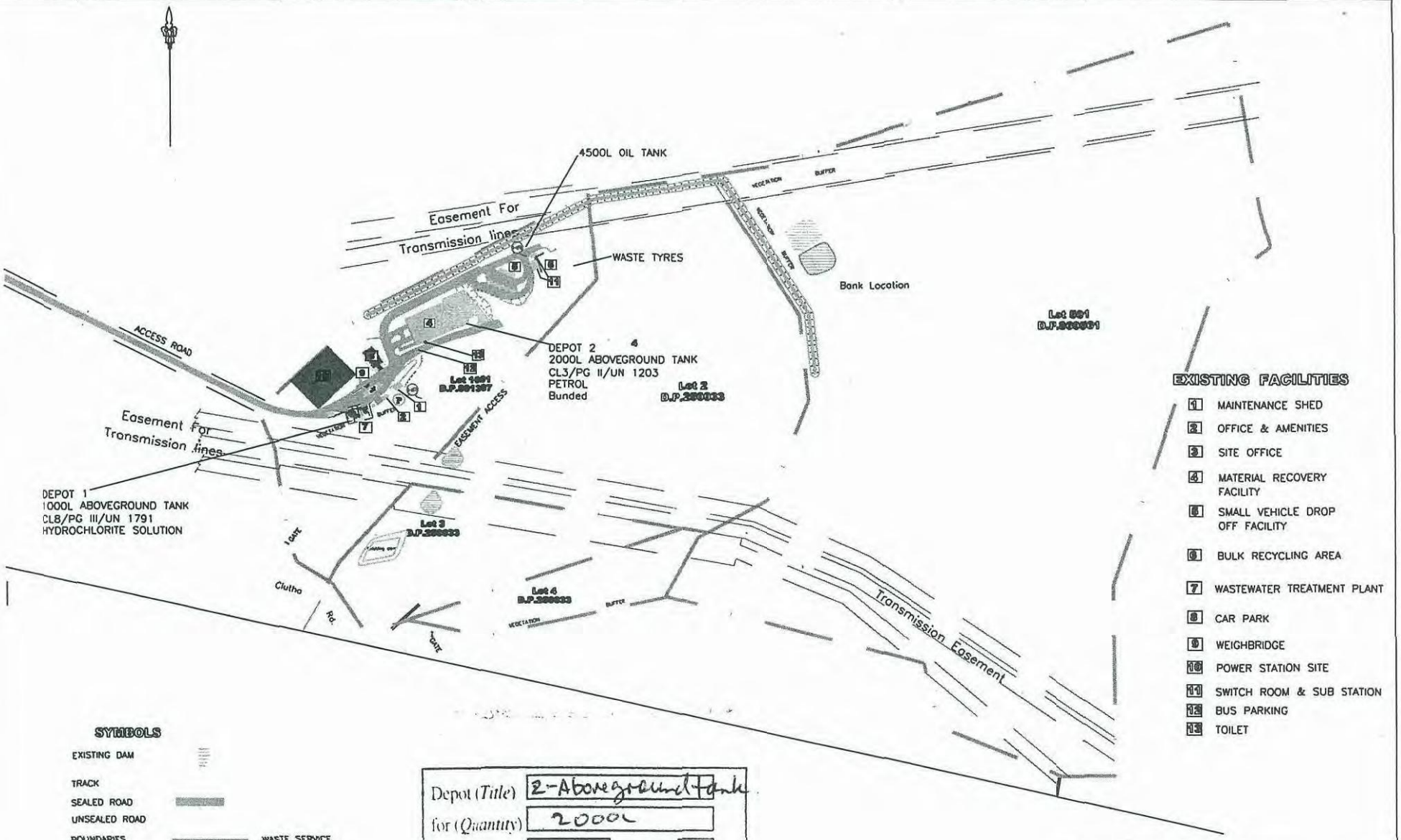
13 Signature of Applicant | Printed Name

BRIAN BARTON

Please send your application marked Confidential, to: **Dangerous Goods Licensing,**

WorkCover NSW, Locked Bag 2906, LISAROW NSW 2252

Hotline: (02) 4321 5500 - Fax: (02) 9287 5500



Depot (*Title*) 2-Aboveground Tank

for (*Quantity*) 2000L

of DG Class 3 and PG II

as shown in this plan

...nforms with the Dangerous Goods Act 1975 and Australian Standard(s) AS 1940 1993

Signature: R T Benbow Date 29/10/04

Name (*printed*): R T BENBOW

WASTE SERVICES RICHARDSON ROAD, SPRING FARM, NSW 2567		
LICENCE NO: NEW LICENCE		
SCID SKETCH FOR JACKS GULLY SITE		
DATE: 27/08/04	DRAWN:T.Midwinter	Drawing No: 44018JG

PREPARED BY: Environmental Audits of Australia Pty Ltd
Telephone: (02) 9635 5099 Facsimile: (02) 9689 1385

03570

What is a depot? See page 5 of the Guidance Notes

PART C (Cont.) - **Dangerous Goods Storage** Complete one section per depot

If you have more depots than that space provided, photocopy sufficient sheets first

Depot Number	Type of Depot (see page 5)	Depot Class	Maximum Storage Capacity
2	ABOVE GROUND TANK	3	2000L

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	Typical Quantity	Unit eg L, kg, m^3
1203	PETROL	3	II	ULP	2000	L

Depot Number	Type of Depot (see page 5)	Depot Class	Maximum Storage Capacity

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	Typical Quantity	Unit eg L, kg, m^3

Depot Number	Type of Depot (see page 5)	Depot Class	Maximum Storage Capacity

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	Typical Quantity	Unit eg L, kg, m^3

Depot Number	Type of Depot (see page 5)	Depot Class	Maximum Storage Capacity

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	Typical Quantity	Unit eg L, kg, m^3

Licence No. 35/035770

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/035770 to 24/01/2005 . I confirm that all the licence details shown below are correct (amend if necessary).

.....	BRIAN BARTON	23/12/03 .....
(Signature)	*(Please print name)*	*(Date signed)*

for: WASTE RECYCLING & PROCESSING SERVICE OF NSW

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:***

WorkCover New South Wales
Dangerous Goods Licensing Section
LOCKED BAG 2906
LISAROW NSW 2252

Enquiries:ph (02) 43215500
fax (02) 92875500

Details of licence on 19 December 2003

Licence Number 35/035770 **Expiry Date** 24/01/2004

Licensee WASTE RECYCLING & PROCESSING SERVICE OF NSW
WASTE SERVICE NSW

Postal Address: WASTE SERVICE NSW LOCKED BAG 7699 CHATSWOOD DC NSW 2067

Licensee Contact BRIAN BARTON Ph. 9934 7000 Fax. 9934 7185

Premises Licensed to Keep Dangerous Goods
WASTE RECYCLING & PROCESSING SERVICE OF NSW WASTE SERVICE NSW
RICHARDSON RD SPRING FARM 2570

Nature of Site WASTE DISPOSAL SERVICES

Major Supplier of Dangerous Goods UNKNOWN OR OTHER

Emergency Contact for this Site ~~BRIAN BARTON Ph. 0419 753 985~~ SCOTT HAGAN 0419 753 951

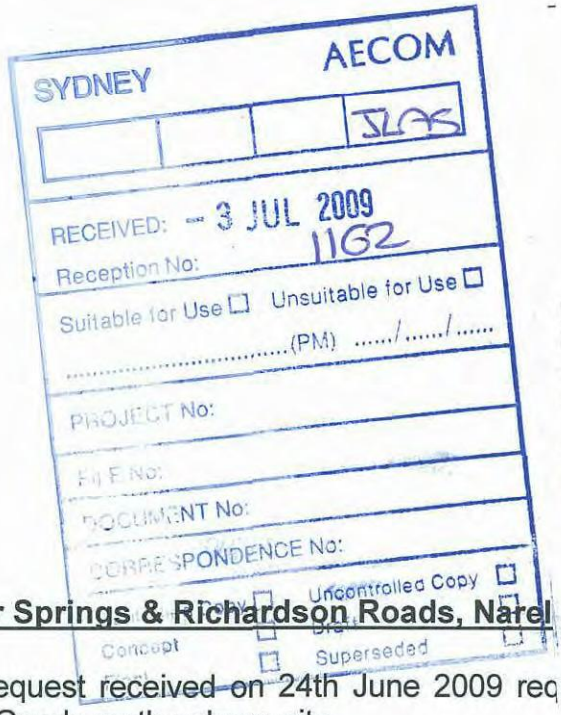
Site staffing 14 HRS 7 DYS

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
1	ABOVE-GROUND TANK	Class 8	1000 L
	UN 1791 HYPOCHLORITE SOLUTION		1000 L

RECEIVED
SERVICE CENTRE
31 DEC 2003
WORKCOVER
NEW SOUTH WALES

Our Ref: D09/077564
Your Ref: Joshua Lasky



1 July 2009

Attention: Joshua Lasky
AECOM
44 Market Street
Sydney NSW 2000

Dear Joshua

RE SITE: Cnr Springs & Richardson Roads, Narel

I refer to your site search request received on 24th June 2009 req Licence to Keep Dangerous Goods on the above site.

Enclosed are copies of the documents that WorkCover NSW hold Licence **35/009908, 037912, 035770, 028854, 037894** relating to the storage of dangerous goods at the above-mentioned premises, as listed on the Stored Chemical Information Database (SCID).

If you have any further queries, please contact WorkCover's Dangerous Goods Licensing staff on (02) 4321 5500.

Yours sincerely

Sue Waugh
A/C Senior Licensing Officer
Dangerous Goods Team

NOTIFICATION OF DANGEROUS GOODS ON PREMISES FORM FDG01

CONTACT FOR NOTIFICATION INQUIRIES

Title: Mr/Miss/Mrs/Other (please specify) Mr. Family name Bailey

Given Name Bruce Other names -

Business Phone: 4654 9201 Business Fax: 4654 9299

Business e-mail address Bruce.bailey@wsn.com.au

Previous Licence Number or Acknowledgment Number

New Site

Previous Occupier (if known)

None

Site on which dangerous goods are to be kept

Number 275 Street Richardson Road

Suburb/Town/Locality Postcode

Spring Farm 2570

Nearest Cross Street

Springs Road

Lot and DP if no street number

-

Is the site staffed? If yes state number of employees 40

Site Staffing: Hours per day 24 Days per week 7

Site Emergency Contact:

Phone Number 0419 753 996 **Name** Bruce Bailey

Nature of site (e.g. petrol station, warehouse, etc.)

Waste Processing & Recycling

Nature of your primary business

Waste Management

ABN Number (if any) 93 524 709 106 Website Details (if any) www.wsn.com.au

What is the ANSZIC code most applicable to your business? (see guide for list of codes and further information)

Code Q9634 Description Waste Management & Services

Attach a site sketch(s) of the premises. Refer to guide for information on the requirements for the site sketch
Attach a photocopy page from a local Street Directory or other map showing the locality of the premises. Mark the location of the premises with an "X"

$ 100.00
Date: 4.12.08
Rec No. 554761

Litre capacity for D1, D2 & D3 advised by Bree Bailey by phone 12/12

NOTIFICATION OF DANGEROUS GOODS ON PREMISES FORM FDG01

List the dangerous goods that will be stored and/or processed on these premises. Copy this page and attach additional sheets if there is insufficient space.

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m³)
D1	Above Ground Tank	2.1	570m³ 570,000L.

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m³)
1971	Methane	2.1	-		2[S]E	570	m³

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m³)
D2	Above Ground Tank	2.1	5m³ 5000L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m³)
1971	Methane	2.1	-		2[S]E	5	m³

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m³)
D3	Above Ground Tank	2.1	5m³ 5000L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m³)
1971	Methane	2.1	-		2[S]E	5	m³

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m³)
D4	Above Ground Tank	8	5,000 Litres

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m³)
1824	Sodium Hydroxide Solution	8	II	Caustic	2R	4,000	L

NOTIFICATION OF DANGEROUS GOODS ON PREMISES FORM FDG01

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m³)
D5	Above Ground Tank	8	5,000 Litres

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m)
2582	Ferric Chloride Solution	8	III	Pickle Liquor	2Z	4,000	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m³)
D6	Intermediate Bulk Container	8	1,000 Litres

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m)
1805	Phosphoric Acid	8	III	Phosphoric Acid	2R	700	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m³)
D7	Cylinder Store	2.1	180 Litres (Cylinder Water Capacity)

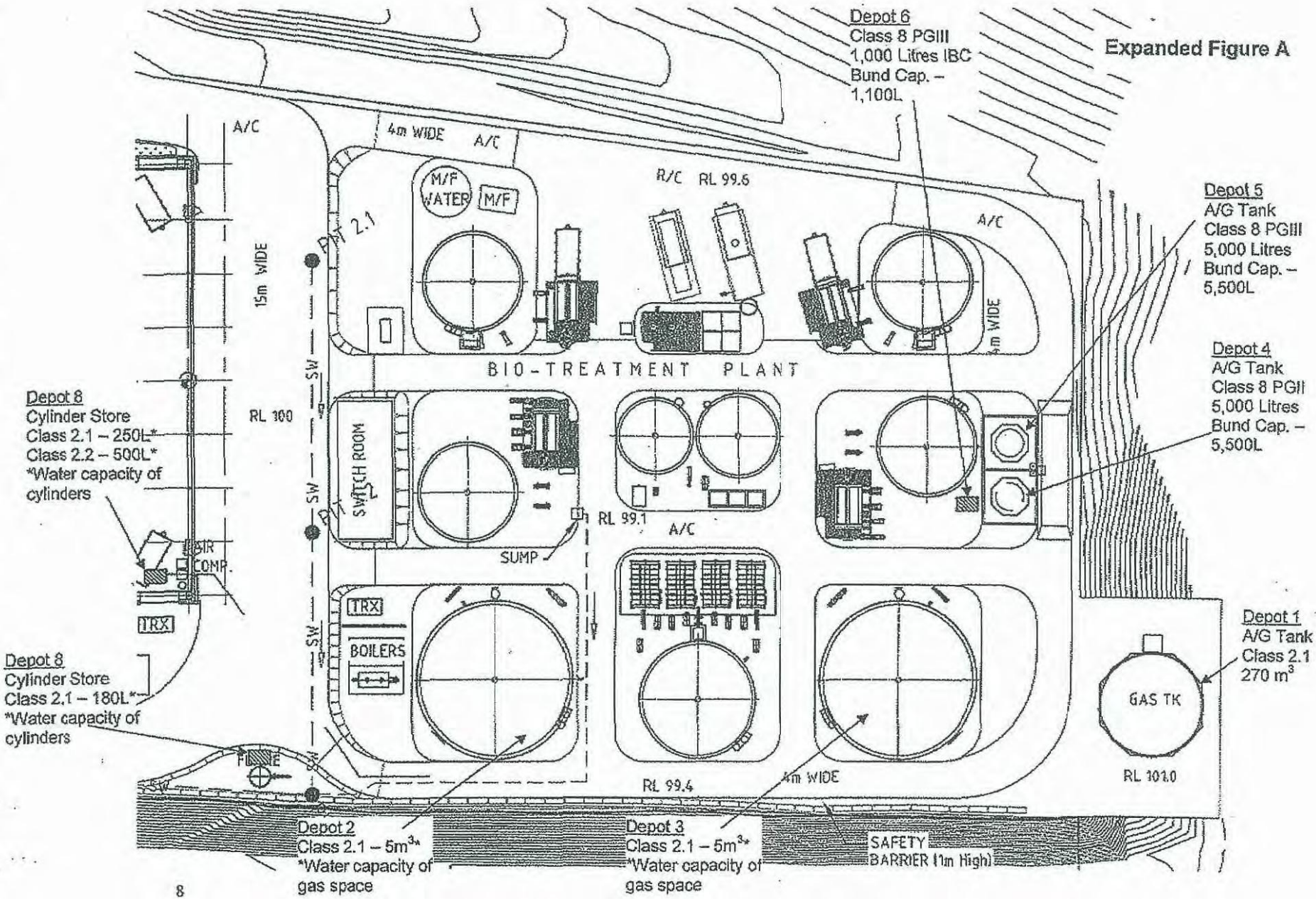
UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m)
1075	Petroleum Gases, Liquefied	2.1	-	LPG	2WE	90	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m³)
D8	Cylinder Store	2.1 & 2.2	750 Litres (cylinder water capacity)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m)
1001	Acetylene Dissolved	2.1	-	Acetylene	2[S]E	150	L
1006	Argon Compressed	2.2	-	Argon	2[T]	150	L
1072	Oxygen Compressed	2.2 (5.1)	-	Oxygen	2[S]	200	L

2008-12-04 15:57 WSN Finance 61 2 9934 7191 >> Workcover NSW P 6/8

Expanded Figure A



CONTACT FOR NOTIFICATION INQUIRIES

Title: Mr/Miss/Mrs/Other (please specify) Mr. **Family name** Bailey

Given Name Bruce **Other names** -

Business Phone: 4654 9201 Business Fax: 4654 9299

Business e-mail address Bruce.bailey@wsn.com.au

Previous Licence Number or Acknowledgment Number

New Site

Previous Occupier (if known)

None

Site on which dangerous goods are to be kept

Number 275 Street Richardson Road

Suburb/Town/Locality Postcode

Spring Farm 2570

Nearest Cross Street

Springs Road

Lot and DP if no street number

-

Is the site staffed? If yes state number of employees 40

Site Staffing: Hours per day 24 Days per week 7

Site Emergency Contact:

Phone Number 0419 753 996 **Name** Bruce Bailey

Nature of site (e.g. petrol station, warehouse, etc.)

Waste Processing & Recycling

Nature of your primary business

Waste Management

ABN Number (if any) 93 524 709 106 Website Details (if any www.wsn.com.au

What is the ANSZIC code most applicable to your business? (see guide for list of codes and further information)

Code Q9634 Description Waste Management & Services

Attach a site sketch(s) of the premises. Refer to guide for information on the requirements for the site sketch
Attach a photocopy page from a local Street Directory or other map showing the locality of the premises. Mark the location of the premises with an "X"

List the dangerous goods that will be stored and/or processed on these premises. Copy this page and attach additional sheets if there is insufficient space.

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m^3)
D1	Above Ground Tank	2.1	570m^3

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m^3)
1971	Methane	2.1	-		2[S]E	570	m^3

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m^3)
D2	Above Ground Tank	2.1	5m^3

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m^3)
1971	Methane	2.1	-		2[S]E	5	m^3

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m^3)
D3	Above Ground Tank	2.1	5m^3

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m^3)
1971	Methane	2.1	-		2[S]E	5	m^3

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m^3)
D4	Above Ground Tank	8	5,000 Litres

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m^3)
1824	Sodium Hydroxide Solution	8	II	Caustic	2R	4,000	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m^3)
D5	Above Ground Tank	8	5,000 Litres

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m^3)
2582	Ferric Chloride Solution	8	III	Pickle Liquor	2Z	4,000	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m^3)
D6	Intermediate Bulk Container	8	1,000 Litres

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m^3)
1805	Phosphoric Acid	8	III	Phosphoric Acid	2R	700	L

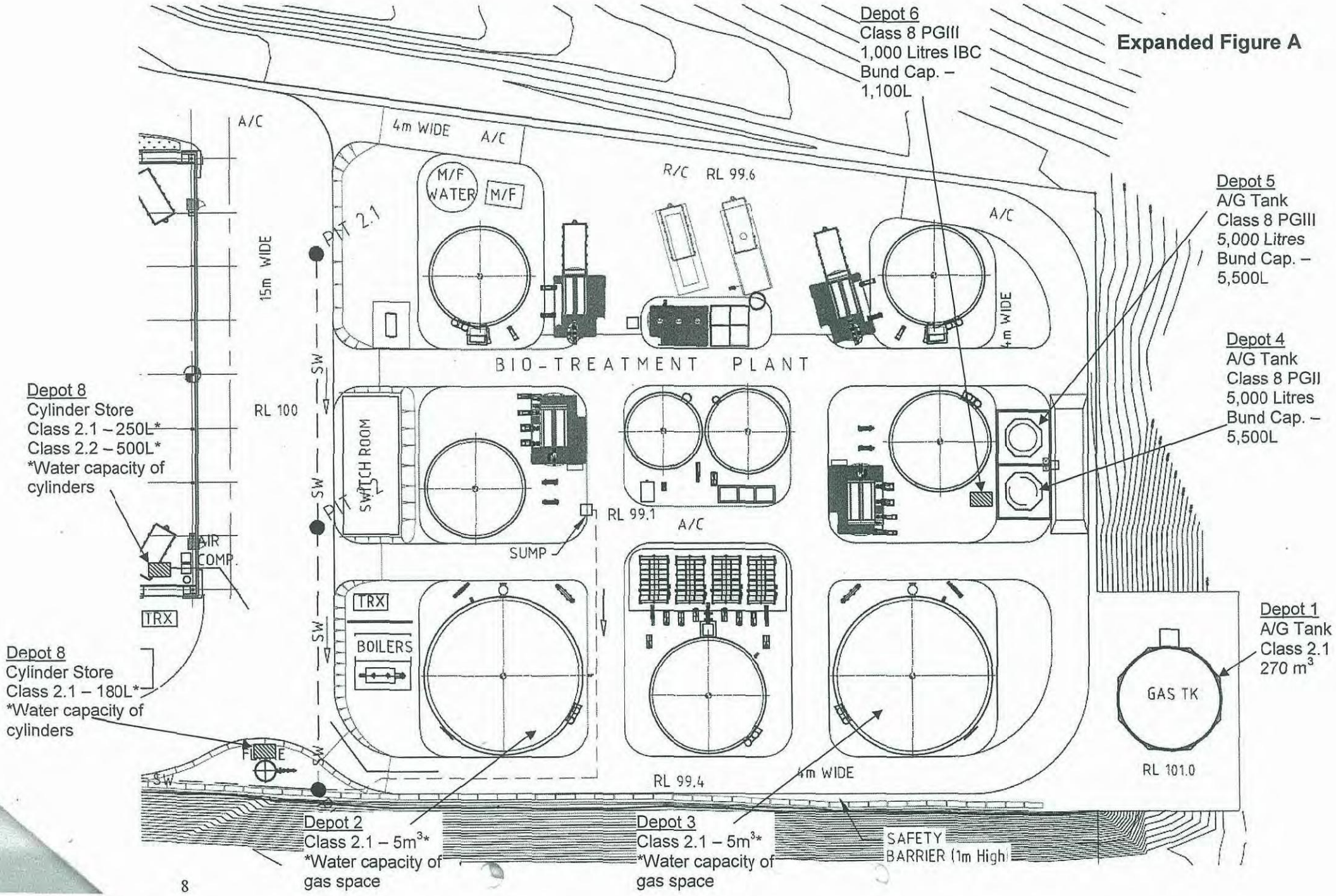
Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m^3)
D7	Cylinder Store	2.1	180 Litres (Cylinder Water Capacity)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m^3)
1075	Petroleum Gases, Liquefied	2.1	-	LPG	2WE	90	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity(L,kg,m^3)
D8	Cylinder Store	2.1 & 2.2	750 Litres (cylinder water capacity)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit (e.g.L,kg,m^3)
1001	Acetylene Dissolved	2.1	-	Acetylene	2[S]E	150	L
1006	Argon Compressed	2.2	-	Argon	2[T]	150	L
1072	Oxygen Compressed	2.2 (5.1)	-	Oxygen	2[S]	200	L

Expanded Figure A



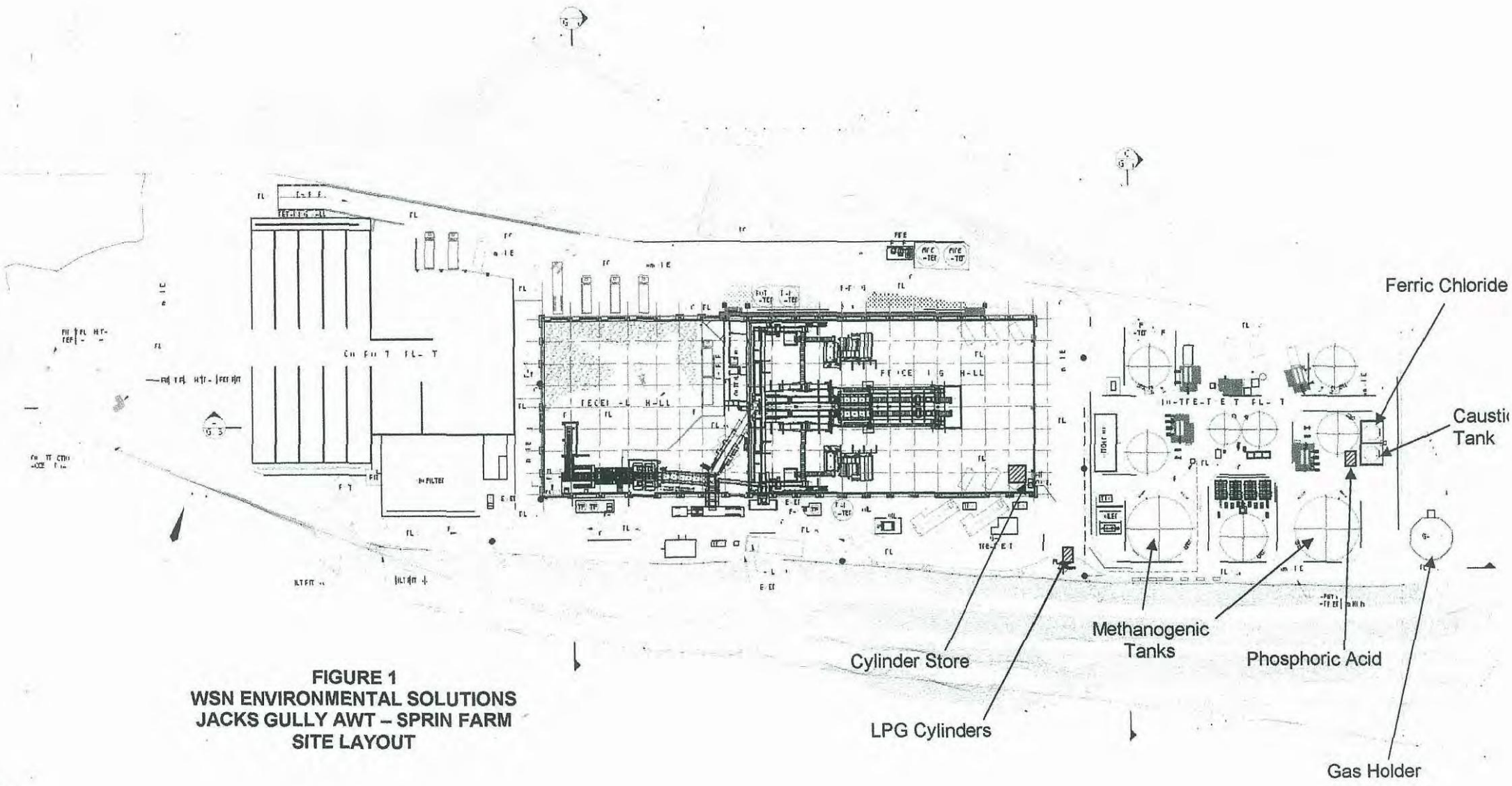


FIGURE 1
WSN ENVIRONMENTAL SOLUTIONS
JACKS GULLY AWT – SPRIN FARM
SITE LAYOUT

CONTACT FOR NOTIFICATION INQUIRIES

Title: Mr / Miss / Ms / Mrs / Other (please specify) MR **Family name** KRAMER
Given name JAMES **Other names** Allison
Gender Male / Female (please circle) **Date of birth** 10/8/60 **Place of birth** CAMDEN
Postal address 3 Wernah Street
Suburb Wilson State NSW Postcode 2552
Business phone 02 63786000 **Business fax number** 0263724167
Business email address Jim.kramer@keytrans.com.au

Previous licence number or acknowledgement number (if known)

35/ NW 35/037894 13/11/08.

Previous occupier (if known)

Site on which dangerous goods are to be kept

Number 1 Street GLENLEE Rd Spring Farm NSW

Nearest cross street

Richardson Rd NSW

Lot and DP if no street number

Is the site staffed? If yes, state number of employees NO

Site staffing: Hours per day Days per week

Site emergency contact

Phone number (02) 46580323 **Name** KEITH DUNLEA

Nature of the site (eg farm, warehouse, shop etc)

Old coal washing site

Nature of your primary business activity

Transport

ABN (if any) 50002824875 Website details (if any)

What is the ANSZIC code most applicable to you business? (see guide for list of codes and further information)

Code Description

Attach a site sketch of the premises. Refer to the Guide for information on the requirements for the site sketch.

Attach a photocopy page from a local street directory or other map showing the locality of the premises. Mark the location of the premises with an X

NOTIFICATION OF DANGEROUS GOODS ON PREMISES FORM – SSDGO* FDG02

List the dangerous goods that will be stored and/or processed on these premises. Copy this page and attach additional sheets if there is insufficient space.

Identifier	Type of storage location or process	Class	Maximum storage capacity (L, kg, M^3)
1	OUTDOOR PAD	5	~~1800 KG~~ 54 000 Kg

UN Number	Proper shipping name	Class	PG (I, II, III)	Product or common name	HazChem symbol	Typical qty	Unit eg L, kg, M^3
1942	Ammonium Nitrate	5.1	I	AN	5.1	1800	Kg

Identifier	Type of storage location or process	Class	Maximum storage capacity (L, kg, M^3)

UN Number	Proper shipping name	Class	PG (I, II, III)	Product or common name	HazChem symbol	Typical qty	Unit eg L, kg, M^3

Identifier	Type of storage location or process	Class	Maximum storage capacity (L, kg, M^3)

UN Number	Proper shipping name	Class	PG (I, II, III)	Product or common name	HazChem symbol	Typical qty	Unit eg L, kg, M^3

Identifier	Type of storage location or process	Class	Maximum storage capacity (L, kg, M^3)

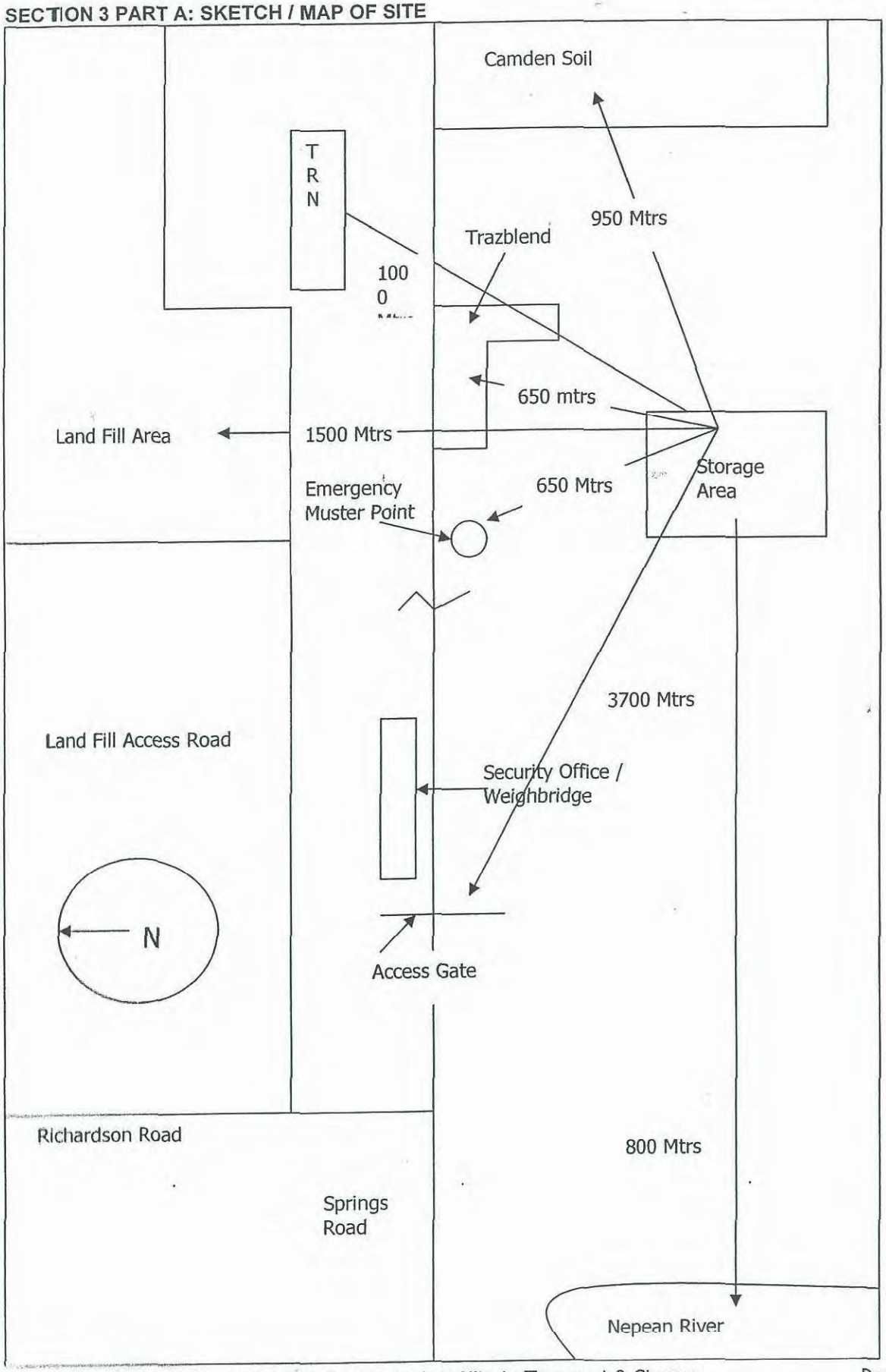
UN Number	Proper shipping name	Class	PG (I, II, III)	Product or common name	HazChem symbol	Typical qty	Unit eg L, kg, M^3

Identifier	Type of storage location or process	Class	Maximum storage capacity (L, kg, M^3)

UN Number	Proper shipping name	Class	PG (I, II, III)	Product or common name	HazChem symbol	Typical qty	Unit eg L, kg, M^3

* SECURITY SENSITIVE DANGEROUS GOODS ONLY

SECTION 3 PART A: SKETCH / MAP OF SITE



CONTACT FOR NOTIFICATION INQUIRIES

Title (Mr) / Miss / Ms / Mrs / Other (please specify) _____ **Family name** FORDHAM

Given name TERENCE **Other names** _____

Business phone 4654 9900 **Business fax number** 46549999

Business email address _____

Previous Licence Number or Acknowledgement Number (if known)

35/025554

Previous Occupier (if known)

Site on which dangerous goods are to be kept

Number: 200 Street: SPRINGS RD

Suburb/Town/Locality: SPRING FARM Postcode: 2567

Nearest cross Street: RICHARDSON ROAD

Lot and DP if no street number: 54 / 864754

Is the site staffed? If yes state number of employees: 145

Site staffing: Hours per day: 24 Days per week: 7 overnight security guard

Site Emergency Contact

Phone number: (02) 4655 1664 **Name**: TERENCE FORDHAM

Nature of site (eg petrol station, warehouse etc): HAULAGE & EARTHMOVING

Nature of primary business activity: HAULAGE & EARTHMOVING

ABN Number (if any): 56 000 548 354 Website details (if any): www.hrn.com.au

What is the ANSZIC code most applicable to your business? (see guide for list of codes and further information)

Code: 611 Description: ROAD FREIGHT TRANSPORT

Attach a site sketch(s) of the premises. Refer to the Guide GDG01 for information on the requirements for the site sketch.

Attach a legible photocopy page from a local Street Directory or other map showing the locality of the premises. Mark the location of the premises with an X.

$ 100.00
Date: 13/10/08
Rec No. 549551

List the dangerous goods that will be stored and/or processed on these premises (refer to Guide GDG01). Copy this page and attach additional sheets if there is insufficient space.

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
1	ABOVE GROUND TANK	C1	294000. L

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
0001	DIESOLINE	C	1	DIESEL	NON	294000	L

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
3	ABOVE GROUND TANK	C1	228 000. L

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
0001	DIESOLINE	C	1	DIESEL	NON	228000	L

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
2	ABOVE GROUND TANK	C1	55000 L

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
0001	DIESOLINE	C	1	DIESEL	NON	55000	L

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg

TJ & RF FORDHAM PTY LTD
ABN 56 000 548 354
PO BOX 431 CAMDEN NSW 2570
Phone: 02 4654 9900 Fax: 02 4654 9999 www.trn.com.au

TRN Group

QMS ISO 9002 APPROVAL No. A/95220

JACKS GULLY TIP

2174 → 428-A

Licence No. 35/028854

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/028854 to 6/12/2005 . I confirm that all the licence details shown below are correct (amend if necessary).

D Fordham ..... *(Signature)* for: *T.J & R.F FORDHAM PTY LTD*

T. FORDHAM ..... *(Please print name)*

26/10/04 ..... *(Date signed)*

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:***

WorkCover New South Wales
Dangerous Goods Licensing Section
LOCKED BAG 2906
LISAROW NSW 2252

Enquiries:ph (02) 43215500
fax (02) 92875500

Details of licence on 22 October 2004

Licence Number 35/028854 **Expiry Date** 6/12/2004

Licensee T.J & R.F FORDHAM PTY LTD ACN 000 548 354

Postal Address: P O BOX 431 CAMDEN NSW 2570

Licensee Contact TERRY FORDHAM Ph. 02 ~~4655 8983~~ 02 46549900 Fax. 02 ~~4655 8939~~ 46549999

Premises Licensed to Keep Dangerous Goods JACKS GULLY
T.J & R.F FORDHAM PTY LTD
GLENLEE RD NARELLAN VALE 2567

Nature of Site PETROLEUM PRODUCT WHOLESALING

Major Supplier of Dangerous Goods SHELL

Emergency Contact for this Site TERRY FORDHAM Ph. 0418 246 854

Site staffing 24 HRS 7 DAYS

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
1	**ABOVE-GROUND TANK**	**Class C1**	**294000 L**
	UN 00C1 DIESEL		294000 L
2	**ABOVE-GROUND TANK**	**Class C1**	**228000 L**
	UN 00C1 DIESEL		228000 L

WorkCover New South Wales, 400 Kent Street, Sydney 2000, Tel (02) 9370 5000 ALL MAIL TO LOCKED BAG 10, CLARENCE STREET, DX 480, SYDNEY 2000

Reference

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: *Please renew licence number 35/028854 to 1997. I confirm that all the licence details shown below are correct (amend if necessary).*

Keith Dunbier 23-10-96

(Signature) *(Please print name)* *(Date signed)*

for: HEGGIES BULKHAUL LTD

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:***

WorkCover New South Wales
Dangerous Goods Licensing Section (Level 3)
Locked Bag 10
P O CLARENCE STREET 2000

RECEIVED MAIL ROOM 30 OCT 1996 WORKCOVER NEW SOUTH WALES

Details of licence on 18 October 1996

Licence Number 35/028854 **Expiry Date** 08/12/96

Licensee HEGGIES BULKHAUL LTD ACN 003 707 499

Postal Address BOX 50 P O, NARELLAN 2567
Licensee Contact Keith Dunbier Ph. 046 ~~580 277~~ Fax. 046 ~~580 111~~
Premises Licensed to Keep Dangerous Goods
GLENLEE RD JACKS GULLY ~~409400~~ 409410
NARELLAN 2567

Nature of Site PETROLEUM PRODUCTS WHOLESALERS **Major Supplier of Dangerous Goods** SHELL

Emergency Contact for this Site Keith Dunbier ph. ~~046~~ ~~580 277~~ 018 262720

Site staffing 24 hrs 7 days

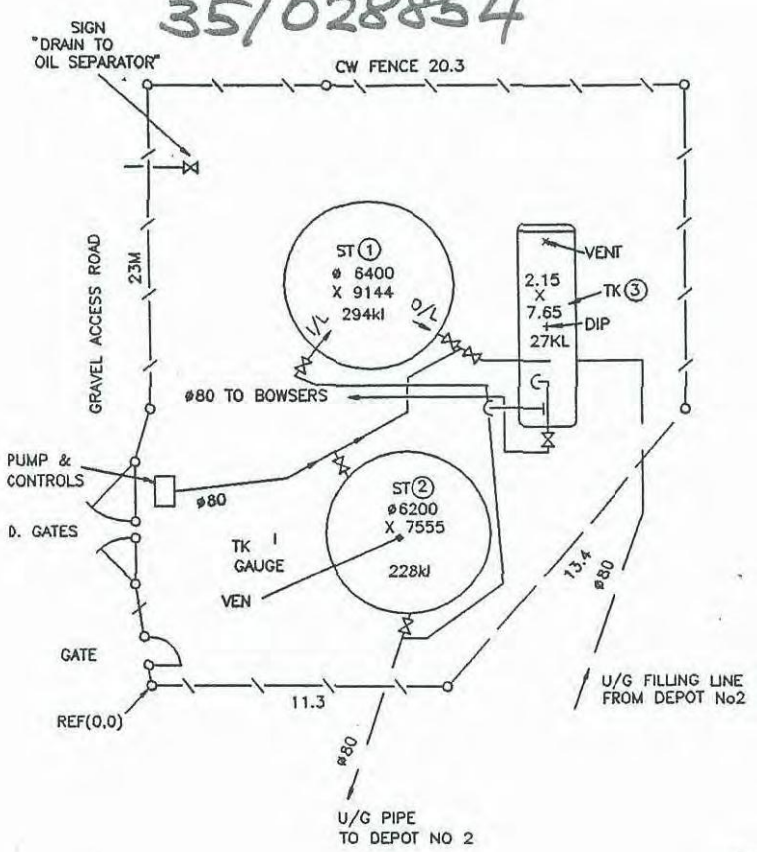
Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
1	ABOVE-GROUND TANK	Class c1	294000 L
		UN 00C1 DIESEL	294000 L
2	ABOVE-GROUND TANK	Class c1	228000 L
		UN 00C1 DIESEL	228000 L

96 12/11

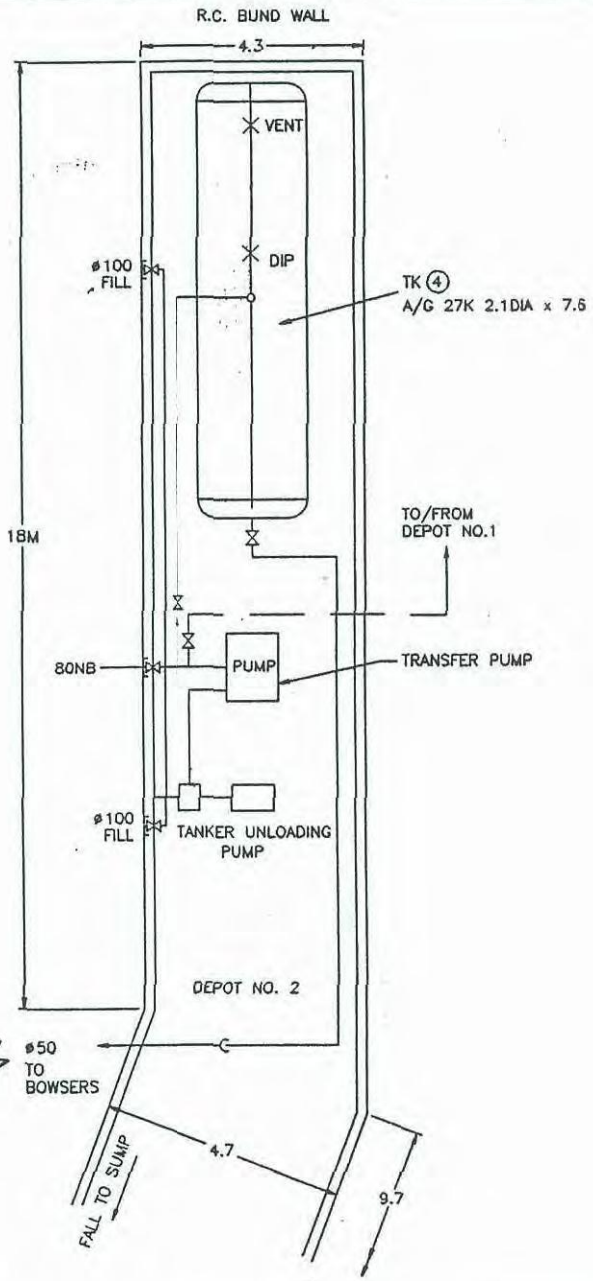
RECEIVED 30 OCT 1996 SCIENTIFIC SERVICES BRANCH

35/028854



DETAIL–DEPOT 1

This plan conforms with the
Dangerous Goods Act NSW 1975
and Australian Standard A$ 1940
Signed for ADUP P/L
2 Baker St. OATLEY 2223
02. 579 3604
Date 29.11.93



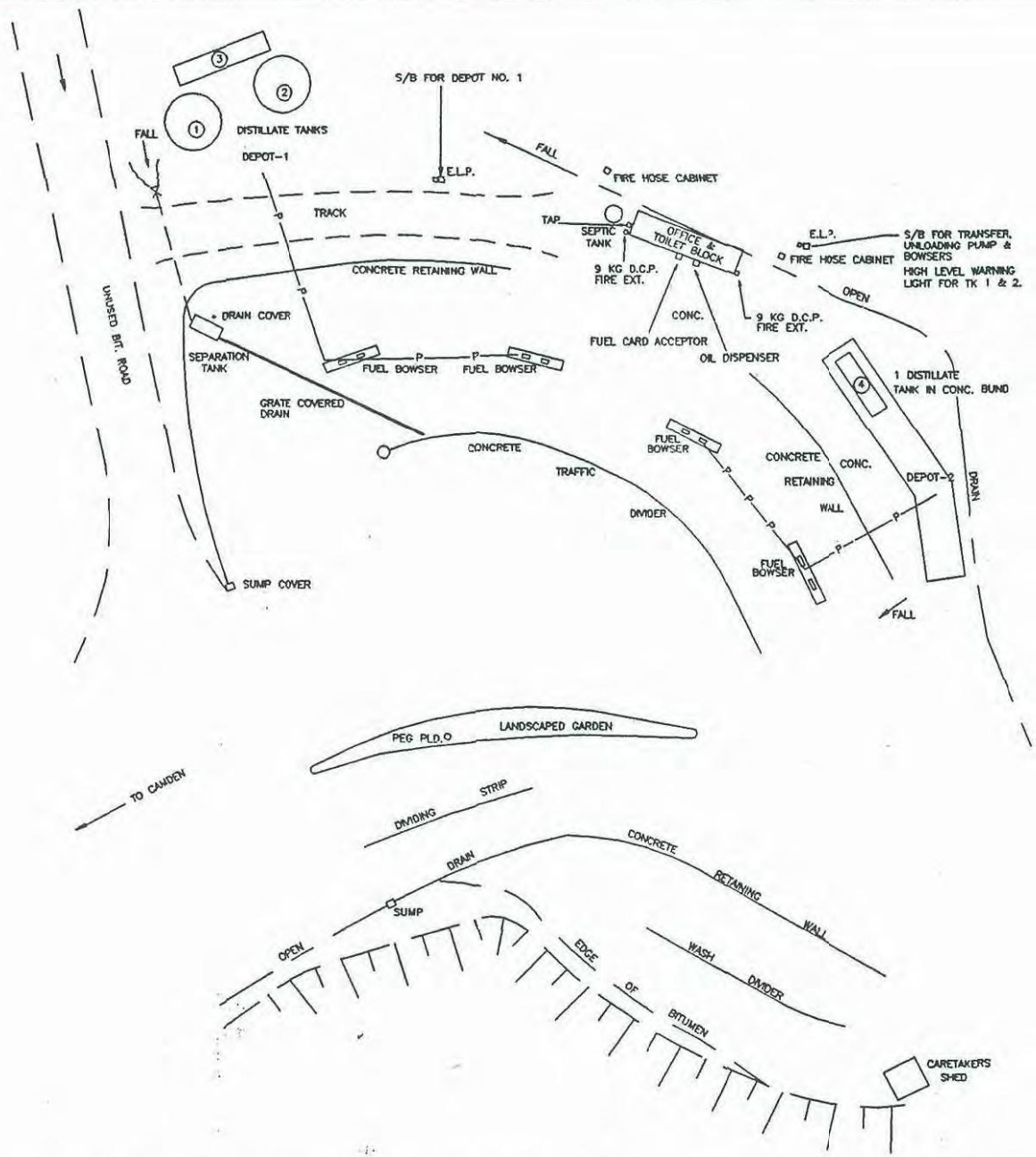
DETAIL–DEPOT 2

NO.	REVISION	NO.

NORTH

SCALE NTS	DATE 10/11/93	ADUP P/L 2 BAKER STREET OATLEY NSW 2223 (02) 579 3604	TITLE FUEL DEPOT BULK HAUL GLENLEE
DRAWN	ENGINEERED ST		
CHECKED	APPROVED		
		DWG. NO. D166–2	REV. A

35/028854



TANK TABLE

NO	DESCRIPTION	POT	kl
1	A/G 6.4 DIA X 9.14	DIST	294
2	A/G 6.2 DIA X 7.55	DIST	228
3	A/G 2.15 DIA X 7.65	DIST	27
4	A/G 2.15 DIA X 7.65	DIST	27

This plan conforms with the Dangerous Goods Act NSW 1975 and Australian Standard A$ 1940
Signed for ADUP P/L
2 Baker St. OATLEY 2223
02, 579 3604
Date 29.11.93

NORTH

SCALE NTS	DATE 10/11/93	
DRAWN	ENGINEERED ST	
CHECKED	APPROVED	

ADUP P/L
2 BAKER STREET
OATLEY NSW 2223
(02) 579 3604

TITLE
GENERAL LAYOUT
BULK HAUL
GLENLEE

DWG NO D166-1

REV. A

FORM B

INFLAMMABLE LIQUID ACT, 1915

10

APPLIC[illegible]TION FOR: REGISTRATION OF PREMISES / STORE LICENCE / AMENDMENT TO REGISTRATION OR LICENCE } FOR THE KEEPING OF INFLAMMABLE LIQUID AND/OR DANGEROUS GOODS.

Name of Occupier in full	CSIRO MINERALS RESEARCH LABORATIES (Surname/s) (First Names in full)
Trading Name (if any)	
Postal Address	P.O. BOX 136, NORTH RYDE Postcode 2113
Address of the premises in which the depot or depots are situated	CNTHIA DEVEL. LTD.'S GLENLEE COAL WASHERY, off RICHARDSON RD, NARELLAN Postcode 2567.
Occupation	
Nature of Premises	FLUIDISED COMBUSTION PILOT PLANT

Particulars of construction of depots and maximum quantities of inflammable liquid and/or dangerous goods to be kept at any one time. Issue this day

PLEASE SKETCH SITE ON BACK OR ATTACH PLAN

Tank or Depot Number	Construction of depots *			Inflammable Liquid		Dangerous Goods						
	Walls	Roof	Floor	Mineral spirit litres	Mineral oil litres	Class 1 litres	Class 2 litres	Class 3 kg	Class 4 m^3	Class 5A# litres	Class 5B# litres	Class 9 litres
1	ABOVEGROUND		TANK							2400		
2												
3												
4												
5												
6												
7												
8												
9												
10												
TOTAL												

PUBLIC [illegible]

EHQ 12.00 20/10/77 (Date) Receipt No. 668

* If kept in tanks describe depots as underground or aboveground tanks.

\# Insert water capacity of tanks or cylinders.

Name of Company supplying inflammable liquid CIG

Have premises previously been licensed? —— Licence No.

If known, state name of previous occupier ——

Signature of applicant [signature] Date 26/9/77

CSIRO Minerals Research Laboratories, Delhi Road, North Ryde, P.O. Box 136, NORTH RYDE, N.S.W. 2113

FOR OFFICE USE ONLY:

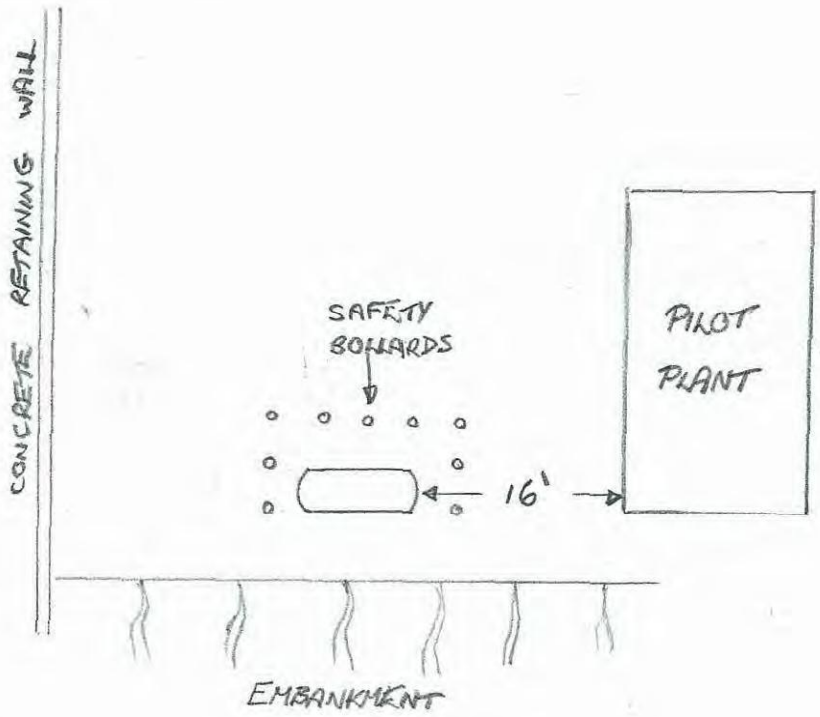
CERTIFICATE OF INSPECTION

I, RAYMOND CHARLES McGRATH being an Inspector under the Inflammable Liquid Act, 1915, do hereby certify that the premises or store described above does comply with the requirements of that Act and regulations with regard to its situation and construction for the keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.

Dangerous Goods Branch

Signature of Inspector [signature]

Make rough sketch of ground layout of premises showing position of depot or depots and adjacent buildings, also distances separating depots and buildings. If space insufficient, attach separate plan.



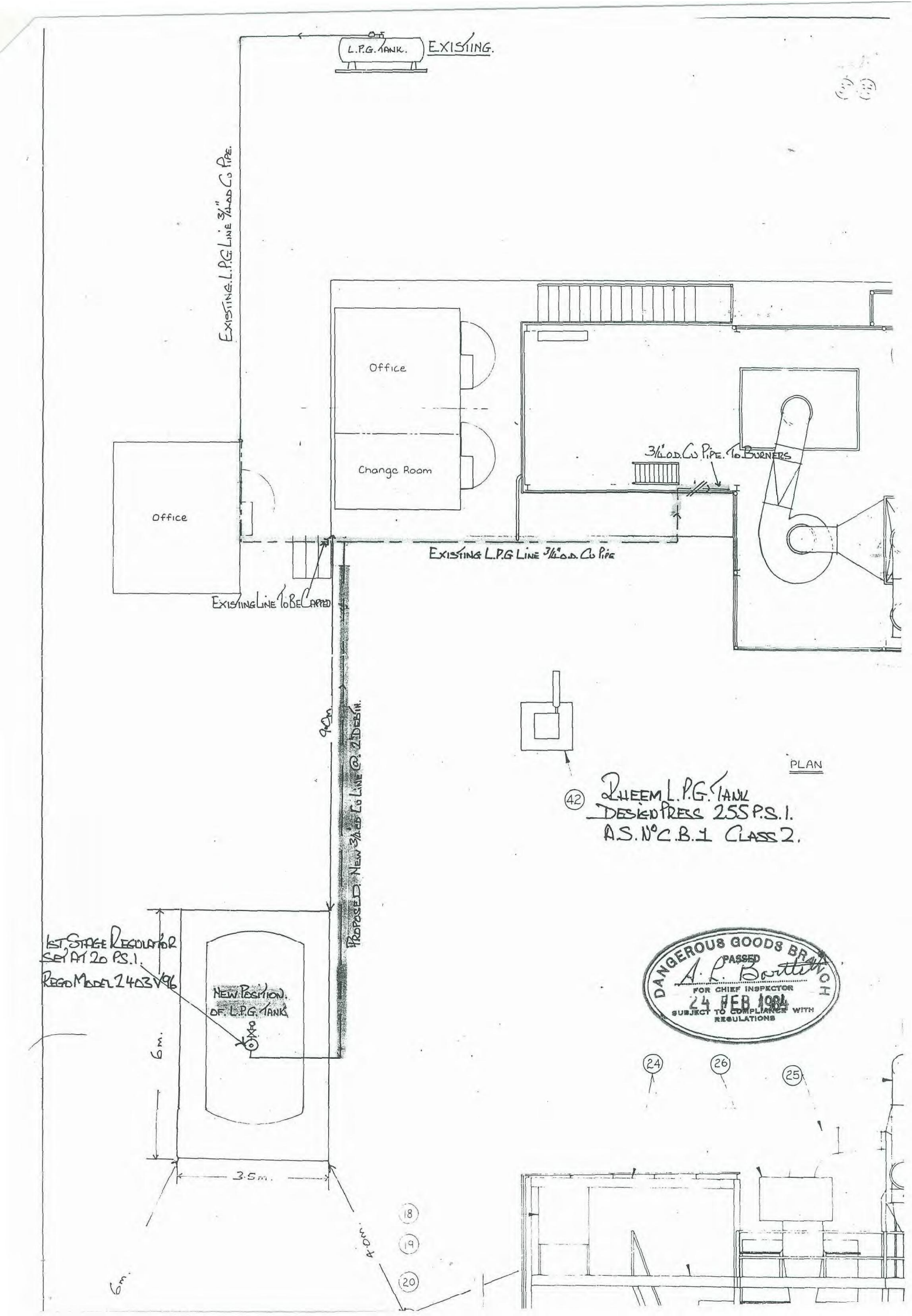
EXPLANATORY NOTES

NAME IN FULL OF OCCUPIER/S - Full name(s) of occupier(s) must be given. Trading name (if any) should also be shown.

NATURE OF PREMISES - State whether premises comprise of dwelling, service station, depot, etc.

CONSTRUCTION OF DEPOT - If storage is in an aboveground depot indicate the material of which the depot is constructed, e.g., brick, steel, concrete, and then the amount of inflammable liquid or dangerous goods and the type being stored, e.g., mineral spirit, kerosene, acetone, etc.

If storage is within underground or aboveground tanks, indicate the quantities and type of liquid or goods being


L.P.G. TANK.
EXISTING.
EXISTING L.P.G LINE 3/4" O.D. Cu PIPE.
Office
Change Room
Office
3/4" O.D. Cu PIPE. TO BURNERS
EXISTING L.P.G LINE 3/4" O.D. Cu PIPE
EXISTING LINE TO BE CAPPED
9.0m.
PROPOSED NEW 3/4" O.D. Cu LINE @ 2 DEG'S M.
PLAN
(42) RHEEM L.P.G. TANK
DESIGN PRESS 255 P.S.I.
A.S.N°C.B.1 CLASS 2.
1ST. STAGE REGULATOR
SET AT 20 P.S.I.
REGO MODEL 2403V96
NEW POSITION.
OF L.P.G. TANK
3.9m.
3.5m.
6m.
DANGEROUS GOODS BRANCH
PASSED
A. P. Bartlett
FOR CHIEF INSPECTOR
24 FEB 1984
SUBJECT TO COMPLIANCE WITH REGULATIONS
(24)
(26)
(25)
(18)
(19)
(20)

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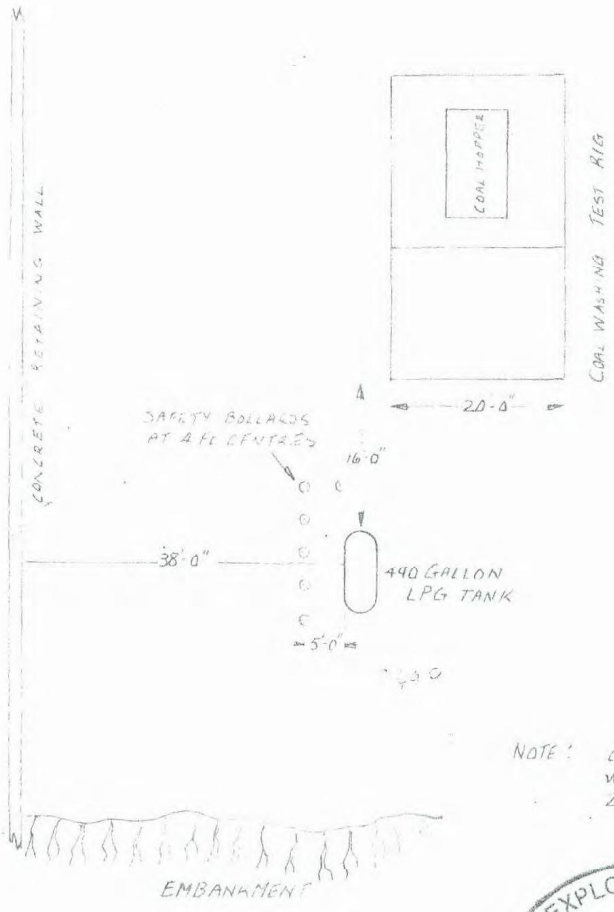

NOTE: CUSTOMER TO PROVIDE WATER TAP WITH HOSE 25 Ft FROM TANK.

EXPLOSIVES BRANCH
PASSED
for CHIEF INSPECTOR
24 / 10 / 76
SUBJECT TO COMPLIANCE WITH REGULATIONS

The Commonwealth Industrial Gases Limited
INSTALLATIONS DEPT. – ALEXANDRIA, N.S.W.

CLUTHA DEVELOPEMENTS
RICHARDSON ST. NARELLAN
BULK LPG SITE PLAN

REVISIONS			
DATE	5.10.76	DRAWN	A.KLAGES
CHKD		TRACED	
PASSED		SCALE	1/16" = 1'-0"

REV. A B C D E F G H

PGP 76/0020

Appendix F

VENM Certificate, Kemps Creek, NSW

22 June 2012

Kim Ross
Landfill Operations Manager
SITA Australia
1725 Elizabeth Drive
Kemps Creek NSW 2171

Our ref: 21/19947/181465
Your ref:

Dear Kim

Elizabeth Drive Landfill
VENM classification of quarried material

1 Introduction

On 15 June 2012, GHD conducted an audit of site operations along with a visual assessment of excavated (quarried) material from the Elizabeth Drive Waste Management Facility (the Site) located in Kemps Creek, Western Sydney. The site is owned and operated by SITA Australia.

The objective of the audit was to assess whether the materials excavated and stockpiled during the quarrying operations have been impacted on or contaminated by the adjacent landfilling operations and whether the excavated and stockpiled material can be classified as Virgin Excavated Natural Material (VENM) as per the NSW DECCW Waste Classification Guidelines - Part 1: Classifying Waste (2009).

In 2009, GHD conducted an initial audit of the site operations in particular in relation to the separation of the three activities that take place on site, namely landfilling, quarrying (and the resultant stockpiling) and SAWT operations (*Report for Stockpile Contamination Assessment: Elizabeth Drive Landfill* dated December 2009 (Ref: 21/19146/155788). The audit was supplemented by evaluation of chemistry data of samples of the stockpiles collected in 2006, 2007 and 2008. The audit and data evaluation concluded that in situ natural material (awaiting quarrying) and stockpiles of excavated natural materials had not been impacted by the concurrent landfilling activities and that the site management protocols maintain the separation of landfilling and quarrying (stockpiling). This conclusion was conditional on periodic inspection of the site operations and inspections of the stockpiles.

The objective of this audit (2012) was to assess that the site management protocols were still in place to separate landfilling from quarrying and that the stockpiles still comprise excavated natural material.

2 Audit activities

A site inspection was conducted by an experienced GHD senior environmental engineer on 15 June 2012. During the inspection, the following tasks were completed:

- A review of the site controls and operational procedures designed to manage the landfilling and quarrying (and stockpiling) activities. This was supplemented by an interview with the site manager;
- Observations of the operations of the landfilling and quarrying (stockpiling) activities;
- Visual assessment of the stockpiled materials.

GHD Pty Ltd ABN 39 008 488 373
Level 15, 133 Castlereagh Street Sydney NSW 2000 Australia
T 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com **W** www.ghd.com

The review of site controls and operational procedures in place at the site has indicated that the protocols governing the three site operations, namely landfilling, quarrying and waste treatment operations are still being undertaken in a way that segregates each operation and there is little likelihood for cross contamination. The inspection of stockpiles created as part of the quarrying operations identified that they comprise sandstone, clay and shale and there was no evidence of deleterious materials.

3 Conclusion

The visual observations during the site inspection of the manner in which site management controls are implemented demonstrate that the stockpiled natural material is suitable to continue to be classified as VENM as defined in NSW DECC (2009), "Waste Classification Guidelines Part 1: Classifying Waste" and the *Protection of the Environment Operations Act 1997*.

GHD recommends that it would be prudent to undertake visual confirmation of the material during excavation works of the stockpiles to confirm it is of a similar origin to the materials assessed as part of this and previous assessments.

GHD will subsequently to this letter issue a Report detailing these findings and recommendations.

Yours faithfully
GHD Pty Ltd

Andrew Kohlrusch

Principal Environmental Scientist

02 9239 7187

Appendix G

NSW EPA Database Search

Healthy Environment, Healthy Community, Healthy Business

Search results

Your search for:LGA: Campbelltown City Council

Matched 3 notices relating to 1 site.

Search Again

Refine Search

Suburb	Address	Site Name	Notices related to this site
Campbelltown	62 Blaxland Road	Chemical Storage	3 former

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Healthy Environment, Healthy Community, Healthy Business

You are here: Home > Contaminated land > Record of notices

Search results

Your search for:LGA: Camden Council

Search Again
Refine Search

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register

NSW Environment Protection A

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