



NSW Site Auditor Scheme

Site Audit Statement

A site audit statement summarises the findings of a site audit. For full details of the site auditor's findings, evaluations and conclusions, refer to the associated site audit report.

This form was approved under the *Contaminated Land Management Act 1997* on 12 October 2017.

For information about completing this form, go to Part IV.

Part I: Site audit identification

Site audit statement no. 072-2127799

This site audit is a:

statutory audit

~~non-statutory audit~~

within the meaning of the *Contaminated Land Management Act 1997*.

Site auditor details

(As accredited under the *Contaminated Land Management Act 1997*)

Name Andrew Kohlrusch

Company GHD Pty Ltd

Address Level 15, 133 Castlereagh Street, Sydney

Postcode 2000

Phone 61 447 685 055

Email andrew.kohlrusch@ghd.com

Site details

Address Devon Street, Rosehill on the Camellia Peninsula NSW

Postcode 2142

Property description

(Attach a separate list if several properties are included in the site audit.)

Stage 2 Audit Area 2 (AA2) – proposed Lots 59, Lot 60 and Lot 63 and a portion of a future public road forming part of Lot 100 in Deposited Plan 1168951, as defined by the survey plan included in LTEMP. The LTEMP is attached to this SAS as required by NSW EPA.

Local government area City of Parramatta Council

Area of site (include units, e.g. hectares) 9.6458 hectares (AA2 area)

Current zoning IN3 – Heavy Industrial

Regulation and notification

To the best of my knowledge:

the **site is** the subject of a declaration, order, agreement, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*, as follows: (provide the no. if applicable)

Declaration no. 20131110

Order no. Preliminary Investigation Order 20121001

Proposal no

Notice no

~~the site is not the subject of a declaration, order, proposal or notice under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985~~

To the best of my knowledge:

the site has been notified to the EPA under section 60 of the Contaminated Land Management Act 1997

~~site has not been notified to the EPA under section 60 of the Contaminated Land Management Act 1997.~~

Site audit commissioned by

Name Adam Speers

Company Viva Energy Australia Pty Ltd

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Postcode 2000

Phone +61 400 214 857

Email adam.speers@vivaenergy.com.au

Contact details for contact person (if different from above)

Name

Phone

Email

Nature of statutory requirements (not applicable for non-statutory audits)

Requirements under the *Contaminated Land Management Act 1997*
(e.g. management order; please specify, including date of issue)

Requirements imposed by an environmental planning instrument
(please specify, including date of issue)

Development consent requirements under the *Environmental Planning and Assessment Act 1979* (please specify consent authority and date of issue)

- Development Consent (File SSD9302) dated 7 May 2020, Consent Authority -
Minister for Planning and Public Spaces – in relation to remediation of the site.

- Development Consent (File SSD10459) dated 31 January 2021, Consent Authority
- Minister for Planning and Public Spaces – in relation to subdivision of Lot 100 DP
1168951.

Requirements under other legislation (please specify, including date of issue)

Purpose of site audit

~~A1 To determine land use suitability~~

~~Intended uses of the land:~~

OR

A2 To determine land use suitability subject to compliance with either an active or passive environmental management plan

Intended uses of the land commercial/industrial as per the site's zoning IN3 – Heavy Industrial under the Parramatta Council Local Environmental Plan 2011.

OR

(Tick all that apply)

~~B1 To determine the nature and extent of contamination~~

~~B2 To determine the appropriateness of:~~

~~an investigation plan~~

~~a remediation plan~~

~~management plan~~

~~B3 To determine the appropriateness of a **site testing plan** to determine if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*~~

~~B4 To determine the compliance with an approved:~~

~~voluntary **management proposal** or~~

~~management **order** under the *Contaminated Land Management Act 1997*~~

~~B5 To determine if the land can be made suitable for a particular use (or uses) if the site is remediated or managed in accordance with a specified plan.~~

~~Intended uses of the land:~~

Information sources for site audit

Consultancies which conducted the site investigations and/or remediation:

Environmental Resources Management Australia Pty Ltd ('ERM').

Titles of reports reviewed:

- ERM (2022a). *Clyde Western Area Remediation Project, Stage 2 Remediation – Ambient Air Quality Summary*, dated 21 February 2022 (the **Stage 2 AAQ**).
- ERM (2022b). *Clyde Western Area Remediation Project, Stage 2 validation report (Audit Area 2)*, dated 04 April 2022 (the **AA2 Validation**).
- ERM (2022c). *Clyde Western Area Remediation Project Proposed Lots 59, 60 and 63 – Long Term Environmental Management Plan*, dated 25 March 2022 (the **AA2 LTEMP**).
- ERM (2022d). *Clyde Western Area Remediation Project - Stage 2 Groundwater Monitoring – Remediation Phase – Month 1*, dated 8 November 2021 (the **Remediation GME 1**).

- ERM (2022e). *Clyde Western Area Remediation Project - Stage 2 Groundwater Monitoring – Remediation Phase – Month 2*, dated 20 December 2021 (the **Remediation GME 2**).

Other information reviewed, including previous site audit reports and statements relating to the site:

- ERM (2018). *Clyde Terminal Durham Street Rosehill NSW, PFAS Conceptual Site Model and Model and Flux Assessment*, dated 20 December 2018 (the **PFAS CSM**).
- AECOM (2019). *Viva Energy Clyde Western Area Remediation Project – Appendix C: Conceptual Remedial Action Plan*, dated 21 January 2019 (the **Conceptual RAP**).
- ERM (2020a). *Clyde Western Area Remediation Project - Remediation Site Investigation*, dated 7 February 2020 (the **RSI**).
- ERM (2020b). *Clyde Western Area Remediation Project, Human Health and Ecological Risk Assessment*, dated 16 February 2020 (the **HHERA**).
- ERM (2020c). *Clyde Western Area Remediation Project, Stage 1 Air Emission Verification Report*, dated 26 May 2020 (the **AEVR**).
- ERM (2021a). *Clyde Western Area Remediation Project – Stage 2 Drainage Decommissioning Validation Report*, dated 17 June 2021 (the **Stage 2 Drainage**).
- ERM (2021b). *Clyde Western Area Remediation Project – Stage 2 Environmental Site Assessment*, dated 17 June 2021 (the **Stage 2 ESA**).
- ERM (2021c). *Clyde Western Area Remediation Project, Stage 2 - Detailed Remediation Action Plan*, dated 9 June 2021 (the **Stage 2 RAP**).
- GHD (2021a). *Site Audit Statement N° 065-2127799B*, dated 13 August 2021 (the **Stage 2 RAP SAS**).

Site audit report details

Title *Site Audit Report for Stage 2 Audit Area 2 (Proposed Lots 59, 60, 63 and road) - Remediation and Validation Program*

Report no. 072-2127799

Date 14 April 2022

Part II: Auditor's findings

Please complete either Section A1, Section A2 or Section B, not more than one section. (Strike out the irrelevant sections.)

- Use **Section A1** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **without the implementation** of an environmental management plan.
- Use **Section A2** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **with the implementation** of an active or passive environmental management plan.
- Use **Section B** where the audit is to determine:
 - (B1) the nature and extent of contamination, and/or
 - (B2) the appropriateness of an investigation, remediation or management plan¹, and/or
 - (B3) the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or
 - (B4) whether the terms of the approved voluntary management proposal or management order have been complied with, and/or
 - (B5) whether the site can be made suitable for a specified land use (or uses) if the site is remediated or managed in accordance with the implementation of a specified plan.

¹ For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

Section A1

~~I certify that, in my opinion:~~

The ~~site is suitable~~ for the following uses:

~~(Tick all appropriate uses and strike out those not applicable.)~~

- ~~Residential, including substantial vegetable garden and poultry~~
 - ~~Residential, including substantial vegetable garden, excluding poultry~~
 - ~~Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~
 - ~~Day care centre, preschool, primary school~~
 - ~~Residential with minimal opportunity for soil access, including units~~
 - ~~Secondary school~~
 - ~~Park, recreational open space, playing field~~
 - ~~Commercial/industrial~~
 - ~~Other (please specify):~~
-

OR

- ~~I certify that, in my opinion, the site is not suitable for any use due to the risk of harm from contamination.~~

Overall comments:

Section A2

I certify that, in my opinion:

Subject to compliance with the **attached** environmental management plan² (EMP), the site is suitable for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

- ~~Residential, including substantial vegetable garden and poultry~~
- ~~Residential, including substantial vegetable garden, excluding poultry~~
- ~~Residential with accessible soil, including garden (minimal home grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~
- ~~Day care centre, preschool, primary school~~
- ~~Residential with minimal opportunity for soil access, including units~~
- ~~Secondary school~~
- ~~Park, recreational open space, playing field~~
- Commercial/industrial
- ~~Other (please specify):~~

EMP details

Title *Clyde Western Area Remediation Project - Proposed Lots 59, 60 and 63 – Long Term Environmental Management Plan, Rev02*, dated 25 March 2022 (**the AA2 LTEMP**)

Author ERM

Date 25 March 2022

No. of pages 37

EMP summary

This EMP (attached) is required to be implemented to address residual contamination on the site.

The EMP: (Tick appropriate box and strike out the other option.)

- ~~requires operation and/or maintenance of **active** control systems³~~
- requires maintenance of **passive** control systems only³.

² Refer to Part IV for an explanation of an environmental management plan.

³ Refer to Part IV for definitions of active and passive control systems.

Purpose of the EMP:

The objectives of the EMP prepared by ERM for the Stage 2 Audit Area 2 were:

- *Summarise background environmental information conditions at the site, and provide a mechanism to inform the Land Custodian, workers and managers of the potential risks to human health and / or the environment arising from contact with residual soil contamination (that as per reported by ERM in the AA2 Validation report does not pose potential human or ecological risks to future receptors).*
- *Outline methods and procedures that will avoid and/or mitigate adverse effects on human health and/or the environment.*
- *Provide a methodology for the appropriate environmental management of excavation works that may encounter residual contaminated soil.*
- *Provide environmental requirements for the sourcing and placement of backfill material (if necessary).*
- *Discuss safety measures / considerations for dealing with potentially residual contaminated soil.*
- *Outline restrictions to potential future land uses.*

Description of the nature of the residual contamination:

- Hydrocarbon impacted soils – associated with aesthetic considerations (presence of hydrocarbon staining and/or odours) which may be identified during future intrusive works.
- Following soil remediation works, asbestos has not been identified above criteria for the proposed land-use. However, given the long history of industrial land use and surrounding industries, the possibility of discovering isolated occurrences of asbestos (e.g. in the form of bonded ACM fragments) as an unexpected find during further intrusive excavations within the site cannot be precluded.

Summary of the actions required by the EMP:

- Non-Intrusive works – No management controls are required.
- Intrusive Excavation Works – Implementation of environmental management controls as detailed in Section 6 of the LTEMP attached to this SAS.

How the EMP can reasonably be made to be legally enforceable:

The EMP can be reasonably be made to be legally enforceable via condition B10(a) and (b) of the Development Consent number SSD-9302 and Condition A9 of Development Consent number SSD-10459, as issued under Section 4.38 of the Environmental Planning and Assessment Act 1979 (the 'EP&A Act'), as outlined below:

- *B10. Upon completion of the Site Audit Statement and Site Audit Report, the Applicant must: (a) Implement the approved LTEMP (b) Provide evidence to the Planning Secretary that the LTEMP is listed on the relevant planning certificate for the land, issued under section 10.7 of the EP&A Act.*
- *A9. The Applicant must implement the Long Term Environmental Management Plan (LTEMP) approved under condition B8 of SSD 9302 and provide evidence to the Planning Secretary that the LTEMP is listed on the relevant planning certificate(s) issued under section 10.7 of the EP&A Act for each lot created by*

Site Audit Statement

Stages 1A and B, 2 and 3 as shown in the 'Subdivision Drawings prepared by Land Partners' in Appendix 1.

How there will be appropriate public notification:

Notification of the updated AA2 LTEMP will be placed on the Section 10.7(5) planning certificate. Parramatta Council have been contacted in this regard.

Overall comments:

The auditor considered that the AA2 LTEMP had been prepared in a manner consistent with relevant NSW EPA Consultant Guidelines (NSW EPA, 2020).

The auditor noted the AA2 LTEMP appropriately identified the residual contamination and provided an adequate description of the objectives, scope of works, roles and responsibilities of parties involved in the implementation and management of the AA2 LTEMP.

The auditor concurred that management and mitigation measures associated with residual impacted soils are passive and can be easily managed based on the proposed future proposed commercial/industrial land use scenario.

Section B

Purpose of the plan⁴ which is the subject of this audit:

I certify that, in my opinion:

(B1)

- ~~The nature and extent of the contamination **has** been appropriately determined~~
- ~~The nature and extent of the contamination **has not** been appropriately determined~~

AND/OR (B2)

- ~~The investigation, remediation or management plan **is** appropriate for the purpose stated above~~
- ~~The investigation, remediation or management plan **is not** appropriate for the purpose stated above~~

AND/OR (B3)

- ~~The site testing plan:
 - ~~**is** appropriate to determine~~
 - ~~**is not** appropriate to determine~~if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*~~

AND/OR (B4)

- ~~The terms of the approved voluntary management proposal* or management order** (strike out as appropriate):
 - ~~have been complied with~~
 - ~~have not been complied with.~~~~

~~*voluntary management proposal no.~~

~~**management order no.~~

AND/OR (B5)

- ~~The site **can be made suitable** for the following uses:
 - ~~(Tick all appropriate uses and strike out those not applicable.)~~
 - ~~Residential, including substantial vegetable garden and poultry~~
 - ~~Residential, including substantial vegetable garden, excluding poultry~~
 - ~~Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~
 - ~~Day care centre, preschool, primary school~~
 - ~~Residential with minimal opportunity for soil access, including units~~~~

⁴ For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

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- ~~Secondary school~~
- ~~Park, recreational open space, playing field~~
- ~~Commercial/industrial~~
- ~~Other (please specify):~~

~~IF the site is remediated/managed*~~ in accordance with the following plan (attached):

~~*Strike out as appropriate~~

Plan title

Plan author RM

Plan date

No. of pages

~~SUBJECT to compliance with the following condition(s):~~

~~Overall comments:~~

Part III: Auditor's declaration

I am accredited as a site auditor by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997*.

Accreditation no. 0403

I certify that:

- I have completed the site audit free of any conflicts of interest as defined in the *Contaminated Land Management Act 1997*, and
- with due regard to relevant laws and guidelines, I have examined and am familiar with the reports and information referred to in Part I of this site audit, and
- on the basis of inquiries I have made of those individuals immediately responsible for making those reports and obtaining the information referred to in this statement, those reports and that information are, to the best of my knowledge, true, accurate and complete, and
- this statement is, to the best of my knowledge, true, accurate and complete.

I am aware that there are penalties under the *Contaminated Land Management Act 1997* for wilfully making false or misleading statements.

Signed 

Date 14 April 2022

Part IV: Explanatory notes

To be complete, a site audit statement form must be issued with all four parts.

How to complete this form

Part I

Part I identifies the auditor, the site, the purpose of the audit and the information used by the auditor in making the site audit findings.

Part II

Part II contains the auditor's opinion of the suitability of the site for specified uses or of the appropriateness of an investigation, or remediation plan or management plan which may enable a particular use. It sets out succinct and definitive information to assist decision-making about the use or uses of the site or a plan or proposal to manage or remediate the site.

The auditor is to complete either Section A1 or Section A2 or Section B of Part II, **not** more than one section.

Section A1

In Section A1 the auditor may conclude that the land is *suitable* for a specified use or uses OR *not suitable* for any beneficial use due to the risk of harm from contamination.

By certifying that the site is *suitable*, an auditor declares that, at the time of completion of the site audit, no further investigation or remediation or management of the site was needed to render the site fit for the specified use(s). **Conditions must not be** imposed on a Section A1 site audit statement. Auditors may include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section A2

In Section A2 the auditor may conclude that the land is *suitable* for a specified use(s) subject to a condition for implementation of an environmental management plan (EMP).

Environmental management plan

Within the context of contaminated sites management, an EMP (sometimes also called a 'site management plan') means a plan which addresses the integration of environmental mitigation and monitoring measures for soil, groundwater and/or hazardous ground gases throughout an existing or proposed land use. An EMP succinctly describes the nature and location of contamination remaining on site and states what the objectives of the plan are, how contaminants will be managed, who will be responsible for the plan's implementation and over what time frame actions specified in the plan will take place.

By certifying that the site is suitable subject to implementation of an EMP, an auditor declares that, at the time of completion of the site audit, there was sufficient information satisfying guidelines made or approved under the *Contaminated Land Management Act 1997*

(CLM Act) to determine that implementation of the EMP was feasible and would enable the specified use(s) of the site and no further investigation or remediation of the site was needed to render the site fit for the specified use(s).

Implementation of an EMP is required to ensure the site remains suitable for the specified use(s). The plan should be legally enforceable: for example, a requirement of a notice under the CLM Act or a development consent condition issued by a planning authority. There should also be appropriate public notification of the plan, e.g. on a certificate issued under s.149 of the *Environmental Planning and Assessment Act 1979*.

Active or passive control systems

Auditors must specify whether the EMP requires operation and/or maintenance of active control systems or requires maintenance of passive control systems only. Active management systems usually incorporate mechanical components and/or require monitoring and, because of this, regular maintenance and inspection are necessary. Most active management systems are applied at sites where if the systems are not implemented an unacceptable risk may occur. Passive management systems usually require minimal management and maintenance and do not usually incorporate mechanical components.

Auditor's comments

Auditors may also include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section B

In Section B the auditor draws conclusions on the nature and extent of contamination, and/or suitability of plans relating to the investigation, remediation or management of the land, and/or the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or whether the terms of an approved voluntary management proposal or management order made under the CLM Act have been complied with, and/or whether the site can be made suitable for a specified land use or uses if the site is remediated or managed in accordance with the implementation of a specified plan.

By certifying that a site *can be made suitable* for a use or uses if remediated or managed in accordance with a specified plan, the auditor declares that, at the time the audit was completed, there was sufficient information satisfying guidelines made or approved under the CLM Act to determine that implementation of the plan was feasible and would enable the specified use(s) of the site in the future.

For a site that *can be made suitable*, any **conditions** specified by the auditor in Section B should be limited to minor modifications or additions to the specified plan. However, if the auditor considers that further audits of the site (e.g. to validate remediation) are required, the auditor must note this as a condition in the site audit statement. The condition must not specify an individual auditor, only that further audits are required.

Auditors may also include **comments** which are observations in light of the audit which provide a more complete understanding of the environmental context to aid decision-making in relation to the site.

Part III

In **Part III** the auditor certifies their standing as an accredited auditor under the CLM Act and makes other relevant declarations.

Where to send completed forms

In addition to furnishing a copy of the audit statement to the person(s) who commissioned the site audit, statutory site audit statements must be sent to

- the **NSW Environment Protection Authority**:
nswauditors@epa.nsw.gov.au or as specified by the EPA
- AND
- the **local council** for the land which is the subject of the audit.



Clyde Western Area Remediation Project



Proposed Lots 59, 60 and 63 – Long Term Environmental Management Plan

25 March 2022

Project No.: 0561882



Document details	
Document title	Clyde Western Area Remediation Project
Document subtitle	Proposed Lots 59, 60 and 63 – Long Term Environmental Management Plan
Project No.	0561882
Date	25 March 2022
Version	Revision 2
Author	Joshua Panton
Client Name	Viva Energy Australia Pty Ltd

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	00	Joshua Panton	Stephen Mulligan / Peter Lavelle	Michael Gaggin	18.02.2022	Draft for Viva Energy Review
Draft	01	Joshua Panton	Stephen Mulligan / Peter Lavelle	Michael Gaggin	4.03.2022	Draft for Site Auditor Review
Final	02	Joshua Panton	Stephen Mulligan / Peter Lavelle	Michael Gaggin	25.03.2022	Final Version following Site Auditor Review

Signature Page

25 March 2022

Clyde Western Area Remediation Project

Proposed Lots 59, 60 and 63 – Long Term Environmental Management Plan



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GLOSSARY

Glossary Term	Definition
the Site	Viva Energy owned land on the Camellia Peninsula consisting of the following Lots: Lot 398 DP41324, Lots 100 and 101 of DP 1168951, Lot 101 DP809340, Lot 2 DP 224288, and Lot 1 DP 383675. It includes the Clyde Terminal, the Parramatta Terminal, the Wetland, the Western Area and other land that is currently vacant or leased to third parties
the Western Area	A largely vacant area of land, approximately 40 Ha in size, located in the south western part of the Site. The land previously contained a variety of refinery assets that have now been removed.
the Project	The proposal to remediate contaminated soils in the Western Area to a commercial/industrial standard
The Management Area	<p>Parts of Lot 100 DP 1168951 being proposed Lots 59, 60, 63 and a portion of proposed road alignment adjoining the eastern boundary of the proposed Lots 59 and 60, located within the western portion of the Stage 2 Area, as Approved under SSD 10459. The Management Area is shown on <i>Figure 1, Appendix A</i> and in the Site Survey (<i>Appendix B</i>).</p> <p>The area of each of the proposed lots is as follows: Proposed Lots under SSD 10459: Lot 59: 21,350 m² Lot 60: 33,180 m² Lot 63: 36,330 m² Proposed Road: 5,597.97 m²</p> <p>Accordingly, the total area of the Management Area is 96,457.97 m² (9.65 ha).</p>
The Land Custodian	The legal owner(s) of the site identified as proposed Lots 59, 60, 63 and a portion of a proposed road alignment to the east of proposed Lots 59 and 60 of the Stage 2 Area, from time to time.
Site Operator	The entity in occupation of (or portions of) the Management Area who is responsible for day to day operations. This will include any contractors carrying out works on the site and tenants of the Management Area from time to time.

EXECUTIVE SUMMARY

Introduction

Environmental Resources Management Australia Pty Ltd (ERM) was engaged by Viva Energy Australia Pty Ltd (Viva Energy) to prepare this Long-Term Environmental Management Plan (LTEMP) to outline required environmental management procedures and controls for the ongoing use of part of Lot 100 DP 1168951 being proposed Lots 59, 60, 63 and a portion of a proposed road alignment to the east of proposed Lots 59 and 60, within the 'Stage 2' portion of the Clyde Western Area Remediation Project (WARP). This area is collectively referred to as 'Audit Area 2' (AA2). The parts of AA2 that are subject to the ongoing environmental management requirements contained in this LTEMP are referred to as 'the Management Area'. The extent of the Management Area is shown on *Figure 1, Appendix A*.

Background Information

Remediation works have been completed within the Management Area to remove contaminated soils that may have posed a potential risk to human health and ecological receptors during the ongoing commercial / industrial use of the land.

Upon completion of remediation and validation works, ERM considers the Management Area to be suitable for all slab-on grade commercial / industrial land uses with no basement structures or beneficial re-use of groundwater on site.

Application of this LTEMP

This LTEMP must be complied with before carrying out any works that involve intrusive excavation within the Management Area.

All such works must be undertaken in accordance with relevant requirements outlined within *Sections 2 and 3* of this document.

This LTEMP documents the nature and extent of residual contamination on-site and outlines the mechanisms required for managing identified residual contamination into the future.

Residual Contamination Following Remediation Works

Following completion of remediation works within the Management Area, the following residual contamination remains, which requires management as per this LTEMP:

- Hydrocarbon impacted soils - limited to aesthetic considerations (presence of hydrocarbon staining and / or odours) which may be identified during future intrusive works. The location and extent of residual hydrocarbon impacted soils within the Management Area are shown on *Figure 2, Appendix A*.
- Residual oily water / sludge remaining within decommissioned sections of with former underground drainage infrastructure. The location and extent of potentially impacted drainage infrastructure is shown on *Figure 3, Appendix A*.
- A suspected section of asbestos cement pipe/conduit identified at the extent of remediation excavation within Lot 63 which remains in-situ (refer to *Figure 2, Appendix A* for starting location and direction of the conduit).
- Following soil remediation works, asbestos in soil has not been identified above criteria for the proposed commercial/industrial land-use. However, given the long history of industrial land use and surrounding industries, the possibility of discovering isolated asbestos in soil as an unexpected find during further intrusive excavations within the Management Area cannot be precluded. A description of the residual contamination and the associated risks where future intrusive excavation works are undertaken is presented within *Sections 4 and 5*.

Required Environmental Management Controls

Based on the nature and extent of residual contamination identified within the Site the following management controls are required under various operational scenarios:

- Where works involve no intrusive excavation (i.e. normal site operations) – no management controls are required.
- Where intrusive excavation works are proposed – the environmental management controls detailed in *Sections 6 and 7* of this LTEMP must be implemented.

1. INTRODUCTION AND BACKGROUND

Environmental Resources Management Australia Pty Ltd (ERM) was engaged by Viva Energy Australia Pty Ltd (Viva Energy) to prepare this Long-Term Environmental Management Plan (LTEMP) for a portion of the Clyde Western Area, referred to as ‘Audit Area 2’ (AA2) to outline required environmental management procedures and controls for future Site Operators.

The portion of AA2 subject to this LTEMP formed part of ‘Stage 2’ of the Clyde Western Area Remediation Project (WARP), and is referred to as ‘the Management Area’ in this LTEMP.

The extent of the Management Area subject to this LTEMP is shown on Figure 1, Appendix A. This extent is defined by the boundaries of those parts of Lot 100 DP1168951 forming proposed Lots 59, 60, 63 and part of the proposed road alignment east of proposed Lots 59 and 60, as authorised for subdivision under State significant development consent 10459.

This LTEMP must be implemented following completion of remediation and validation works.

Prior to the commencement of any workings involving intrusive excavation, all site personnel / contractors are to be inducted into the requirements of this LTEMP.

1.1 Background and Site Identification

The Western Area is an approximately 40 hectare (ha) parcel of land currently owned by Viva Energy within the footprint of the wider Clyde Terminal Site and is bordered to the south by the Duck River, to the east by current Clyde Terminal Operations and to the north and west by other Industrial zoned properties.

A Site Survey showing the extent of the Management Area is provided as Appendix B.

The Management Area (as outlined on Figure 1, Appendix A) contained former tankfarms, office spaces, sub stations, a fire station, a warehouse, a bitumen loading gantry, roads and an area formerly leased to AutoNexus Pty Ltd for the storage of imported vehicles.

Specific site identification details are summarised in Table 1, below.

Table 1: Site Identification

Item	Description
Site Owner	Viva Energy Australia Pty Ltd
Site Occupier	Viva Energy Australia Pty Ltd
Site Address	Devon Street, Rosehill NSW
Current Legal Description	Part Lot 100 in DP 1168951
Local Government Authority	City of Parramatta Council
Current Zoning	IN3 – Heavy Industrial under the Parramatta Council Local Environmental Plan 2011
Current Land Uses	Vacant site
Future Proposed Land Use	<ul style="list-style-type: none"> ■ Commercial/ Industrial (slab on grade commercial/ industrial) ■ Upon completion of remediation and validation works, the site is suitable for commercial / industrial land uses with no basement structures or beneficial re-use of groundwater.

Item	Description
Permissible Land Use(s) ¹	Any permissible use allowed under the sites zoning (with consent), which includes: Agricultural produce industries; Building identification signs; Business identification signs; Depots; Freight transport facilities; General industries; Hardware and building supplies; Hazardous storage establishments; Heavy industries; Horticulture; Kiosks; Medical centres; Offensive storage establishments; Pubs; Roads; Rural supplies; Sawmill or log processing works; Take away food and drink premises; Timber yards; Warehouse or distribution centres; Water storage facilities.
Area ²	Proposed Lots under SSD 10459: Lot 59: 21,350 m ² Lot 60: 33,180 m ² Lot 63: 36,330 m ² Proposed Road: 5,597.97 m ² Management Area Total: 96,457.97 m ² (9.65 ha)
Elevation	Between approximately 5 to 6 metres relative to Australian Height Datum (m AHD)

Source:

1. City of Parramatta Council Local Environmental Plan (2011).
2. Plan of Proposed Subdivision of Lot 100 DP1168951, (Landpartners Pty Ltd). Sheet 4 of 44.

1.2 Purpose of the LTEMP

The specific objectives of this LTEMP are to:

- summarise background environmental information, known and likely conditions within the Management Area, to inform the Land Custodian, workers and managers of the potential risks to human health and / or the environment arising from contact with residual contamination;
- outline methods and procedures to avoid and / or mitigate potential adverse effects on human health and / or the environment associated with the residual contaminated soil;
- provide a recommended methodology for the appropriate environmental management of excavation works that may encounter residual contaminated soil;
- provide environmental requirements for the sourcing and placement of backfill material;
- discuss safety measures / considerations for dealing with potentially contaminated soil; and
- outline restrictions to potential future land uses as detailed within *Table 1*.

All work related to excavation, movement, handling, importation and placement of fill and soil materials and / or groundwater within the site should be carried out in accordance with this LTEMP and in compliance with relevant legislation detailed within *Section 2*.

Groundwater is not to be extracted for use within the Management Area and future beneficial re-uses of groundwater have not been considered as part of this LTEMP. If beneficial re-use of groundwater is proposed, further assessment of the suitability of groundwater must be completed by a suitably qualified environmental specialist with the findings reviewed and endorsed by a New South Wales Environment Protection Authority (NSW EPA) accredited Site Auditor. Other limitations are outlined in *Section 1.3* of this document.

The implementation of this LTEMP is considered to be a passive management approach. The primary purpose of the plan is to document the nature and extent of residual contamination on-site and outline mechanisms for managing potential risks into the future.

1.3 Limitations to this LTEMP

This LTEMP is land-use specific and applies to all commercial / industrial uses involving buildings supported by ground-level slabs which do not include any underground basement structures, such as underground car parks.

If, in the future, any land uses differ from the commercial / industrial use described above (including by including a basement structure) reflected in ERM (2020) Human Health and Ecological Risk Assessment (HHERA), this LTEMP will need to be reviewed and updated in accordance with the procedures contained in *Section 2.4*.

1.4 Related Documentation

The following documentation relating to the environmental condition of the Management Area prior to and following the completion of remediation / validation works within the Management Area should be made available to the Site Operator upon request:

- ERM 2021d. Clyde Western Area Remediation Project – Stage 2 Drainage Decommissioning Validation Report. Dated 17 June 2021
- ERM 2022. Clyde Western Area Remediation Project – Stage 2 – Validation Report (Proposed Lots 59, 60 and 63). March 2022.

2. STATUTORY REQUIREMENTS

2.1 Legal Enforceability and Public Notification of this EMP

Condition B10 of State significant development consent 9302 granted under the *Environmental Planning and Assessment Act 1979* (the 'EP&A Act') provides as follows:

B10. Upon completion of the Site Audit Statement and Site Audit Report, the Applicant must:

(a) Implement the approved LTEMP

(b) Provide evidence to the Planning Secretary that the LTEMP is listed on the relevant planning certificate for the land, issued under section 10.7 of the EP&A Act

In addition, condition A9 of State significant development consent 10459 provides as follows:

A9. The Applicant must implement the Long Term Environmental Management Plan (LTEMP) approved under condition B8 of SSD 9302 and provide evidence to the Planning Secretary that the LTEMP is listed on the relevant planning certificate(s) issued under section 10.7 of the EP&A Act for each lot created by Stages 1A and B, 2 and 3 as shown in the 'Subdivision Drawings prepared by Land Partners' in Appendix 1

Accordingly:

- This LTEMP was prepared in accordance with development consent SSD 9302. It is also enforceable under development consent SSD 10459, granted under the EP&A Act.
- As per conditions B10(b) and A9 and relevant NSW EPA requirements, Parramatta Council will be provided with a copy of this LTEMP and requested to add a notation on the planning certificates issued for the Management Area under section 10.7 of the *EP&A Act* confirming that they are subject to this LTEMP.

2.2 Licence and Approval Requirements

The Site Operator is responsible for obtaining all necessary / required environmental, planning safety and occupational hygiene consents, approvals and licences prior to the commencement of any intrusive excavation works in the Management Area.

- All required consents, approvals and licences required for the relevant works must be obtained prior to works commencing.
- All site personnel, contractors, sub-contractors etc. must comply with the terms and conditions of all relevant approvals and licences.
- Upon commencement of the intrusive works, all processes and procedures outlined in this LTEMP must be implemented immediately.

2.3 Regulatory Framework

All operational personnel carrying out any intrusive works in the Management Area must comply with the applicable environmental regulatory requirements in NSW.

2.4 Document Revision

This LTEMP may be reviewed and updated as necessary from time to time. Therefore, it is the responsibility of the reader of this document to ensure they have the current version of the LTEMP.

Any updates to this LTEMP must be reviewed and endorsed by a NSW EPA Accredited Site Auditor.

The master document, with the up-to-date version of the LTEMP will be available from the Land Custodian.

The current version of this LTEMP is detailed within the table below. Any subsequent revisions of this LTEMP must include a clear date / revision identifier to enable the most recent to be readily identified.

Table 2: LTEMP Revision

Document Name	Document Revision Number	Date
Clyde Western Area Remediation Project: Stage 2 – Audit Area 2 – Long Term Environmental Management Plan	Revision 1	25 March 2022

3. APPLICATION AND RESPONSIBILITIES

3.1 Implementation of this LTEMP

No works involving any intrusive excavations are to be undertaken until all relevant site personnel / contractors have been inducted into the requirements of this LTEMP.

The LTEMP should be acknowledged in relevant management plans prepared for any intrusive investigations. For smaller intrusive works this is likely to take the form of a safe work method statement while a Construction Environmental Management Plan (CEMP) is likely to be required for more significant development and construction activities.

3.2 Area to which this LTEMP applies

This LTEMP applies to the entire Management Area. However, specific management is required for areas within a 20 m buffer of areas containing residual hydrocarbon impacted soil and if undertaking earthworks within the vicinity of suspected asbestos containing materials presented on *Figure 2, Appendix A*, which are described within *Section 4* of this LTEMP and in the Asbestos register, provided as *Appendix C*.

3.3 Application of LTEMP

Under regular site conditions (i.e. pre or post intrusive excavation works), none of the controls in this LTEMP are activated.

This LTEMP must be complied with immediately upon the initiation of any works that involve intrusive excavation from the ground surface. This includes the following activities:

- excavation of fill and natural soil materials to facilitate removal, realignment or construction of any subsurface infrastructure;
- maintenance and / or upgrade of site utility services;
- temporary stockpiling of excavated material resulting from on-site intrusive works; and
- off-site disposal of any waste contaminated soil / groundwater (if required).

Additional controls including engagement of an appropriate Qualified Environmental Specialist, environmental monitoring and development of a task specific works plan (detailed within *Section 6.1*) are required for certain intrusive excavation works. This includes an excavation undertaken within 20 m of residual contamination as shown in *Figures 2 and 3, Appendix A* and/or when conducting intrusive works within the vicinity of suspected asbestos containing materials (See *Appendix C*).

Due to the historical land uses within the Management Area (i.e. former Refinery), all intrusive excavation works or re-use of existing stockpiled materials must be undertaken in consideration of potential unexpected finds of contamination. Where unexpected finds are encountered during works, they are to be managed in accordance with the requirements outlined within *Section 6.1* of this LTEMP.

Where groundwater is proposed for future beneficial re-uses, an assessment of suitability must be undertaken by a suitably qualified environmental professional. The assessment and any recommendations for re-use etc. must be reviewed and endorsed by a NSW EPA accredited Site Auditor.

3.4 Roles and Responsibilities

The following table summarises the requirements to be implemented within the Management Area.

Table 3: LTEMP Roles and Responsibilities

Position / Company	Responsibility
The Land Custodian and Site Auditor	<ul style="list-style-type: none"> ■ Approve the LTEMP
The Land Custodian	<ul style="list-style-type: none"> ■ Ensure all workers and contractors conducting intrusive works are aware of the requirements of this LTEMP. ■ Maintain records of all works undertaken within the site as required within this LTEMP.
Site Operator (including Contractors and Subcontractors)	<ul style="list-style-type: none"> ■ Implement the LTEMP. ■ Provide adequate training in this LTEMP for all employees and contractors undertaking intrusive excavations during site induction, and as required on an ongoing basis during the works. ■ Require any contractors conducting intrusive works to comply with this LTEMP. ■ Conduct monitoring as required in the LTEMP. ■ Complete all necessary registers, databases and records required in the LTEMP. ■ During excavation works, assess any potentially contaminating unexpected finds in consideration of the site's use. ■ During intrusive excavation works, as required, undertake site inspections and monitoring of the site operations to ensure they are carried out in an environmentally responsible manner and meet the requirements of this LTEMP. ■ Notify the Land Custodian / nominated representative of any environmental issues arising during intrusive excavations. ■ Assess the requirement and (where necessary) engage an environmental specialist / scientist to undertake additional monitoring of excavations / unexpected finds.
Qualified Environmental Specialist	<ul style="list-style-type: none"> ■ Where required, a suitably qualified environmental specialist is to be engaged to manage, monitor and evaluate environmental controls, demonstrate compliance with this LTEMP and assess specific requirements associated with excavation works within areas of known residual contamination and / or unexpected finds.

4. RESIDUAL CONTAMINATION SUMMARY

4.1 Site Geology/ Hydrogeology

A detailed assessment of geology and hydrogeology relevant to the Management Area is provided within the Validation Report (ERM, 2022). A summary of the geology identified within the management area during historical investigations is detailed below:

- **Fill material** - This material is described as poorly compacted mixture of silt, clay and gravel, with localised areas of slag, furnace ash and concrete. The average thickness of fill material within the management area is 0.6 m and thickens to between 1.2- 1.5 m further south in proximity to the Duck River. Localised areas of backfill sand have been identified surrounding subsurface features (pipework) to depths of up to of 2 m Below Ground Level (BGL).
- **Alluvial sediments and residual clay** - high plasticity orange red and grey clay (alluvial sediments) across the management area underlying fill material (up to 20 m thick, including clay with sandy lenses) and residual Ashfield Shale were reported in previous investigations.

The majority of residual hydrocarbon contamination requiring management has been encountered within coarser grained fill materials and/or sandy lenses within residual clay and may appear as visibly stained dark brown, grey or black.

Groundwater is present within fill and anthropogenic structures, such as backfill around drainage features at depths between 0.5 - 2m BGL and flows towards the Duck River in the south to south-east.

4.2 Residual Contamination Requiring Management

Remediation works completed within the Management Area were undertaken to reduce contaminant concentrations in soils to enable future commercial / industrial land uses and mitigate potential risks to human health / ecological receptors. The location of known residual contamination (including coordinates for relevant historical sampling locations or pit junctions for historical drainage infrastructure) is illustrated on *Figures 2 and 3, Appendix A and 3* and described in *Table 4* below.

Table 4: Residual Contamination

Known Residual Contamination	Descriptions
Hydrocarbon impacted soil	<ul style="list-style-type: none"> ■ Residual Light Non-Aqueous Phase Liquids (LNAPL) or soil contamination exceeding 'TRH Management Limits' are present in a limited number of locations (see <i>Figure 2, Appendix A</i>). ■ The Human Health and Ecological Risk Assessment (HHERA) indicates that the presence of residual hydrocarbon impacted soils does not pose a risk to on-site or off-site receptors under normal site operations (i.e., no ground disturbance) and are limited to aesthetic considerations (presence of hydrocarbon staining and/or odours) which may be identified during future intrusive works.
Asbestos (suspected)	<ul style="list-style-type: none"> ■ A buried conduit suspected of containing asbestos was noted at the edge of former remediation works within adjoining Lot 63, which appeared to extend beyond the remediation extent to an unknown final extent (see <i>Figure 2, Appendix A</i>). ■ Although there are no known asbestos impacts exceeding land use criteria for soils remaining in the Management Area following remedial works, given the long history of industrial land use and surrounding industries, the possibility of discovering isolated asbestos in the subsurface and within existing stockpiled material present on site cannot be discounted. ■ If asbestos is identified during intrusive works, any finds should be investigated as per the unexpected finds methodology detailed within Section 6.1 and appropriate health & safety and waste management measures implemented.

Known Residual Contamination	Descriptions
Oily water / sludge associated with former underground drainage infrastructure	<ul style="list-style-type: none"> ■ Due to the former operational history of the Site, there are redundant underground pipes / drains throughout the Site which contained hydrocarbon residues following cleaning and decommissioning works and require consideration during future potential intrusive excavation works. These sections of pipework and adjoining pits remaining in-situ which were unable to be fully decontaminated due to access/ structural constraints are shown on <i>Figure 3, Appendix A</i>. ■ Underground drainage lines were subject to cleaning (to the extent practical), decontamination and were decommissioned in-situ via permanent disconnection from operational portions of Viva Energy's Clyde Terminal drainage network and backfilling pits and junctions with stabilised sand. ■ While drainage infrastructure within the Site is not considered to pose a risk to future site operations, residual hydrocarbon impacted sludge and sediment within pipes and pits shown on <i>Figure 3, Appendix A</i> should be managed to avoid inadvertent release of LNAPL during future construction works and manage potential safety risks for workers (via dermal contact / inhalation) during future excavation works undertaken to remove this infrastructure. ■ Residual conditions are discussed in detail within the Stage 2 Drainage Decommissioning Validation Report¹. The location of drainage infrastructure requiring management is provided on <i>Figure 3, Appendix A</i>.

4.3 Location and Extent of Residual Contamination

As outlined in *Section 3.2*, this LTEMP applies to the whole Management Area but more specifically to areas of the Management Area where residual contaminated materials are present beneath the site surface, as indicated in *Figure 2, Appendix A*. Following completion of remediation works, the following residual sources of contamination are known to exist within the Management Area:

- Residual soil impacts (petroleum hydrocarbons) – limited to presence of observed Light Non-Aqueous Phase Liquids (LNAPL) or hydrocarbon impacts exceeding 'TRH Management Limits':
 - **Lot 59** – SB18/12 (0.5-1.5 m), HA19/06 (1.5 m), BH12/34 (0.6 m), SB18/16 (0.3 m), TP18/15 (0.9 m), BH12/35 (0.1 m), HA19/04 (0.4 m), HA19/05 (0.3 m) and TP19/37 (0.2 m).
 - **Lot 60** – TP18/31 (0.7-2.4 m), TP20/21 (0.8 m), TP20/22 (1.5 m), TP20/23 (1.5 m), TP18/29 (2.2-3 m), TP21/11 (0.5 m), TP20/25 (0.7 m), TP19/35 (0.1 m) and SB1B (0.5 m).
 - **Lot 63** – TP20/24 (1.0 m), TP19/16 (0.8 m), TP19/20 (1.0 m), MW12/03 (1.0 m), TP21/23 (0.2-3.1 m), TP21/74 (1.0-2.5 m), 3D_C2_S (0.5 m), 3D_C4_S (0.5 m), 3D_C5_E (0.5 m), 3D_C5_S (0.5 m) and 3E-E3-S (1.0 m).
 - **Proposed Roadway (AA2)** – HA19/06 (1.5 m), BH12/34 (0.6 m), TP18/31 (0.7-2.4 m), TP20/21 (0.8 m), TP20/22 (1.5 m), TP20/23 (1.5 m), TP20/25 (0.7 m), TP20/24 (1.0 m).
- Buried fibre cement conduit suspected of containing asbestos within Lot 63 (as outlined in *Figure 2, Appendix A* and detailed within the asbestos register *Appendix C*).
- Residual hydrocarbon sludge remaining within the following decommissioned drainage pipes and adjoining pit junctions (as per *Figure 3, Appendix A*):
 - **Lot 59** – pipe 14D920-4, pit 14-P21A and pipe 14D920-3.

¹ ERM (2021). *Clyde Western Area Remediation Project – Stage 2 Drainage Decommissioning Validation Report*. Final, Revision 3. 17th June 2021.

- **Lot 60** – pit 9-P1, pipe 9D610-1, pit 9-P2, pipe 10D1070-2, pit 10-P3, pipe 10D1070-1, pit 10-P1, pipe 14D920-4, pipe 14D920-3, pipe 10D380-1, pipe 10-P4, pipe 10D300-1A and pipe 10D920-1.
- **Lot 63** – pit P26 and connecting pipe to pit 9-P27.
- **Proposed Roadway (AA2)** – pipe 9D610-2, pit 9-P3, pit 10-P12 and pipe 10D920-2.

Due to the historical land uses within the extent of the Management Area, all future ground disturbance works, including movement and re-working of existing stockpiled material on site for future site redevelopment activity must be undertaken in consideration of potential unexpected finds of contamination (see *Section 6.1*).

It should be noted the presence of stained or odorous material may be identified beneath the site during future intrusive works outside of those locations outlined in this LTEMP, however these conditions may not be representative of unacceptable exposure scenarios. Should this scenario arise, advice should be sought from a Qualified Environmental Specialist as previously defined in *Table 3*.

5. POTENTIAL RISKS TO HUMAN HEALTH AND THE ENVIRONMENT

5.1 Risks Where No Intrusive Excavation Works Are Undertaken

There are no identified risks to human health or the environment associated with residual contamination if not disturbed.

5.2 Potential Risks Where Intrusive Excavation Works Are Undertaken

The following table outlines the potential risk to human health and the environment if excavation works are undertaken and the material is disturbed without proper management controls. These risks may result from excavation works, including the installation of services, stockpiling of excavated materials and works that encounter residual contamination identified within *Figures 2 or 3*, or additional unexpected finds.

Table 5: Potential Risks Where Intrusive Excavation Works Are Undertaken

Contaminant	Source	Human Health Risks	Environmental Risks	Exposure Pathways
Total Recoverable Hydrocarbons (C10-C16, C16-C34) and LNAPL	Residual contamination within soils and oily water / sludge	Limited to generation of nuisance odours during subsurface intrusive works resulting from degraded hydrocarbons within open excavations.	Risks associated with contamination transported to potentially sensitive receptors (see exposure pathways)	Human Exposure Pathways: Limited to aesthetic considerations including potential for generation of odours during subsurface intrusive works Environmental Exposure pathways: Surface water / sediment run off to adjacent stormwater drains. Uncontrolled release of dust/ odours generated during excavation works.
Asbestos	Buried fibre cement conduit suspected to contain asbestos	Asbestos fibres can cause asbestosis, lung cancer and mesothelioma if inhaled	Asbestos is inert within the environment and therefore poses no known environmental risk	Human Exposure Pathways: Inhalation of liberated asbestos fibres could occur via breakage or disturbance of asbestos containing materials during excavation works. Environmental Exposure pathways: Nil

6. ENVIRONMENTAL MANAGEMENT

As outlined above the primary targets / goals of this LTEMP are to facilitate the management of the site so that:

- the assessed risks to human health and the environment arising from contact with residual contamination is understood by all site workers and managers;
- prior to the commencement of any intrusive excavation works, appropriate systems and controls are put in place to mitigate the potential risks posed by residual contamination; and
- all ongoing operational, monitoring and maintenance requirements are adhered to by the Site Operator.

6.1 Environmental Management Requirements

Prior to the commencement of any works, it is the responsibility of the Site Operator to identify whether works within the Management Area will require intrusive excavation. Where any intrusive excavation works are undertaken within the Site the following controls must be implemented:

Table 6: Site Environmental Management Requirements for Intrusive Excavation Works

Item	Requirements
All Intrusive Excavation Works Undertaken within the Management Area	
Training and Competence	<p>The Site Operator is to establish that all site workers are suitably qualified to undertake required works and inducted into all relevant requirements stipulated within this LTEMP.</p> <p>The induction will include outlining all requirements within this LTEMP and other relevant documentation, the location of known residual contamination (as per <i>Figures 2 and 3</i>) and the identification of unexpected finds of contamination (via visual and olfactory means).</p>
Health and Safety Plan	<p>The Site Operator or contactor carrying out the works is to prepare a task specific health and safety plan that includes suitable protection measures for working with residual hydrocarbon and asbestos contamination including but not limited to:</p> <ul style="list-style-type: none"> ■ training requirements; ■ air / dust / odour monitoring procedures; ■ respiratory protection; ■ minimum Personnel Protective Equipment (PPE) requirements; ■ site signage requirements; ■ site security; ■ exposure mitigation measures (dust suppression etc.); ■ vehicle / machinery / plant safety; and ■ general site safety.
Excavation works and temporary stockpiling	<p>To reduce and / or prevent the exposure of human receptors at the site to potential contamination within on-site soils, the following will be undertaken during any intrusive excavation works:</p> <ul style="list-style-type: none"> ■ To reduce the area of disturbed material, the number of areas subject to excavation works at any one time can be minimised. ■ During excavation works, measures to reduce dust emissions such as spraying with water, addition of soil binding agents etc. should be undertaken. ■ During excavation and materials handling, sufficient odour control such as covers, tarps, odour control sprays etc. are to be implemented during works to minimise any disturbance to neighbouring premises. ■ Where material requires off-site disposal, excavated material should be placed directly into a tipper truck and, where possible, material should not be placed into temporary stockpiles awaiting off-site disposal.

Item	Requirements
	<ul style="list-style-type: none"> ■ Where material requires stockpiling prior to off-site disposal, appropriate dust and sediment controls must be in place. Smaller volumes can be contained within an enclosed or covered skip. ■ All materials movement within the site must be recorded within an appropriate Materials Tracking Register.
Waste Materials handling and disposal	<ul style="list-style-type: none"> ■ Soil - Excavated materials are to be either re-instated within the same location and depth (in accordance with relevant planning / DA conditions) or disposed off-site to a suitably licenced landfill / receiving facility in accordance with relevant NSW EPA waste disposal guidance at the time of works. ■ Groundwater - Any groundwater extracted from excavation works is to be managed or disposed in accordance with relevant NSW EPA made or endorsed waste disposal guidance at the time of works.
Sediment and Stormwater Run-off Controls	<p>During works, sediment and surface water run-off controls will be implemented to minimise generation and transport of potentially contaminated sediments and surface water within and off the Site. Controls will be developed based on a specific management plan (which may be a safe work method statement or Construction Environmental Management Plan (CEMP) depending on the nature of the works) specific to the location / nature of works to be undertaken, controls may include (but not be limited to):</p> <ul style="list-style-type: none"> ■ sediment control; ■ clean water diversions; and ■ stormwater drain protection. ■ Environmental Management Controls as per <i>Managing Urban Stormwater – Soils and Construction (Landcom 2004)</i>, or its most recent update.
Imported Fill Material	<p>If imported fill is required at the site, only construction materials or certified Excavated Natural Material (ENM) or 'Virgin Excavated Natural Material' (VENM) materials are to be imported for use. If ENM / VENM is imported to the site accompanied by an ENM / VENM certificate, sampling will not be required. The ENM / VENM certificate should at a minimum:</p> <ul style="list-style-type: none"> ■ state that the material has been classified as ENM / VENM (in accordance with relevant NSW EPA guidance) and is suitable for re-use within the site; and ■ include a summary of the site history of the source site, the findings of any environmental site investigations undertaken at that site and the results of any soil analysis undertaken. <p>If the ENM / VENM certificate does not meet these requirements, it must be approved in writing from the NSW EPA (such as a Resource Recovery Exemption). All ENM / VENM / imported material classification reports are to be provided to the Land Custodian or their nominated representative and included within compliance reporting upon completion of works (<i>Section 6.2</i>).</p>
Unexpected Finds Management	<p>During excavation or stockpile re-working there is the potential of encountering additional in-ground finds. Unexpected finds may include (but not be limited to):</p> <ul style="list-style-type: none"> ■ asbestos containing materials; ■ additional LNAPL / hydrocarbon impact; ■ buried building rubble; ■ unusual soil staining and discoloration; and ■ odours emanating from the ground during earthworks. <p>Where unexpected finds are uncovered:</p> <ul style="list-style-type: none"> ■ works are to cease immediately in the vicinity of the excavation; ■ the Land Custodian or their nominated representative is to be informed immediately; ■ the area surrounding the unexpected find is to be barricaded to ensure the area is not further disturbed; and ■ a 'qualified environmental specialist' is to visit the site, assess the discovery and undertake assessment / provide recommendations. <p>The environmental consultant is to advise on the required course of action for the find. This may include:</p>

Item	Requirements
	<ul style="list-style-type: none"> ■ sample collection and analysis; ■ a detailed assessment (if required); and ■ preparation of an assessment report and remediation plan (if required). <p>All reports are to be prepared in accordance with relevant NSW EPA guidance and provided to the Land Custodian for record keeping requirements.</p> <p>Should finds of asbestos containing materials be reported, the asbestos Register (Appendix C) should be updated accordingly.</p>
Excavation Re-instatement	<p>Upon completion of excavation works, the area must be re-instated with excavated material in the order in which it was excavated or with other approved imported fill materials.</p>
Intrusive Excavation Works Within 20 m of Identified Residual Contamination (Figure 2, Appendix A)	
Engagement of Environmental Specialist	<p>Where excavation works are undertaken within 20 m of identified residual contamination (Figure 2, Appendix A) prior to the commencement of any intrusive works, the Site Operator or nominated representative is to engage a suitably qualified environmental specialist to undertake a review of health and safety management procedures, manage, monitor and evaluate environmental controls and demonstrate compliance with this LTEMP.</p> <p>Where unexpected finds of contamination are identified within other areas of the Management Area during excavation works, a suitably qualified environmental specialist should be engaged to manage, monitor and evaluate environmental controls, demonstrate compliance with this LTEMP and assess specific requirements for unexpected finds detailed above.</p>
Environmental Monitoring	<p>Environmental monitoring is to be undertaken for odour management purposes during all excavation and construction works within 20 m of identified residual hydrocarbon contamination to evaluate the effectiveness of control measures (Figure 2, Appendix A).</p> <ul style="list-style-type: none"> ■ The specific monitoring methodology / regime should be developed by the environmental specialist and based on the specific tasks / construction methodology being undertaken. ■ Action levels (odour, dust) are to be developed to incorporate thresholds where intrusive works are to cease and control measures are to be re-assessed / implemented. ■ These action levels are to be based on relevant regulatory guidance at the time of works and are to be incorporated into Environmental and Health and Safety Planning documentation when undertaking works.
Task Specific Works Plan	<p>Where intrusive excavation works are undertaken within 20 m of identified residual contamination illustrated on Figure 2, Appendix A, prior to undertaking works, the contractor is to ensure that a Task Specific Works Plan is prepared by a suitably qualified environmental professional to ensure all environmental risks are appropriately managed.</p> <ul style="list-style-type: none"> ■ The Works Plan should be prepared for the specific works to be undertaken. ■ The Works Plan should be prepared in accordance with good industry practice standards at the time of works and must comply with all relevant NSW EPA regulatory guideline criteria relating to contaminated sites. <p>The plans should include (but not be limited to) the following details:</p> <ul style="list-style-type: none"> ■ Risks to human health and the environment – potential risks associated with the work should be highlighted. ■ General site management – Details of required inductions of employees or contractors. ■ Procedures and methodologies to be used for undertaking the works. ■ Specific details of ways to limit disturbance of impacted soils / groundwater / redundant site drainage infrastructure etc. (e.g. soil boring as opposed to open trenching). ■ Mitigation measures. ■ Air / dust monitoring action levels, around areas of residual hydrocarbon impacts; ■ Personal protective equipment.

Item	Requirements
	<ul style="list-style-type: none"> ■ Other protection measures (cabin ventilation, etc.). ■ Roles and responsibilities for implementing the mitigation measures. ■ Soil and groundwater management controls - As a minimum the following requirements should be detailed: <ul style="list-style-type: none"> - Any groundwater extracted during intrusive works is to be disposed in accordance with all legal requirements. - Excavated soils should be placed within a bunded area to minimise potential run off. - Soil / concrete material should be kept moist to limit dust. - Excavated materials, where possible, be replaced in the same location. Where this is not practicable, material must be disposed of in accordance with all legal requirements. ■ Reinstatement of the site surface. ■ Waste management including waste disposal. ■ Record Keeping, audit and review.
Biodiversity Management Measures (Green and Golden Bell Frog)	
Green and Golden Bell Frog (GGBF)	<p>Pursuant to a Biodiversity Development Assessment Report dated 3 Dec 2018 prepared by Biosis (see appendix I to the EIS for SSD 10459) there is no residual GGBF habitat within the Management Area.</p> <p>In addition, the further earthworks authorised under development consent SSD 10459 are to be completed in order to create subdivided lots 59, 60 and 63 within the Management Area. When completed, those earthworks will remove ponding of water that might provide potential for habitat for GGBF.</p>

6.2 Reporting and LTEMP Review

The table below outlines the reporting, and review requirements related to this LTEMP.

Table 7: LTEMP Reporting

Report	Requirement
Material Classification Reports	<ul style="list-style-type: none"> ■ All reports relating to unexpected finds, off-site disposal of soil materials from excavations and existing stockpiles and importation of any fill materials used for construction / backfilling purposes are to be provided to the Land Custodian upon completion of works. ■ Reports are to include details of laboratory analysis (as required) and subsequent classification information and materials tracking information detailing the total volume and final placement / disposal location.
Non-Conformance Reporting	<ul style="list-style-type: none"> ■ Any non-conformances with this LTEMP will be recorded in a Non-Conformance and Corrective Action Report. Details of the non-conformance, including any immediate corrective actions undertaken, are to be recorded by the Site Operator. ■ It is the responsibility of the Site Operator to immediately initiate corrective actions, if required. Once completed, the Site Operator will provide details of the actions undertaken on the Non-Conformance Report and sign, date and file the report.

Report	Requirement
<p>LTEMP Review</p>	<p>This LTEMP should be reviewed by the Land Custodian or their nominated representative upon completion of all intrusive excavation activities and / or after incidents or reported findings, to ensure that:</p> <ul style="list-style-type: none"> ■ information and environmental management strategies remain current; ■ any opportunities for improvement are identified; and ■ changes to legislation, environmental standards licence and approval conditions are identified and complied with. <p>Information obtained during intrusive works including (but not limited to) the following sources may be utilised to review the LTEMP:</p> <ul style="list-style-type: none"> ■ Details of the works undertaken including relevant photographs. ■ Details of any unexpected finds (nature, location, extent and results of testing / analysis undertaken, photographs). ■ Any pertinent additional safety controls which were required to be implemented during intrusive works. <p>The assessment should take into account all changes such as (but not limited to):</p> <ul style="list-style-type: none"> ■ changes to site conditions; ■ work requirements; ■ legislation; and ■ environmental condition. <p>If during the review process described above, areas for improvement are identified, or it be determined that the LTEMP requires revision, any changes to the document will require agreement by at least the following stakeholders:</p> <ul style="list-style-type: none"> ■ Land Custodian (or nominated representative); ■ a qualified environmental specialist; and ■ a NSW EPA accredited Site Auditor.
<p>Record Keeping</p>	<p>All records related to implementation of the LTEMP should be maintained by the Land Custodian or their nominated representative in a consolidated and easily accessible location.</p>

7. CONTINGENCY ACTIONS

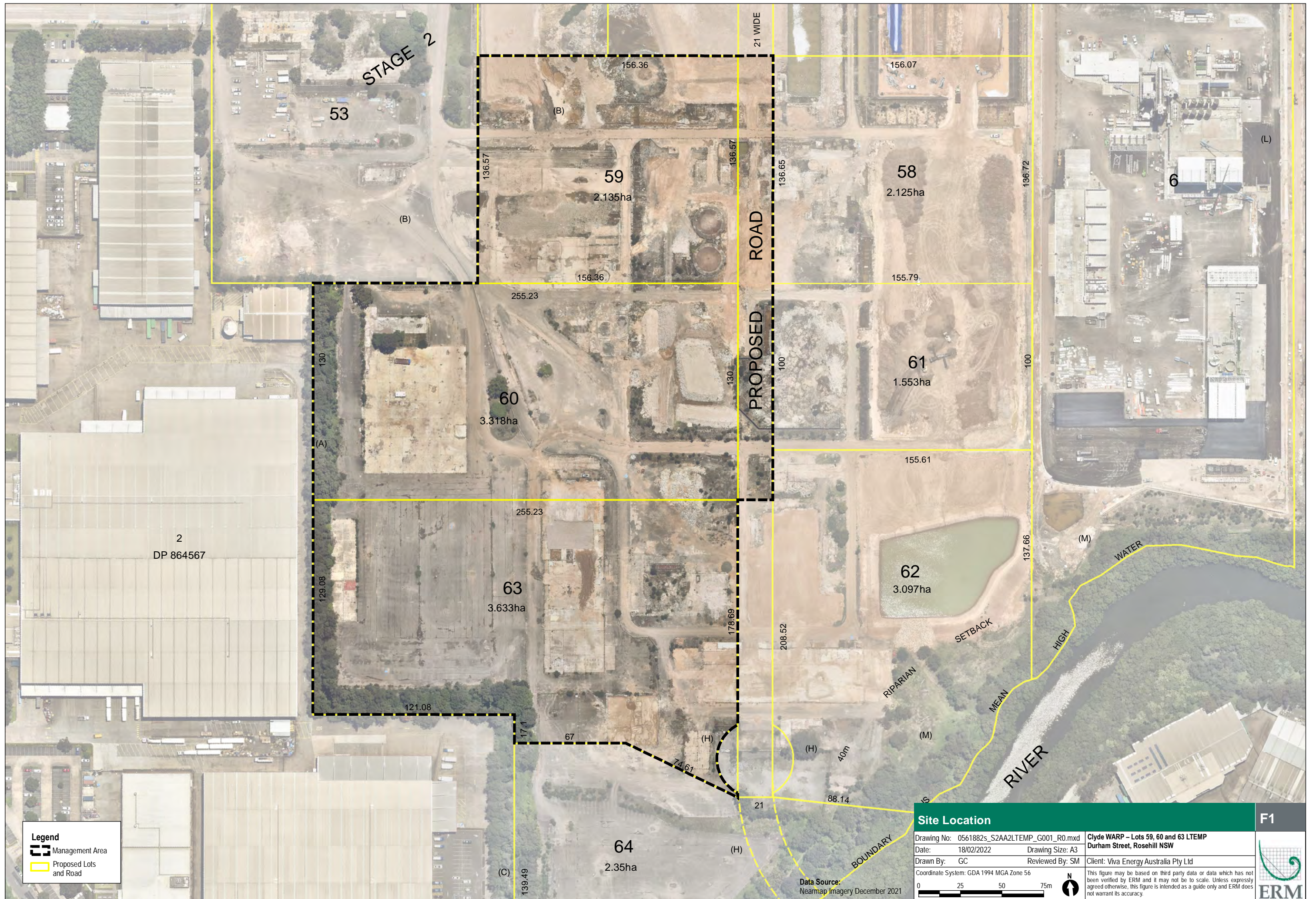
The purpose of the contingency plan is to identify unexpected situations that could occur, and specify procedures that can be implemented to manage such situations and prevent or minimise adverse impacts to the environment and human health.

Details of the procedures are defined in the table below:

Table 8: Contingency Actions

Item	Contingency Action
Asbestos in soils	<ul style="list-style-type: none"> ■ While the risk of significant and / or widespread asbestos contamination within the Management Area is unlikely based on existing environmental assessments, where asbestos contaminated soil is identified during development works, any finds should be investigated as per the unexpected finds methodology detailed within <i>Section 6.1</i>. ■ Identified asbestos remaining on site should be included on an updated version of the Asbestos Register (provided as <i>Appendix C</i>).
Additional / unexpected LNAPL / Hydrocarbon Contamination resulting in Potential Vapour Risk	<ul style="list-style-type: none"> ■ While the likelihood of vapour risk from additional / unexpected finds of LNAPL / hydrocarbon impacted soil and / or groundwater is unlikely, during future development works, where potential indicators of vapour risk are identified, the Land Custodian should engage an environmental specialist to undertake further assessment. ■ The location of LNAPL or residual hydrocarbons in soil within the Management Area, which is known and has been assessed as not presenting a risk to future workers, is identified on <i>Figures 2 and 3, Appendix A</i>.

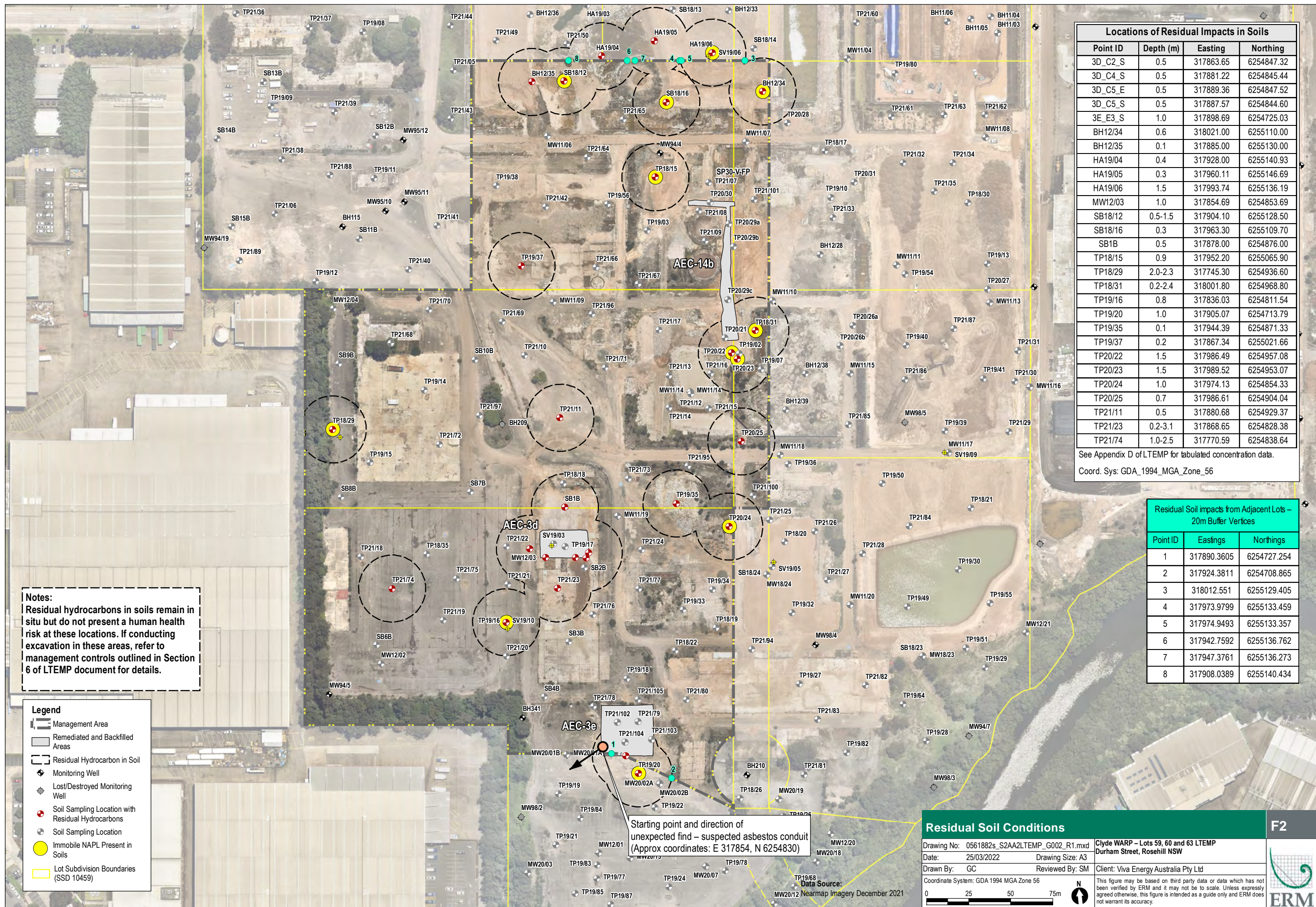
APPENDIX A FIGURES



Legend
 Management Area
 Proposed Lots and Road

Site Location		F1
Drawing No: 0561882s_S2AA2LTEMP_G001_R0.mxd	Clyde WARP - Lots 59, 60 and 63 LTEMP	
Date: 18/02/2022	Durham Street, Rosehill NSW	
Drawn By: GC	Reviewed By: SM	Client: Viva Energy Australia Pty Ltd
Coordinate System: GDA 1994 MGA Zone 56		<small>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</small>

Data Source:
Nearmap Imagery December 2021



Locations of Residual Impacts in Soils			
Point ID	Depth (m)	Easting	Northing
3D_C2_S	0.5	317863.65	6254847.32
3D_C4_S	0.5	317881.22	6254845.44
3D_C5_E	0.5	317889.36	6254847.52
3D_C5_S	0.5	317887.57	6254844.60
3E_E3_S	1.0	317898.69	6254725.03
BH12/34	0.6	318021.00	6255110.00
BH12/35	0.1	317885.00	6255130.00
HA19/04	0.4	317928.00	6255140.93
HA19/05	0.3	317960.11	6255146.69
HA19/06	1.5	317993.74	6255136.19
MW12/03	1.0	317854.69	6254853.69
SB18/12	0.5-1.5	317904.10	6255128.50
SB18/16	0.3	317963.30	6255109.70
SB1B	0.5	317878.00	6254876.00
TP18/15	0.9	317952.20	6255065.90
TP18/29	2.0-2.3	317745.30	6254936.60
TP18/31	0.2-2.4	318001.80	6254968.80
TP19/16	0.8	317836.03	6254811.54
TP19/20	1.0	317905.07	6254713.79
TP19/35	0.1	317944.39	6254871.33
TP19/37	0.2	317867.34	6255021.66
TP20/22	1.5	317986.49	6254957.08
TP20/23	1.5	317989.52	6254953.07
TP20/24	1.0	317974.13	6254854.33
TP20/25	0.7	317986.61	6254904.04
TP21/11	0.5	317880.68	6254929.37
TP21/23	0.2-3.1	317868.55	6254828.38
TP21/74	1.0-2.5	317770.59	6254838.64

See Appendix D of LTEMP for tabulated concentration data.
Coord. Sys: GDA_1994_MGA_Zone_56

Residual Soil impacts from Adjacent Lots – 20m Buffer Vertices		
Point ID	Easings	Northings
1	317890.3605	6254727.254
2	317924.3811	6254708.865
3	318012.551	6255129.405
4	317973.9799	6255133.459
5	317974.9493	6255133.357
6	317942.7592	6255136.762
7	317947.3761	6255136.273
8	317908.0389	6255140.434

Notes:
Residual hydrocarbons in soils remain in situ but do not present a human health risk at these locations. If conducting excavation in these areas, refer to management controls outlined in Section 6 of LTEMP document for details.

- Legend**
- Management Area
 - Remediated and Backfilled Areas
 - Residual Hydrocarbon in Soil
 - Monitoring Well
 - Lost/Destroyed Monitoring Well
 - Soil Sampling Location with Residual Hydrocarbons
 - Soil Sampling Location
 - Immobile NAPL Present in Soils
 - Lot Subdivision Boundaries (SSD 10459)

Starting point and direction of unexpected find – suspected asbestos conduit (Approx coordinates: E 317854, N 6254830)

Residual Soil Conditions		F2
Drawing No: 0561882s_S2AA2LTEMP_G002_R1.mxd	Clyde WARP – Lots 59, 60 and 63 LTEMP	
Date: 25/03/2022 Drawing Size: A3	Durham Street, Rosehill NSW	
Drawn By: GC	Reviewed By: SM	Client: Viva Energy Australia Pty Ltd
Coordinate System: GDA 1994 MGA Zone 56		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
0 25 50 75m		

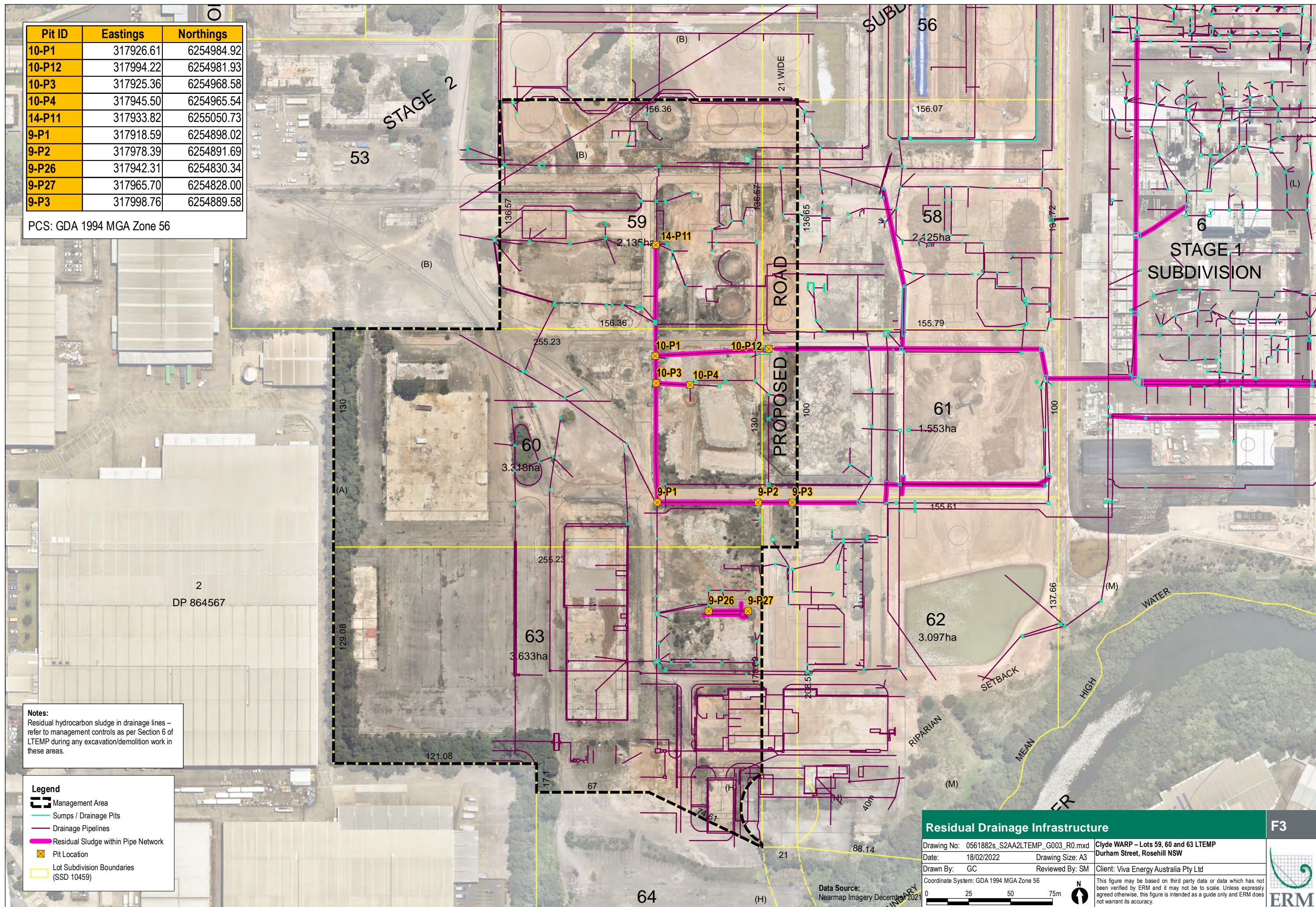
Data Source: Nearmap Imagery December 2021

Pit ID	Eastings	Northings
10-P1	317926.61	6254984.92
10-P12	317994.22	6254981.93
10-P3	317925.36	6254968.58
10-P4	317945.50	6254965.54
14-P11	317933.82	6255050.73
9-P1	317918.59	6254898.02
9-P2	317978.39	6254891.69
9-P26	317942.31	6254830.34
9-P27	317965.70	6254828.00
9-P3	317998.76	6254889.58

PCS: GDA 1994 MGA Zone 56

Notes:
Residual hydrocarbon sludge in drainage lines – refer to management controls as per Section 6 of LTEMP during any excavation/demolition work in these areas.

Legend	
	Management Area
	Sumps / Drainage Pits
	Drainage Pipelines
	Residual Sludge within Pipe Network
	Pit Location
	Lot Subdivision Boundaries (SSD 10459)



Residual Drainage Infrastructure			F3
Drawing No: 0561882s_S2AA2LTEMP_G003_R0.mxd	Clyde WARP – Lots 59, 60 and 63 LTEMP		
Date: 18/02/2022	Durham Street, Rosehill NSW		
Drawn By: GC	Reviewed By: SM	Client: Viva Energy Australia Pty Ltd	
Coordinate System: GDA 1994 MGA Zone 56			This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
0 25 50 75m			

Data Source: Nearmap Imagery December 2021

APPENDIX B SITE SURVEY

M.G.A.

STAGE 3

DEVON STREET

COLQUHOUN STREET

UNWIN STREET

STAGE 2

SUBDIVISION 56

6 STAGE 1 SUBDIVISION

PROPOSED ROAD

PROPOSED ROAD

PROPOSED ROAD

PROPOSED ROAD

PROPOSED ROAD

PROPOSED ROAD

CLIENT
VE PROPERTY PTY LTD

PROJECT
PLAN OF PROPOSED SUBDIVISION OF LOT 57 OF STAGE 2 OF SUBDIVISION OF LOT 100 IN DP1168951 STAGE 3

NOTES
The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

8	GKO	23/11/2020	LOT 51 & 62 AMENDED
7	GKO	11/11/2020	AMEND RIPARIAN SETBACK & (H)
6	GKO	09/11/2020	LANDSCAPE SETBACK REMOVED
5	GKO	29/10/2020	PLAN AMENDED
4	GKO	20/10/2020	LOT BOUNDARIES AMENDED
3	GKO	24/07/2020	EASEMENTS DETAIL ADDED
2	GKO	17/07/2020	EASEMENT AMENDED
1	GKO	22/06/2020	INITIAL ISSUE

SYM CODE	DESCRIPTION	SYM CODE	DESCRIPTION
BN	BENCH MARK	OFM	OPTICAL FIBRE MARKER
BM	BENCH MARK	OPF	OPTICAL FIBRE PIT
BD	BOLLARD	TM	PALM TREE
DM	DRAINAGE MANHOLE	SE	SEAT
EFP	ELEC FUSE BOX	TS	SHRUB
ELP	ELEC GARDEN LIGHT	TCA	TELSTRA PIT
EL	ELEC GREEN PILLAR	SLH	SEWER LAMP HOLE
LP	ELEC LIGHT POLE	SMH	SEWER MANHOLE
EP	ELEC SINGLE PIT	SWP	SEWER VENT PIPE
SPL	ELEC STAY POLE	SI	SIGN
PP	ELEC POWER POLE	BS	BUS STOP SIGN
ELP	ELEC POLE LIGHT	T	TREE
HTM	ELEC POLE TRANSFORM	SGL	TRAFFIC LIGHT
FD	FUEL DISP	SCL	TRAFFIC CONTROLLER
GM	GAS MAIN	JUX	TRAFFIC JUNCTION BOX
GMR	GAS METER	US	UNKNOWN SERVICE
GV	GAS VALVE	WAV	WATER AIR VALVE
AG	GATE	WMP	WATER METER
GUL	GULLY PIT	WEP	WATER PUMP
HYD	HYDRANT	WSV	WATER STOP VALVE
BP	BORHPOLE	WTE	WATER TAP

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

DRAINAGE PIPE U/G	---
DRAIN	---
ELECT CABLE A/G	---
ELEC CABLE U/G	---
GAS PIPE	---
FENCE LINE	---
SEWERAGE PIPE	---
TELSTRA CABLE	---
WATER PIPE	---

SYDNEY OFFICE
Level 2, 39-26 South Street
Sydney NSW 2111
PO Box 1144
Dundas NSW 2117

1 (02) 9888 2000
info@landpartners.com.au
www.landpartners.com.au

LOCAL AUTHORITY
CITY OF PARRAMATTA

SCALE
1:1500 (A1)

CONTOUR INTERVAL
N/A

SURVEYOR
N/A

DATE OF SURVEY
-

DRAWN
SF/CLP

DATE
23/11/2020

CHECKED
GKO


DATE
23/11/2020

APPROVED
GKO

DATE
23/11/2020

SHEET 1 OF 1

SY074707.000.13.8



Planning, Industry & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No: SSD-10459

Granted on: 31 January 2021

Signed: JF Sheet No: 4 of 44

- NOTES:
- ALL DIMENSIONS SHOWN HEREON ARE APPROXIMATE AND SUBJECT TO FINAL SURVEY
 - NO CADASTRAL SURVEY HAS BEEN UNDERTAKEN
- (A) EASEMENT TO DRAIN WATER 10.2 & 13.4 WIDE (AC 424785)
 (B) EASEMENT 6.095 WIDE (B309159) - SYDNEY WATER PIPELINE
 (C) EASEMENT TO DRAIN WATER 13.4 WIDE (AC424784)
 (G) PROPOSED EASEMENT FOR SERVICES 5 WIDE
 (H) RIGHT OF ACCESS 21 WIDE AND VARIABLE WIDTH
 (L) EASEMENT FOR OVERLAND FLOW 5 WIDE
 (M) EASEMENT FOR PEDESTRIAN ACCESS 40 WIDE & VARIABLE WIDTH



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63 3.633ha

60 3.318ha

59 2.135ha

58 2.125ha

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APPENDIX C ASBESTOS REGISTER

Asbestos Register

As outlined within *Section 4*, a residual conduit suspected of containing asbestos was noted to extend beyond a remediation extent in Lot 63. ERM notes that while no asbestos in soil has been identified, where works are to be undertaken within 20 m of the below location, asbestos management controls outlined within *Section 6* are to be implemented.

Date identified	ID	Approximate Eastings	Approximate Northings	Approximate Depth (m BGL)	Description	Friable or non-friable	Observed condition	Accessibility
1 st November 2021	UF2	317854	6254830	1.0 m	■ Suspected ACM conduit (buried)	Non-friable	■ Good – bonded and intact conduit	Inaccessible under normal site conditions – only accessed via excavation

APPENDIX D RESIDUAL HYDROCARBON SUMMARY

ERM has over 160 offices across the following countries and territories worldwide

Argentina	The Netherlands
Australia	New Zealand
Belgium	Norway
Brazil	Panama
Canada	Peru
Chile	Poland
China	Portugal
Colombia	Puerto Rico
France	Romania
Germany	Russia
Ghana	Senegal
Guyana	Singapore
Hong Kong	South Africa
India	South Korea
Indonesia	Spain
Ireland	Sweden
Italy	Switzerland
Japan	Taiwan
Kazakhstan	Tanzania
Kenya	Thailand
Malaysia	UAE
Mexico	UK
Mozambique	US
Myanmar	Vietnam

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