Rockbank Precinct Structure Plan Area

DESKTOP ENVIRONMENTAL, HYDROLOGICAL AND GEOTECHNICAL ASSESSMENTS

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SINCLAIR KNIGHT MERZ SKM

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List of Abbreviations

AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AMG	Australian Map Grid
ANZECC	Australian New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AS	Australian Standard
ASRIS	Australian Soil Resources Information System
ATES	Aquifer Thermal Energy Storage
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
BH	Borehole
CoC	Chain of Custody
DS	Stock and Domestic
DM	Domestic
DO	Dissolved Oxygen
DQO	Data Quality Objective
DY	Dairy
EAO	Environmental Audit Overlay
EC	Electrical Conductivity
EHS	Environment, Health and Safety
EIL	Ecological Investigation Levels
EMP	Environmental Management Plan
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
FZ1	Farming Zone Schedule 1
GAA	Growth Areas Authority
GME	Groundwater Monitoring Event
GMS	Groundwater Management System
GQO	Groundwater Quality Objective
GWZ1	Green Wedge Zone 1
HIL	Health Investigation Levels
IR	Irrigation
IV	Investigation
LPP	Local Planning Policies
LPPF	Local Planning Policy Framework
mbgl	Metres below ground level
MAH	Monocyclic Aromatic Hydrocarbons

MAR	Managed Aquifer Recharge
MI	Miscellaneous
MSS	Municipal Strategic Statement
MW	Monitoring Well
NATA	National Association of Testing Authorities, Australia
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NKN	Not known
OCP	Organochlorine Pesticides
OPP	Organophosphate Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PASS	Potential Acid Sulphate Soils
PSP	Precinct Structure Plan
RWL	Reduced Water Level
SAP	Sampling & Analysis Plan
SB	Soil Bore
SEPP	State Environment Protection Policy
SKM	Sinclair Knight Merz
SPPF	State Planning Policy Framework
ST	Stock
SWL	Standing Water Level
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
UGZ	Urban Growth Zone
WSPA	Water Supply Protection Area

Executive summary

Background and objectives

Sinclair Knight Merz Pty Ltd (SKM) was commissioned by the Growth Areas Authority (GAA) to undertake a Desktop Environmental, Hydrogeological and Geotechnical Site Assessment of the Rockbank Precinct Structure Plan (PSP) 1099 area, hereafter referred to as "the site" or "PSP area").

The Rockbank site has been identified as future land supply primarily for residential land use, although also with a view to various commercial and community land uses. The aim of this assessment is to identify opportunities and constraints to the proposed land development which may potentially be caused by existing or past land uses, and site and sub-surface conditions. The assessment comprised two stages; Stage 1 being a review of the history of land use at the site and a preliminary desktop review of information, with Stage 2 involving inspections of the properties within the PSP area identified as presenting a potential risk. Risk in this regard relates to potential contamination, hydrogeology and/or geotechnical issues. Site investigations were not conducted for all properties due to access limitations and property owner constraints during the investigation period. This report includes the findings of both the Stage 1 and 2 assessment completed.

Scope of works

The following scope of work was undertaken at the site:

- The Stage 1 assessment comprised the gathering of relevant information (including the use of literature sources) for the purposes of identifying potential sources of contamination, hydrogeological and geotechnical issues
- The Stage 2 assessment included inspecting the site for potential sources of contamination, and areas of geotechnical and hydrogeological significance (i.e.: areas of water logging, existing groundwater bores, etc.) identified during the stage one assessment

The approach and findings of the assessment, together with supporting information, are documented within this report.

Conclusions

Site contamination assessment

Based on the information gathered during the Stage 1 & 2 assessments, the following conclusions can be made in relation to the Rockbank PSP area:

- The site history assessment found that the site has a long history of agricultural land uses with much of the areas remaining under cultivation to the present day.
- Based on the available information including a site walkover and site history assessment the following primary potential sources of contamination have been identified:
    - Potentially contamination associated with general dumping/stockpiling across entire areas of land at properties 24, 73 and 101. At these sites potential contamination may not be confined to a single, localised area but instead encountered across the wider extent of these sites to one degree or another.
    - Highly localised areas of potential contamination associated with frequently encountered land uses. These include potential contamination hotspots associated with uses such as stockyards and general farm premises. These hotspots are likely to be localised to areas such fuel tanks, chemical storage areas and similar.
    - Highly localised areas of potential contamination associated with stockpiles and general dumped materials (this excludes the three sites identified above where tipped material was more widespread).

In these locations contamination is likely to be localised to stockpiles themselves and in some instances shallow underlying soils.

- Diffuse but low level sources of contamination associated with the widespread application of agricultural chemicals on farmland as well as orchards and plant nurseries. These chemicals may include pesticides, herbicides, fungicides and fertilizers.

- A number of off-site sources of contamination have been identified in the vicinity of the PSP site. Based on the nature of the site uses as well as the environmental setting of the site (hydrological, hydrogeological and geological conditions), the greatest risk to the Rockbank PSP is presented by two farm premises with multiple tanks present (although the contents are unknown) to the south of the study area (properties 113 and 117). The remaining properties were deemed to present either a low or very low potential for contamination of the PSP area.

Based on the information obtained from the sources described in this report, with the exception of highly localised areas of potential contamination associated with current and/or former land uses identified above, there do not appear to be any significant risks from a site contamination perspective which would render the land unsuitable for residential or other sensitive land uses. Any areas of localised contamination are likely to be able to be effectively managed or remediated during any future site development. However, it should be noted that the site has a long history of agricultural use. While unlikely, it is possible that the broad application of agricultural chemicals may have impacted upon soil at the site.

In relation to potential odour issues and constraints on development, two key off-site properties were identified. Properties 38 (BP Petrol Station), approximately 150m away from the NE site boundary and property 93 (Nevas Chicken Farm) approximately 450m away from the SW boundary were identified. The impact of odours (if any) from the two offsite sources should be assessed prior to any development within the PSP Area.

Geotechnical assessment

Based on the available geological information, it is anticipated that the site is underlain by highly reactive residual clay overlying basalt rock. An indicative site classification of Class “H2 to E” has been assessed in accordance with Table D1, AS2870-1996.

Key geotechnical issues associated with development of the site include the depth and reactivity of the basaltic clay in terms of its influence on site classification, foundation selection, differential settlement, subgrade performance and excavations. Fill material, if present, is expected to be uncontrolled and may not be suitable for development in its present state. Areas subject to poor drainage may comprise soft material which provides low bearing capacity for foundations.

Hydrology assessment

The PSP area is located in the headwaters of three small drainage lines/channels. These are an unnamed watercourse draining eastward into Kororoit Creek, Dry Creek draining southwards and an unnamed watercourse also draining southwards which drains into Dry Creek downstream of the PSP area. All of the PSP area is situated above the 1% annual exceedance probability (AEP) flood level, indicating no major flood risk. The several shallow marshes across the PSP area may provide opportunities for stormwater harvesting in smaller flood events post development.

Hydrogeological assessment

Based on the regional hydrogeological information and bore data in the vicinity of the site, the unconfined aquifer is associated with the Basalt Volcanics.

Over the majority of the site there does not appear to be any significant hydrogeological constraints which would render the land unsuitable for development. However, within the east of the site it is likely shallow groundwater tables will exists. The following issues would need to be considered however, in the planning and design of any development:

- the shallow watertable may cause groundwater inflow to excavations
- the saline nature of the groundwater may require careful monitoring if dewatering or extraction was required
- decreased local groundwater recharge in winter and early spring has the potential to reduce discharge to nearby surface water features, which could potentially have a negative impact on the ecological health of local waterways.

Opportunities for groundwater use include extraction for garden watering and irrigation of parks and ovals, depending on the precise nature of the salinity of the groundwater and potential to shandy with less saline sources.

Recommendations

We understand that the proposed future use of the site is as a broad ranging urban development and is likely thus to include sensitive uses such as residential and community facilities in addition to open space, retail and a range of business uses such as offices, light industrial and manufacturing. However, since specific future land uses within the PSP boundary are yet to be confirmed, this assessment has been completed based on the assumption that residential or other sensitive uses will be the probable land future uses across the study area.

No general geotechnical or hydrogeological constraints have been identified warranting further investigation at this stage. However, some potential specific issues have been identified in relation to contamination. The following further works are recommended, including recommended timings:

- Assessment of potential contamination associated with the widespread dumping of miscellaneous materials at properties 24, 73 and 101. These sites are likely to present the greatest potential for property-wide contamination issues. This process may be best undertaken through the preparation of a Sampling, Analysis and Quality Plan (SAQP) followed by a Phase 2 Environmental Site Assessment (which may include targeted sampling of soils and groundwater). *Timing: It is recommended that this task be undertaken in the near future. If contamination is identified an environmental audit may be required prior to future development. Completion of these assessments and appreciation of the contaminant regimes in advance of finalising the PSP land uses may also provide an opportunity to nominate those sites for less sensitive commercial/industrial land uses.*
- Odour monitoring / assessment should be undertaken along the PSP boundary opposite off-site properties 38 (BP Petrol Station) and 93 (Nevas Chicken Farm), prior to any development of the PSP area. Odours (if any) emanating from these properties could potentially impact upon future development in the vicinity of these sites. Additionally, if these properties are ever incorporated into a future PSP Area, they should be thoroughly assessed (e.g. via a Phase 2 ESA). *Timing: It is recommended that this task be undertaken to coincide with the cessation or scaling down of current site operations and prior to the commencement of the proposed development and construction works.*
- Further limited assessment of frequently encountered land uses which may present potential hotspots of contamination. Such sites include stockyards and general farm storages. Rather than target each individual property where such features have been identified, it is recommended that a limited number of representative sites are selected from which targeted soil samples are collected around potential point sources of contamination (i.e. fuel tanks or stockyard structures). The results for these targeted locations can then be used to clarify the potential for contamination at similar sites elsewhere within the PSP areas. *Timing: It is recommended that this task be undertaken to coincide with the cessation or scaling down of current site operations and prior to the commencement of the proposed development and construction works.*
- Further limited assessment of the potential for contamination associated with diffuse but low level sources of contamination. Given the long history of agricultural land use within the PSP area and the potential widespread use of agricultural chemicals throughout this period, further limited sampling would provide valuable information as to the true extent and significance of these potential contaminants of concern. Such an investigation may comprise the collection of 10 to 20 soil samples from selected representative fields and orchards across the study area. These samples would be analysed for pesticides, herbicide and

nutrients with the results providing an overview of the potential risk associated with these diffuse sources. *Timing: It is recommended that this task be undertaken in the near future owing to the potential implications (albeit unlikely) of widespread contamination associated the widespread application of agricultural chemicals.*

- Further drilling and collection of soil samples for the purposes of assessing the geotechnical soil properties for building foundation and road design. *Timing: This task should be undertaken on a site-by-site basis during future development as part of the building permit application process.*
- Drilling and installation of groundwater monitoring wells to determine the depth to groundwater as well as aquifer hydraulics testing to determine aquifer properties. *Timing: It is recommended that this task be undertaken to coincide with the cessation or scaling down of current site operations and prior to the commencement of the proposed development and construction works.*
- Excavation and removal of underground storage tanks, soil remediation and tank pit validation if USTs are found on properties. *Timing: This task should be undertaken on a site-by-site basis during future development.*
- Removal of other potentially contaminating infrastructure (e.g. septic tanks and above ground storage tanks) followed by soil validation. *Timing: This task should be undertaken on a site-by-site basis during future development.*
- Classification and appropriate removal (if required) of various stockpiles and dumped materials observed at numerous sites across the study area. This includes subsequent validation following removal. It is noted that sampling of some stockpiles of soil observed may indicate that the material is suitable for re-use as part of future development and as such removal may not be required in all instances. *Timing: This task should be undertaken on a site-by-site basis during future development.*

Based on the findings of this report, SKM recommend that in the short-term Phase 2 ESAs be undertaken at properties 24, 73 and 101 prior to determining whether a statutory environmental audit is necessary. If an environmental audit of any of the above sites is required, a period of at least 6 months prior to development should be allowed to progress through the audit process. It is likely that a longer period of time will be required should significant contamination be identified to allow for remediation works.

1. Introduction

1.1 Background and objectives

Sinclair Knight Merz Pty Ltd (SKM) was commissioned by the Growth Areas Authority (GAA) to undertake a Desktop Environmental, Hydrogeological and Geotechnical Site Assessment of the Rockbank Precinct Structure Plan (PSP) 1099 area, hereafter referred to as "the site" or "PSP area").

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1.2 Scope of work

The following scope of work was undertaken at the site:

- the Stage 1 assessment comprised the gathering of relevant information (including the use of literature sources) for the purposes of identifying potential sources of contamination, hydrogeological and geotechnical issues
- the Stage 2 assessment included inspecting selected properties within the two PSP areas for potential sources of contamination and areas of geotechnical and hydrogeological significance (e.g. areas of water logging, existing groundwater bores, etc.) identified during the Stage 1 assessment.

The approach and findings of the assessment, together with supporting information, are documented within this report.

1.3 Statement of limitations

This Report has been prepared by SKM for the sole use of the Growth Areas Authority ("the Client").

Undertaking an assessment or study of the on-site conditions may reduce the potential for exposure to the presence of contaminated or inadequate bearing ground and/or groundwater. All reports and conclusions that deal with sub-surface conditions are based on interpretation and judgement and as a result have uncertainty attached to them. It should be noted that this report contains interpretations and conclusions which are uncertain, due to the nature of the investigations. No study can completely eliminate risk, and even a rigorous assessment and/or sampling program may not detect all problem areas within a site. The following information sets out the limitations of the Report.

This Report should only be presented in full and should not be used to support any objective other than those detailed within the Agreement. In particular, the Report does not contain sufficient information to enable it to be used for any use other than the project specific requirements for which the Report was carried out, which are detailed in our Agreement. SKM accepts no liability to the Client for any loss and/or damage incurred as a result of changes to the usage, size, design, layout, location or any other material change to the intended purpose contemplated under this Agreement.

It is imperative to note that the Report only considers the site conditions current at the time of investigation, and to be aware that conditions may have changed due to natural forces and/or operations on or near the site. Any decisions based on the findings of the Report must take into account any subsequent changes in site conditions and/or developments in legislative and regulatory requirements. SKM accepts no liability to the Client for any loss and/or damage incurred as a result of a change in the site conditions and/or regulatory/legislative framework since the date of the Report.

The Report is based on an interpretation of factual information available and the professional opinion and judgement of SKM. Unless stated to the contrary, SKM has not verified the accuracy or completeness of any information received from the Client or a third party during the performance of the services under the Agreement, and SKM accepts no liability to the Client for any loss and/or damage incurred as a result of any inaccurate or incomplete information.

The Report is based on assumptions that the site conditions as revealed through selective sampling are indicative of conditions throughout the site. The findings are the result of standard assessment techniques used in accordance with normal practices and standards, and (to the best of our knowledge) they represent a reasonable interpretation of the current conditions on the site. However, these interpretations and assumptions cannot be substantiated until specifically tested and the Report should be regarded as preliminary advice only.

Any reliance on this Report by a third party shall be entirely at such party's own risk. SKM provides no warranty or guarantee to any third party, express or implied, as to the information and/or professional advice indicated in the Report, and accepts no liability for or in respect of any use or reliance upon the Report by a third party.

This Report makes no comment on the presence of hazardous materials, unless specifically requested.

2. Methodology

2.1 General assessment approach

2.1.1 Stage 1 assessment

A Stage 1 assessment (also referred to as a Phase 1 Environmental Site Assessment (ESA)) is typically undertaken to establish site conditions, historical site uses and practices. As part of this Stage 1 assessment the following sources of information have been reviewed:

- relevant reports
- EPA priority sites register
- EPA list of certificates and statements of environmental audit (current and completed audits)
- topographical maps
- groundwater management system (GMS) bore searches
- geological maps
- hydrogeological maps
- potential acid sulfate soils (pass) probability maps.

The Stage 1 assessment seeks to identify if possible:

- the potential source(s) of on and off site contamination
- pathways and receptors of contamination
- areas of environmental concern (contamination, hydrogeological and geotechnical) which will form the basis of subsequent assessments at the site.

2.1.2 Stage 2 assessment

For this particular investigation, the site inspection works are referred to as a Stage 2 assessment. The site inspections undertaken included an inspection of areas that were identified during the Stage 1 as presenting a low, medium or high risk from a contamination, hydrogeological and geotechnical perspective. Those properties identified during the Stage 1 assessment as presenting a very low risk were not inspected. Based on the findings of the site inspections, the need for further soil and groundwater investigation (typically by sampling and analysis) has been identified. While the completion of these further investigations does not form part of this scope of work, **Section 2.1.3**, **Section 2.1.4** and **Section 2.1.5** below provides an overview of the typical objectives/outcomes of such assessments.

2.1.3 Stage 3 assessment

The Stage 3 intrusive site investigation may be undertaken to characterise the site with respect to contamination, hydrogeology and geotechnical conditions. Note that this stage of site investigation is usually referred to as a Stage 2 (or Phase 2) ESA. With respect to each of the abovementioned disciplines, the following works may be undertaken as part of a Stage 3 assessment:

- ***A contamination assessment*** will typically seek to determine the level (if any) of contamination present on site, establish the lateral and vertical distribution of contamination and identify the source(s) of on-site and off-site contamination. Prior to undertaking any intrusive soil and/or groundwater investigation, a Sampling and Analysis Plan (SAQP) is generally prepared. The SAQP defines the intended sampling locations and the contaminants which will be tested for, based on the site characteristics as determined in a Phase 1 ESA.

- ***A geotechnical assessment*** will typically seek to obtain information on the sub-surface conditions at the site through a geotechnical site investigation comprising a series of boreholes and/or test pits and laboratory testing. Field and laboratory test data is used to develop a site model describing the soil and/or rock profile and the variability across the site. A geotechnical assessment would generally include advice on site classification and allowable bearing capacity for shallow foundation design and comments regarding excavations, foundation systems, pavement design and other items relevant to the proposed development.
- ***A hydrogeological assessment*** will typically include determination of the depth to the water table and the potentiometric surface of deeper confined aquifers through the installation of groundwater observation bores, assessment of groundwater and surface water interaction and assessment of aquifers suitability for managed aquifer recharge (MAR).

2.1.4 Remediation

If significant contamination is identified at a site, to a level where the beneficial uses of land, surface water or groundwater are at risk or precluded (described in further detail in **Section 3**), remediation of the identified contamination may be required in order to allow for a particular land use to continue or commence in future.

2.1.5 Environmental auditing

The environmental audit system under the Environment Protection Act 1970 is administered by the Victorian Environment Protection Authority. A statutory Environmental Audit of a site involves the appointment of an EPA accredited environmental auditor to undertake an independent assessment of the environmental condition of a site and provide an opinion regarding the site's suitability for feasible or proposed end uses. A range of information including a site history assessment and results of relevant soil and groundwater testing undertaken are evaluated by the environmental auditor when forming such an opinion. At the conclusion of the audit a certificate or statement of environmental audit may be issued. A certificate indicates that the use of the land is unrestricted, whereas a statement indicates that particular beneficial uses of the land or groundwater are either precluded or suitable only under specified conditions.

3. Regulatory framework for assessment

3.1 Legislation and policy

3.1.1 Planning and Environment Act 1987

The *Planning and Environment Act 1987* sets out the requirements of planning authorities when preparing planning schemes or amendments to planning schemes. The Act requires planning authorities to "take into account any significant effects which it considers the scheme or amendment might have on the environment or which it considers the environment might have on any use or development envisaged in the scheme or amendment".

Under Section 12 (2) (a) of the *Planning and Environment Act 1987*, the *Ministerial Direction No. 1 – Potentially Contaminated Land* requires planning authorities to satisfy themselves that the environmental conditions of land proposed to be used for a sensitive use, agriculture or public open space are, or will be, suitable for that use. This is generally done through the completion of an environmental site assessment and audit process.

3.1.2 Environment Protection Act 1970

The *Environment Protection Act 1970* established the Victorian Environment Protection Authority (EPA) and made provisions with respect to the powers, duties, and functions of the EPA and the protection of the environment. The Act provides for environmental audits, which are used to provide an authoritative opinion on the suitability of potentially contaminated land for future use, and form an integral part of the land use planning and approval process. The Act also provides the basis for the various State Environment Protection Policies (outlined below) which provide the framework for the assessment and management of the environmental quality of land, surface waters and groundwater in Victoria.

3.1.3 Land State Environment Protection Policy 2002

The State Environment Protection Policy (Prevention and Management of Contamination of Land) (Land SEPP) sets out the regulatory framework for the prevention and management of contaminated land within the State of Victoria. The intent of this framework is to maintain and maximise, to the extent practicable, the quality of the land environment in Victoria, in order to protect its existing and potential beneficial uses. The Land SEPP was declared in June 2002 in accordance with Section 16 of the *Environment Protection Act 1970*, and the Victorian EPA is responsible for its implementation.

The Land SEPP identifies a range of land use categories and a range of protected beneficial uses for each of these categories. The EPA considers that land (soil) is *polluted* where current and/or future protected beneficial uses for the relevant land use categories are precluded. Beneficial uses of land are considered to be precluded when relevant soil quality objectives set out in the Land SEPP for those beneficial uses have been exceeded. Further information on the beneficial uses of land with respect to specific land use categories can be found in **Appendix A.**

3.1.4 Groundwater State Environment Protection Policy 1997

The quality of groundwater in Victoria is protected under the 1997 State Environment Protection Policy (SEPP) 'Groundwaters of Victoria' (Groundwater SEPP), declared under the *Environment Protection Act 1970* and administered by the EPA. The groundwater SEPP defines a range of protected beneficial uses for defined segments of the groundwater environment, which are based on the total dissolved solids (TDS) content of the groundwater. The EPA considers that groundwater is *polluted* where protected beneficial uses for the relevant segment are precluded. Beneficial uses of groundwater are considered to be precluded when relevant groundwater quality objectives set out in the groundwater SEPP for those beneficial uses have been exceeded, or where non-aqueous phase liquid is present.

Where groundwater has been polluted, groundwater must be cleaned up such that the protection of beneficial uses is restored, or to be cleaned up the extent practicable. Further information on the beneficial uses of groundwater with respect to the various segments of groundwater can be found in **Appendix A**.

3.1.5 Surface Water State Environment Protection Policy 2003

The quality of Victoria's surface water environments are protected under the 2003 State Environment Protection Policy 'Waters of Victoria' (Surface Water SEPP) declared under the *Environment Protection Act 1970* and administered by the EPA. The Surface Water SEPP sets out the environmental values and beneficial uses of water which are to be protected for each segment of the surface water environment and includes schedules which cover some specific surface water catchments in Victoria. Beneficial uses of surface waters are considered to be precluded when relevant water quality objectives set out in the surface water SEPP for those beneficial uses have been exceeded.

In addition to assessment of surface water quality, the relevant water quality objectives stated in this SEPP are applied to groundwater at the point of groundwater discharge to a surface water system, to assess whether the maintenance of ecosystems beneficial use of groundwater is protected.

3.2 Guidelines and standards

3.2.1 National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999

The NEPM is the national guideline for assessing contaminated sites and was prepared by the National Environment Protection Council (NEPC). The NEPM is implemented in each Australian jurisdiction under the *National Environment Protection Measures (Implementation) Act 1998 (Commonwealth)*. The NEPM document ensures there is a nationally consistent approach to the assessment of contamination. The NEPM includes two main schedules which provide guidance on the methods of site contamination assessment, environmental and health based investigation levels for soil and groundwater contaminants, human and environmental health risk assessment and reporting requirements.

3.2.2 Various EPA publications and guidelines

The following publications and guidelines from the Victorian and New South Wales Environment Protection Authorities are commonly applied and referenced for intrusive soil and groundwater site assessments:

- EPA Victoria, 2000. Groundwater Sampling Guidelines. Publication 669
- EPA Victoria, 2006. Hydrogeological assessment (groundwater quality) guidelines. Publication 668
- NSW EPA, 1994. Guidelines for Assessing Service Station Sites.

The above NSW EPA publication is typically adopted in the absence of a comparable EPA Victoria publication for assessing petroleum hydrocarbons in soils.

3.2.3 Potentially Contaminated Land General Practice Note 2005

This general practice note was produced by the Department of Sustainability and Environment in conjunction with the Victorian EPA and provides guidance to the general public and planners on the identification of potentially contaminated land and the stages of assessment and audit required should a site be considered contaminated.

3.2.4 Australian Standard AS4482.1-2005: Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds

Australian Standard 4482.1 provides guidance on the collection of sufficient and reliable information when assessing potentially contaminated sites. In particular this standard focuses on the assessment of sites potentially contaminated with non-volatile and semi-volatile compounds. The standard covers key elements of

preliminary site investigations (i.e. Stage 1 or Phase 1 ESAs), detailed site investigation methods (i.e. Phase 2 ESAs), data quality objectives (DQO), developing sampling strategies, the collection of samples and quality assurance procedures.

3.2.5 Australian Standard AS4482.2-1999: Guide to the sampling and investigation of potentially contaminated soil – Part 2: Volatile substances

This standard refers to AS448.1 regarding the establishment of preliminary site information, and provides more specific guidance on field screening and sample collection techniques when assessing sites that are potentially contaminated with volatile compounds.

3.2.6 Australian Standard AS1726-1993: Geotechnical Site Investigations

Australian Standard AS1726 sets out minimum requirements for a geotechnical site investigation, as a component in the engineering design, construction, commissioning and operation of civil engineering and building works.

The standard specifies considerations affecting the design and construction of works which must be made in a geotechnical site investigation. Assessment of these factors enables the identification of field and laboratory work to obtain the geotechnical data required to facilitate the engineering design and construction of the works. The standard provides guidance on suitable field and laboratory examination and testing of geotechnical materials and outlines a system of material classification.

The applications of this Standard include assessment of natural or filled ground, new construction, maintenance of existing facilities, the evaluation of post construction performance and the assessment of failure.

3.3 Regulatory framework in the context of this assessment

The acts, policies, guidelines and standards relevant for each stage of assessment are set out in Table 3.1.

Table 3.1 : Acts, policies, guidelines and standards relevant for site assessments

Stage of Assessment	Relevant Acts and Policies	Relevant Guidelines and Standards	How the Regulatory Framework Applies
Proposed Change to Land Use	*Planning and Environment Act 1987*	*Ministerial Direction No. 1 – Potentially Contaminated Land* *DSE Potentially Contaminated Land Practice Note 2005*	The Planning and Environment Act requires planning authorities to satisfy themselves that the environmental conditions of land proposed to be used for a sensitive use, agriculture or public open space are, or will be, suitable for that use. This is generally done through the completion of an environmental site assessment and audit process (see below).
Desktop Investigation (Phase 1 ESA)	*Environment Protection Act 1970* *Planning and Environment Act 1987* *National Environment Protection Measures (Implementation) Act 1998 (Commonwealth)*	NEPM 1999 AS4482.1-2005 AS4482.2-1999	The Environment Protection Act and SEPPs provide the legislative basis and policy framework for the assessment and management of contaminated land and groundwater in Victoria. The guidelines and standards provide guidance on the collection of reliable information in order to assess the environmental condition of a site appropriately.
Intrusive Soil, Groundwater and Geotechnical Assessments (Phase 2 ESA)	*Environment Protection Act 1970* *Land SEPP 2002* *Groundwater SEPP 1997* *Waters of Victoria SEPP 2003*	NEPM 1999 AS4482.1-2005 AS4482.2-1999 AS1726-1993	

Stage of Assessment	Relevant Acts and Policies	Relevant Guidelines and Standards	How the Regulatory Framework Applies
Statutory Environmental Auditing	*Environment Protection Act 1970* *Planning and Environment Act 1987* *Land SEPP 2002* *Groundwater SEPP 1997* *Waters of Victoria SEPP 2003*	NEPM 1999 Various Victorian EPA Guidelines and Publications	The environmental audit system is provided for in the Environment Protection Act 1970 and the audit process is administered by the Victorian EPA.

4. Site description

General information relating to the Rockbank PSP area is presented in Table 4.1 below. Refer to **Figure 1** for a site location map and **Figure 2** for a site plan, attached at the end of this report.

Table 4.1 : Details for Rockbank PSP area

Item	Rockbank PSP Area Description
Location / Address	The Rockbank PSP area comprises a single irregularly shaped area of land to the immediate south of the Western Freeway around Rockbank. The PSP area is demarcated to the south by Greigs Road and to the west by Raynes Road. The site extends to the east just beyond Troups Road. The site immediately abuts the southern, eastern and western extents of Rockbank.
Australian Map Grid Coordinates	Centre at 293,501mE; 5,820,868mN North-western extent at 291,730mE; 5,823,230mN South-western extent at 291,380mE; 5,819,830mN North-eastern extent at 295,300mE; 5,820,780mN South-eastern extent at 295,060mE; 5,819,920mN
Current Title Information	The Rockbank PSP area is divided into approximately 100 individual parcels of land. Current title information for selected parcels of land are summarised in **Appendix B**.
Site Area (ha)	729 hectares
Local Council	Melton City Council
Current Land Zoning	Under the Melton Planning Scheme, the majority of the PSP area is zoned as Urban Growth Zone (UGZ) with the following notable exceptions: • A linear parcel of land along the existing railway line which crosses the site south of Rockbank is zoned as Public Use Zone 4 (PUZ4). This area also includes a triangular parcel adjacent to the railway which appears to be vacant land. This zone occupies 29.8 ha. • A narrow strip of land to the south of Rockbank and the railway line which is zoned as Urban Floodway Zone (UFZ). This parcel is 18.9 ha in size. • One small area to the west of Rockbank which is currently occupied by residential properties which is zoned as Low Density Residential Zone (LDRZ), totalling 30.1 ha. • One small area to the south-west of Rockbank which is currently occupied by a school and sports oval which is zoned as Public Park and Recreation Zone (PPRZ), totalling 4.9 ha. **Figure 4** and **5** shows the land zoning for the Rockbank PSP study area.
Zoning of Surrounding Land	Under the Melton Planning Scheme, the PSP area is bounded variously by the following zones: • Road Zone 1 (RDZ1) • Public Park and Recreation Zone (PPRZ) • Residential 1 Zone (R1Z) • Public Use Zone 4 (PUZ4) **Figure 4** and **5** shows the land zoning relevant to the Rockbank PSP Area.
Environmental Audit Overlay	There are no sites with an environmental audit overlay within the PSP area or within 200 m of the site.
Site Layout	The site is relatively open and flat lying and bisected by a number of roads and access tracks. Leakes Road crosses the centre of the site in a north-south orientation while Troups Road similarly crosses the site in a north-south orientation towards the east of the study area. Towards the north of the study area is also access to the Western Freeway which bounds the site to the north. A railway line crosses the site in an east-west orientation south of Rockbank and also includes Rockbank Station.
Current Land Uses	The site is primarily used for agricultural purposes with large areas of open farmland and associated infrastructure (farm buildings, local access roads etc.). However, the following additional land uses are notable:

Item	Rockbank PSP Area Description
	• Numerous horse trotting tracks located within the PSP area. • Low density residential properties and commercial premises towards the northern extent of the PSP area west of Rockbank between the railway line and the Western Highway as well as along major roads within and around the study area, predominantly Raynes Road, Leakes Road and Greigs Road.
Proposed Land Uses	The proposed future use of the site is as future land supply for various land uses including sensitive uses such as residential and community facilities in addition to open space, retail and a range of business uses such as office, light industrial and manufacturing. At present, no specific land uses have been allocated to individual parcels of land.
Surrounding Land Uses	To the north of the site beyond the Western Highway is agricultural land, similarly to the east, west and south of the site. There are however some residential properties, most likely farm residences.

5. Environmental setting

Information on the general environmental setting of the Rockbank PSP area is outlined in the following sections.

5.1 Regional geology

The Department of Primary Industries (DPI) Online Geological Map (accessed in April 2013) was reviewed to determine the geological conditions at the Rockbank PSP area.

The main geological unit to be encountered during future development of the site is likely to be basalt of the Newer Volcanic Group (Qvn2). However, this may be overlain by associated weathered basaltic clays and potential encroachments to the north of the site by Quaternary aged non-marine alluvial deposits characterised by sands, gravels and silts.

The surface geology for the site and the immediate surrounding area is presented in **Figure 3a** at the end of this report.

5.2 Soils and acid sulfate soils map review

A review of the Australian Soil Resources Information System (ASRIS) online map in April 2013 describes the soil at the Rockbank PSP site as clay loam, sandy or silty clay loam (30 - 35%).

The ASRIS online map was also accessed for information regarding acid sulfate soils. The map indicates that soils within the Rockbank area can be classed as having an extremely low probability of acid sulfate soil occurrence (ASRIS, 2010).

5.3 Regional hydrology

The site is located in the headwaters of three small drainage lines. These are an unnamed watercourse draining eastward into Kororoit Creek, Dry Creek draining southwards and an unnamed watercourse also draining southwards which drains into Dry Creek downstream of the PSP area. Dry Creek is a tributary of Skeleton Creek, which ultimately drains to Port Phillip Bay through the Cheetham Wetlands. Kororoit Creek also drains to Port Phillip Bay after meandering through a largely urban environment.

Topographic maps indicate several areas of swamp land within and immediately downstream of the PSP area. This includes a 19 hectare unnamed shallow marsh on the eastern edge of the PSP area and five other smaller unnamed marshes. The 24 hectare Deans Marsh is located just outside of the PSP area, immediately upstream of Kororoit Creek. Aerial photographs suggest that these swamp areas are not permanently inundated.

5.4 Regional hydrogeology

The Rockbank PSP area is located at the northern edge of the Port Phillip Basin, north of the site the Basin is around 100 m thick, south of the site the Basin increases in thickness to around 400 m.

The main aquifer of the site is the Newer Volcanics regional aquifer and is underlain by Tertiary aged Fluvial sands. Within this aquifer groundwater occupies joint openings and vesicles in the basalt and contact zones between various basalt flows. The water table residues within both the fractured rock of Newer Volcanic aquifer and where shallow within the regolith that has formed upon the volcanic. The fractured basalt aquifer will have highly variable permeability but generally low, providing low bore yields and sluggish groundwater flow.

Groundwater contours indicate regional groundwater movement towards the southeast (towards Port Phillip Bay) (Shugg 1980), with local recharge and discharge throughout the study area. The Victorian Groundwater Management System (GMS) database was accessed to identify the presence of any nearby registered groundwater bores. A search of bores within a 5 km radius of the centre of the site was undertaken and this

returned 158 bore registered for private groundwater use. 92 additional bores were identified for unknown use types and use for investigation purposes.

Time series groundwater data indicates the water table follows medium term rainfall trends (5 to 10 yrs). Groundwater levels across the basalt aquifer will vary in the order of 2 to 5 metres (Figure 5.1 below). In wet periods, mid 1990's, water tables were shallowest and during dry periods, 2007 to 2009, water table fell by 3 to 5 and have since risen in response to the recent wet period.

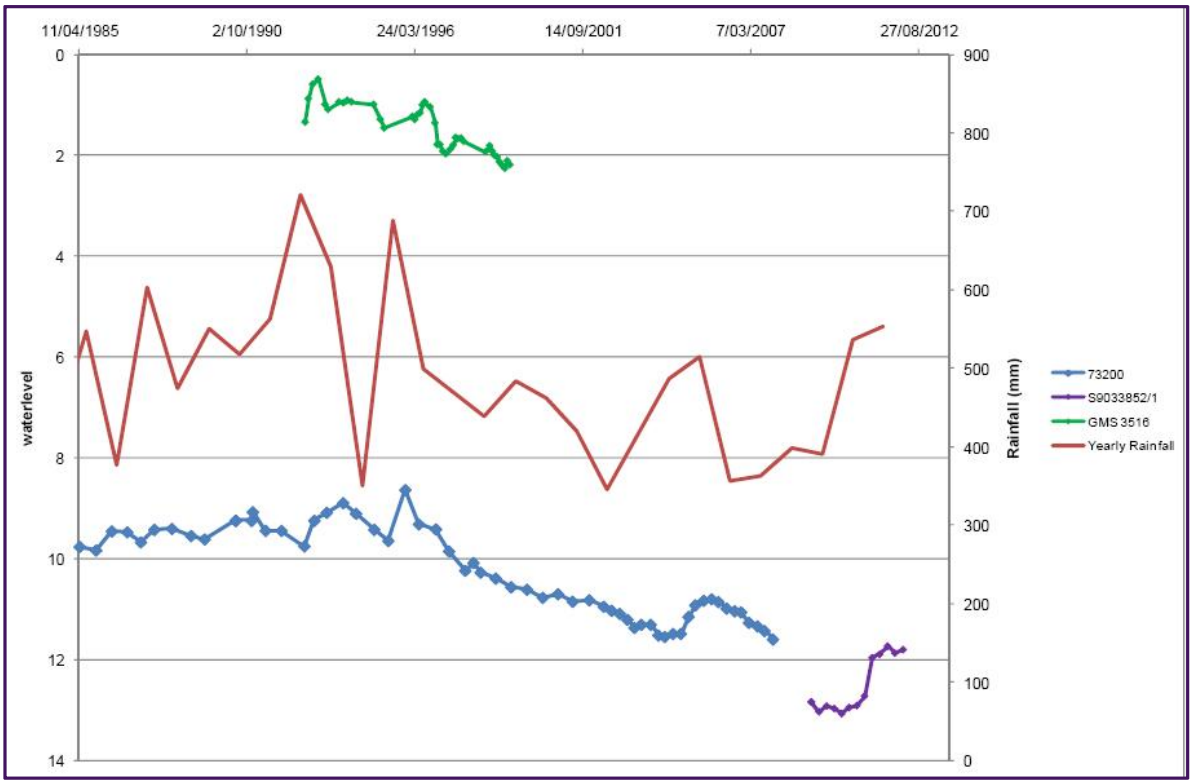

Figure 5.1 : Hydrographs for three monitoring bores located north of the Rockbank PSP, within a 5km radius of the site. Note: GMS 3516 is located in the northwest corner of the site, adjacent to Kororoit Creek. The other two bores are located near the in the north west corner of the site, on elevated terrain.

The water table is typically 10 - 20 m across the majority of the western growth corridor within recharge zones with shallow groundwater levels and discharges into major wetlands and creeks. In topographically elevated areas, depth to water increases to > 20 m (it is greatest under the basalt cones such as Mt Cottrell), and in drainage areas such as waterways and wetlands, depth to water is < 2 m during wet periods. Groundwater discharge across the basalt plains is associated with major drainage lines, geological boundaries and topographic depressions (e.g. wetlands) (Bennetts et al 2003), typical examples of groundwater discharge are Deanside wetland (directly north of the site) and Kororoit creek (directly to the east of the site).

Within the study area historical water table monitoring data recorded levels as ranging between approximately 8.5 and 13.0 meters below natural surface elevation. The Atlas of Groundwater Dependent Ecosystems (BoM, 2012) identifies an area of wetland in the east section of the site as having "high potential for groundwater interaction" (see **Figure 5.2** below), therefore it is likely that the depth to water table in these areas of low elevation would be < 2 m and that a shallower of the water table in the east is likely to occur.

Figure 5.2 : Atlas of groundwater dependent ecosystem search (BoM, 2012)

The site does not currently reside within any Groundwater Management Area (GMA).

The locations of the groundwater bores are shown on **Figure 3a** and information on each of the registered groundwater bores is presented in **Appendix D**.

5.5 Regional groundwater quality

Of the 13 investigation bores identified in the GMS within a 5km radius from the centre of the study area, only two are currently being monitored (SOBN bores S9033854-1 and S9033852-1) however no water quality parameters are being monitored at these sites only water level measurements.

Limited chemistry information is available for the area, however historical laboratory analysis information was available for three bores (59479, 73199 and 73200) and the results are summarised in **Table 5.1**.

TDS is approximately 2000-2500mg/L in the regional groundwater (although can range from 1,000 – 3,500mg/L). This is supported by salinity readings recorded for the three bores with historical data in the area, ranging between 700 to 2,700mg/L TDS.

The beneficial use of groundwater resources is defined in the State Environment Protection Policy (SEPP) - Groundwaters of Victoria (Victorian Government 1997) in terms of total groundwater salinity. Comparison of regional groundwater salinities (TDS) with beneficial use segments defined in the SEPP indicates that the beneficial uses of groundwater in the vicinity of the site fall within segment B and C. This indicates that the groundwater is suitable for all beneficial uses except for potable water use.

Table 5.1 : Summary of regional groundwater chemistry

Parameter	Reported concentration(s)
TDS*	700 – 2,700 mg/L
pH	7.9 – 8.7
Chloride (Cl)	160 - 900 mg/L
Carbonate (CO_3)	N/A
Bicarbonate (HCO_3)	293 – 439 mg/L
Total Alkalinity	240 – 360 mg/L
Sulfate (SO_4)	38 – 170 mg/L

Parameter	Reported concentration(s)
Nitrogen (N)	N/A
Calcium (Ca)	12 - 45 mg/L
Magnesium (Mg)	34 - 140 mg/L
Sodium (Na)	180 – 610 mg/L
Potassium (K)	6.4 - 13 mg/L
Iron (Fe)	<0.05 – 4.5 mg/L

Notes: * Converted from EC to TDS using a conversion factor of 0.65.

TDS – Total Dissolved Solids and EC – Electrical Conductivity

5.6 Groundwater use

The site is not currently represented by any GMAs which are generally declared in response to significant groundwater use and declining water levels in the area.

A search of the GMS revealed that there are 250 bores located within a 5km radius of the centre of the PSP. A summary of the groundwater bore uses as registered in the GMS is provided in **Table 5.2**.

Table 5.2 : Summary of registered groundwater bore uses

Groundwater bore use(s)	No. of registered groundwater bores
Domestic and Stock (DS / ST DM)	157
Irrigation and Stock (IR ST)	1
Not Known (NKN)	53
Investigation (IV)	13
Non Groundwater (NG)	26
Total	**250**

5.7 Ecology

A review of the following Victorian Department of Sustainability and Environment (DSE) and Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) databases was undertaken to provide information on wetlands and sites of national significance in proximity to the investigation area.

- Victorian Biodiversity Atlas (DSE. 2013)
- Protected Matters Search Tool (DSEWPaC, 2013)

5.7.1 Wetlands

A review of the Victorian Biodiversity Atlas identified four wetlands within the boundary of the Rockbank PSP site as outlined in **Table 5.3** below. All wetlands identified are natural and none are listed under the Ramsar Convention. The location of the identified wetlands are also presented in **Figure 3b** at the end of this report.

Table 5.3 : Wetlands within the Rockbank PSP study area

Latitude/ Longitude	Wetland ID	Name	Wetland Category	Area (Ha)	Subcategory	Location
37°43'54"S, 144°39'12"E	7822 931212	-	Meadow	1.73	Herb	Near Rockbank along Leakes Road

Latitude/ Longitude	Wetland ID	Name	Wetland Category	Area (Ha)	Subcategory	Location
37°44'21"S, 144°40'20"E	7822 946204	-	Shallow marsh	19.15	Herb	Adjacent to Troups Road North
37°44'3"S, 144°38'2"E	7822 914210	-	Meadow	2.44	Herb	Western boundary of PSP adjacent to Paynes Road
37°43'37"S, 144°38'7"E	7822 915219	North Swamp	Meadow	6.5	Lignum	Western boundary of PSP adjacent to Paynes Road

5.7.2 Sites of National Significance

A review of the Protected Matters Search Tool identified no sites of National Significance within or adjacent to the Rockbank PSP area.

6. Information review

This section summarises the various sources of information, records and reports reviewed as part of the Stage 1 desktop assessment.

6.1 Current Certificate of title information

Certificates of title were reviewed to ascertain information on the current and historical land uses within and in the immediate vicinity of the Rockbank PSP area. A summary of the title information is provided in **Appendix B** with locations illustrated in **Figure 8**. A review of the titles revealed the following information:

- A number of the land owners appear to be private individuals with no stated occupation or stated as farmers
- A single linear area of land (parcel TP549986) was owned in 1883 by The Board of Land and Works, which at the time was responsible for matters relating to the railways. This site currently lies vacant although there is evidence of some fly-tipped waste at this location based on aerial imagery.
- A single property parcel (parcel PS412891) has historically been owned by Telstra Corporation Ltd. This parcel is located on Leakes Road and is currently the location of an existing communications tower.
- A single property parcel (parcel PS325346) has historically been owned by the Country Fire Authority (CFA). This parcel is located to the east of the main Rockbank settlement and continues to be used by the CFA.
- A single property parcel (parcel PS537630) was shown to be owned by BP Petroleum in 2007. This site continues to be used as a service station.

All title searches were conducted by Feigl and Newell Title Searchers. Where possible, the three most recent titles were reviewed for each identified parcel at the site.

6.2 EPA Priority Sites Register

A search of the EPA's Priority Sites Register (PSR), which lists those sites for which EPA has requirements for active management of land and groundwater contamination, was conducted. Sites within the Rockbank PSP area were not listed on the Register, nor were there any registered priority sites within a 1km radius of the area. A copy of the reviewed PSR (dated 28th February 2013) is provided in **Appendix C**.

6.3 EPA List of sites issued with Statements and Certificates of Environmental Audit

6.3.1 General

Under Victoria's *Environment Protection Act 1970*, statutory environmental audits of potentially contaminated land result in the issue of a Certificate of Environmental Audit if the site is considered suitable for any beneficial use (and land uses). Sites are issued a Statement of Environmental Audit if they are not found to be suitable for all beneficial uses (or land uses), as defined under Section 4 of the Act. Issue of a Statement indicates that some contamination remains at the site. A statement precludes one or more beneficial uses and/or requires management for the site to be suitable for one or more land uses.

The Victorian EPA maintains a list of all sites for which a Certificate or Statement of Environmental Audit has been issued. At the time of reporting a single site was identified within a 5km radius of the Rockbank PSP area as having been issued with either a Statement or Certificate of Environmental Audit, namely:

- Former Mobil Rockbank Service Station, 1997 Western Highway, Rockbank, VIC 3335. The site is located within Rockbank, approximately 200m from the PSP boundary. The site was issued with a Statement of Environmental Audit. CARMS number 53288-1.

Although is it very unlikely that a certificate or statement of environmental audit would be issued if a site represented a significant risk of off-site contamination, a review of the above environmental audit report was undertaken to gain an appreciation of the site use history of surrounding properties and to determine if any residual soil and/or groundwater impact at the audit site has the potential to impact upon the PSP area. In addition, information concerning the geology and hydrogeology of the area was also obtained. The location of the above site is illustrated in **Figure 3a**.

6.3.2 Former Mobil Rockbank Service Station, 1997 Western Highway, Rockbank – Audited by Peraco Environmental Services Pty Ltd (Peter Mirkov)

The audit site is around 0.46 ha in size and located adjacent to the Western Highway within Rockbank, approximately 200m from the boundary of the PSP study area. The audit was completed in 2010 by Mr Peter Mirkov of Peraco Environmental Services Pty Ltd (Peraco) with the assessment consultants being Handex Australia Pty Ltd (Handex) and URS Australia Pty Ltd (URS). The audit was requested by Mobil Oil Australia Ltd (Mobil) to support the sale of the site.

The site was formerly used as a service station between 1960 and 1998 when the site was decommissioned and infrastructure removed. Prior to this time the site was farmland. Infrastructure associated with the former service station included 6 underground storage tanks and associated fuel lines and a triple interceptor trap.

Various stages of investigations were undertaken at the site between 1998 and 2010 when the audit was completed. These investigations targeted contaminants of concern in groundwater, soil and vapour phases.

Following removal of the service station infrastructure in 1998, Handex validated relevant excavations confirming that contaminated soil associated with leaks from these structures had been removed from the site However, some residual contamination (TPH and BTEX) remained at the base of some excavations. Since this was immediately overlying bedrock further soil removal was not possible. Excavations were then backfilled with a combination of material recovered from elsewhere at the site and imported clean fill. Subsequent investigation by URS in 2010 confirmed that this residual contamination was no longer present.

Groundwater monitoring was undertaken at the site from 2004 onwards following removal of underground infrastructure. Contaminants of concern identified included TPH and BTEX which exceeded the adopted assessment criteria for the protection of beneficial uses both on-site and off-site. While no non-aqueous phase liquid (NAPL) was reported during the various assessments, dissolved phase was encountered beyond the north-eastern extent of the site boundary (down hydraulic gradient from the site, and away from the Rockbank PSP study area). Fate and transport modelling undertaken by URS predicted that the maximum lateral extent of the plume would be 150m down gradient of the site. The Auditor revised this estimate to 30m which was subsequently endorsed by the EPA upon review of the Auditor's CUTEP submission for the site.

Based on the assessment of the site the Auditor issued a Statement of Environmental Audit. However, the following conditions apply:

- *Groundwater at the site is polluted. Groundwater must not be extracted and used for any beneficial use without prior testing and review of results by an environmental auditor (appointed under Part IXD of the Environment Protection Act 1970) to confirm its suitability for that use. It may be extracted for the purpose of environmental monitoring or remediation;*
- *The site is suitable for the above uses provided any development is able to accommodate the monitoring requirements as contained in the Groundwater Monitoring and Management Plan* (appended to the Statement of Environmental Audit (ref. ENVIABTF07130AA-R02); and
- *The groundwater contamination beneath the site and offsite must be monitored and managed in accordance with the Groundwater Monitoring and Management Plan*

In addition to the ongoing requirement for the implementation of a GMP for the site, the EPA also declared that the site and areas off-site impacted by the groundwater contaminant plume be subject to a Groundwater Quality Restricted Use Zone (GQRUZ). Besides the site itself, this zone was nominated as including the then vacant adjacent property to the east as well as part of the Western Highway. The GQRUZ does not fall within the Rockbank PSP study area.

Based on the assessment of the site it is unlikely that contaminants of concern reported at the audit site will impact upon the Rockbank PSP area.

6.4 EPA List of current environmental audit sites

The Victorian EPA also maintains a list of all sites which are currently subject to the environmental audit process. At the time of reporting there were no sites either within the PSP boundary or within a 1km radius of the area which are the subject of an ongoing audit.

6.5 Historical aerial photography review

Aerial photographs from 1962 to 2013 were reviewed for land use changes. Observations are summarised in **Table 6.1** below. Refer to **Figure 6A** through **Figure 6H** for aerial photographs.

Table 6.1 : Aerial photograph and historical plan summary

Date	Photo / Plan	Description	Source
1962	Aerial Photo	The 1962 imagery of the study area indicates that the site was largely used for farming with only rare residences and other features evident. The railway station is evident in its current location, as are a small number of properties towards the north of the study area. The area currently occupied by Rockbank (which does not fall within the PSP area) is not occupied, but there are signs that roads are under construction. Elsewhere the site is surrounded by farmland.	DSE – LIC
1970	Aerial Photo	By 1970 little has changed within the study area. There are a limited number of buildings now constructed in Rockbank, but otherwise the area is sparsely populated. The first of the many trotting tracks now noted in the study area has also appeared by 1970. The Western Highway also appears to have been upgraded.	DSE – LIC
1982	Aerial Photo	Rockbank has become increasingly populated by 1982 with additional structures (likely caravans) west of Rockbank. This is consistent with the current use of the site as a caravan park. Otherwise, the study area remains dominated by farmland with a few additional trotting tracks noted.	DSE – LIC
1991	Aerial Photo	By 1991 further development is noted along the major roads that demarcate the site boundary and bisect the area. These developments remain relatively sparse however. The population of Rockbank itself has also expanded significantly during the preceding ten years. The school which currently occupies an area to the west of Rockbank also appears to have been constructed since 1982. Further trotting tracks are evident within the study area although it remains mostly under cultivation.	DSE – LIC
1994	Aerial Photo	Only a partial image for the site was available for 1994, although there are no significant changes observed to the relevant parts of the east of the site or beyond since 1991.	GAA
2001	Aerial Photo	The majority of the study area remains under farm use although there are increasing numbers of building also present, particularly along major roads in the area. There is also further development around the area to the immediate west of Rockbank around the existing caravan park.	GAA
2007	Aerial Photo	While further modest development has taken place at the site, this is largely restricted to rare rural properties with no notable changes to the land use at the site from farmland.	GAA

Date	Photo / Plan	Description	Source
2013	Aerial Photo	The only notable change to the study area between 2007 and 2013 is the emergence of the overpass on Leakes Road which now goes over the Western Highway.	GAA

6.6 Historical zoning records review

The Department of Planning and Community Development (DPCD) website was accessed for historical zoning information in relation to the site. While information was not available for 1954, 1959 or 1968 historical planning zones were available for 1985.

In 1985 the majority of the site was zoned 'Corridor A' (C1) with the exception of the railway corridor (zoned as existing railway, RW).

Beyond the PSP site boundary much of the land was zoned for general farming (F1), further 'Corridor A' zoning as well as existing public purposes (PP1) beyond Rockbank to the north. Rockbank at the time remained zoned for residential use (R1).

There is no indication as to the specific land uses permitted at the site under a 'Corridor A' zoning.

6.7 Data integrity assessment

It is recognised that not all prior land use information has been identified, and given the resources provided for this investigation only a relatively general history of the site has been established. However, the completeness and quality of the historical data is considered to be sufficient for the purposes of the investigation.

The table below represents the years for which site use history data collected during this investigation was available.

Table 6.2 : Information availability

	1880 - 1900					1900 - 1920					1920 - 1940					1940 - 1960					1960 – 1980					1980 - 2000					2000 -		
Historical Plans																																
Aerial Photographs																					■		■			■		■	■		■	■	■
Historical Photos																																

Note: Blank boxes indicate no information was available.

Shaded Boxes indicate information was viewed.

7. Site characterisation

7.1 Site contamination assessment

Based on the information presented in the previous sections, a number of potential sources of contamination were identified during the Stage 1 assessment of the Rockbank area. The potential sources of on-site contamination were assigned a qualitative level of risk based on the likelihood of the contamination representing a potential constraint to future development at the site. Where potential on-site sources of contamination were identified as having a high risk of contamination during the Stage 1 assessment, a site inspection was recommended and then carried out during the Stage 2 assessment.

Off-site potential sources of contamination were also inspected during the Stage 2 assessment (where possible). These too were assigned a qualitative risk level based on the likelihood of the contamination representing a potential constraint to future development of the Rockbank PSP area.

The site inspections were undertaken by visually assessing each identified site from publicly accessible areas (such as roads and footpaths). This assessment did not include a detailed walkover at each site. As such, some sites identified during the Stage 1 assessment as presenting a potential for contamination could not be assessed owing to limited visibility. This limitation has been considered in assigning the revised qualitative risk ranking.

While each identified property is slightly different with respect to the potential for contamination, there are some land uses which recur throughout the site assessments. The most common potential sources of contamination observed within the study area include farms residences and associated sheds, stockyards and imported fill (including tipped waste and miscellaneous stockpiles). While **Table 7.1** and **Table 7.2** identify potential contaminants of concern relevant to each property assessed, the presence of other contaminants of concern cannot be ruled out at this stage owing to the limited assessment of each individual property. These common land uses are discussed below as well as general comments relating to the PSP area and surrounding land use.

Farm residences and associated sheds

Farm residences and associated sheds are the most common potential source of contamination at each of the two PSP areas. These areas are typically used for storage of farm machinery (both operational and non-operational), materials, vehicles and many other miscellaneous items. These yards may also include fuel storage areas for refuelling farm machinery (typically in above-ground storage tanks) as well as storage areas for items such as agricultural chemicals (pesticides, herbicides etc.) and oils, lubricants and solvents for machinery maintenance.

Since farm residences can be fairly isolated, the use of septic tanks for sewerage purposes rather than mains sewerage is fairly common. However, since these are underground structures they can be difficult to identify.

Storage shed construction can vary depending on their age and can be variously formed of timber, corrugated iron, asbestos cement sheeting, blocks/bricks and concrete. Some sheds may also incorporate concrete floor slabs while others do not.

Plate 7.1 : Example of above ground storage tank

Plate 7.2 : Example of typical farm machinery shed

Based on the above, the most likely sources of contamination include spillages of fuels as well as impacts on soils by metals resulting from general machinery/equipment storage and maintenance of farm vehicles. However, spillages of other agricultural chemicals may also impact upon soils. Given that such chemicals are typically stored in small volumes (less than 20L) impacts are therefore likely to be extremely localised in extent. Additional contaminants of concern can also include biological contaminants and nutrients associated with leakages from septic tank systems.

Asbestos was also commonly used as a building material with a number of applications in Australia as early as the 1880s (although more frequently in the mid to late 1900s). While asbestos presents a limited risk while it remain in a bonded matrix (i.e. as bonded asbestos cement sheeting), mobilised free fibres can present a greater potential risk. Mobilisation can occur through a number of processes including (but not limited to) abrasion, sanding and cutting.

Stockyards

Stockyard structures were frequently noted within the PSP study areas. These are used to hold livestock prior to loading on to trucks. They are typically timber enclosures, sometimes including a small covered shed for storage.

Stockyards can also be accompanied by adjacent sheep dips used which are used to dose/treat sheep. Typically forming a narrow pit/channel, they are filled with a liquid formulation of fungicide/insecticide through which the sheep are passed before being held in an enclosure to allow surplus formulation to drain.

It should be noted that no sheep dips were observed during the site inspections. However, a number of properties could not be visually assessed to confirm their absence. It should also be noted that the absence of a dedicated in-situ sheep dip does not rule out such an activity taking place at a stockyard. Metals troughs are also used a mobile alternative.

Contamination of soil and groundwater can result from the above activities as the liquid formulation either leaks from defects in the dipping infrastructure (be it a permanent sheep dip or mobile trough) or drains from sheep while they are retained in the holding enclosures after dipping is completed.

Plate 7.3 : Example of a stockyard structure

Plate 7.4 : Example of typical sheep dip

Imported fill, tipped waste and stockpiled material

The presence of imported fill can be difficult to identify without undertaking intrusive investigations, particularly in areas which are heavily vegetated. Fill material is most likely to be found in locations where previous construction/development works have been undertaken. Stockpiles of soil and tipped waste material were also noted frequently across the study areas.

Potential contaminants of concern associated with fill material, tipped waste and stockpiled materials can vary significantly depending on their source and time at which they were deposited. Since such information is rarely available specific contaminants of concern often cannot be adequately identified without laboratory analysis (although visual and olfactory observations can provide limited information). However, the most commonly encountered contaminant groups include TPH, PAHs and metals. However, asbestos is also a contaminant of concern, particularly in building rubble.

General agricultural land use

Much of the land forming the PSP area has been used for agricultural purposes for an extended period of time. As such, there is likely to be a long history of general agricultural processes within the study area. The most notable of these is crop spraying. Contaminants of concern associated with this process typically include pesticides, herbicides and fungicides as well as potentially nutrients (from manure, slurry application and other fertilizers).

While this general use has not been explicitly identified in **Table 7.1** and **Table 7.2** owing to their site-wide relevance, this historical use is considered to present a low to moderate risk of causing contamination. On the basis of this risk ranking and broad-scale and historical nature of these potential sources it is considered likely that further assessment of the land (through intrusive soil and groundwater assessments) may be required at a later date, once more certainty regarding the proposed land uses is available and an informed sampling strategy can be prepared. Further discussion on this topic is provided in **Section 8**.

7.1.1 Potential sources of contamination on site and findings of site inspection

The potential on-site sources of contamination were targeted during the site inspection of the Rockbank PSP area on 9th April 2013. Each of the potential sources of on-site contamination identified during the Stage 1 and 2 assessments are presented in **Table 7.1** along with the findings of the Stage 2 site inspection. The original risk rankings have been re-evaluated following the site inspection with the revised risk rankings also provided.

The property numbers referred to in **Table 7.1** have been allocated to a particular property parcel by SKM for the purposes of this investigation. **Figure 7A** to **Figure 7C** show the allocated property number and the location of each of these identified potential sources of contamination where possible.

Stockpiles of miscellaneous materials and general dumped items were the most frequently observed potential contamination sources within the PSP area. These varied from soil to building materials including timber, sheet metal, gravel and general abandoned items (car bodies, farm machinery etc.). The highest risk rankings allocated at the site were moderate to high potential risk of contamination of which three parcels were identified. These properties (identified as parcels 24, 73 and 101) were allocated this ranking on the basis of the extent and nature of dumped materials which appeared to be widespread across the sites.

Numerous properties were allocated a moderate risk ranking. These sites varied but were typically farm properties with stockyards or fuel storage. However, there were also commercial premises (such farm machinery retailers and stockfeed depots) which were also deemed to present a moderate potential for contamination. As with those properties identified above, stockpiling was also frequently observed at these locations. However, this appeared to be more limited.

** Following submission of the draft version of this report for review and comment by GAA and relevant stakeholders, SKM received additional information regarding parcel 81, located at 22 and 104 Troups Road North. SKM originally allocated a qualitative risk score of M – H (moderate to high) to this parcel on the basis that the property appeared to be used for intensive / industrial agricultural activities (namely a broiler farm). As such, further assessment was recommended to clarify the potential for contamination associated with this land use (and the likely associated ancillary uses). Subsequently, PEET Rockbank Pty Ltd (as owners of the property) and their nominated advisors (Atma Environmental) have provided the following additional information regarding the property:*

- *Phase 1 and Phase 2 assessments have already been undertaken at the property (by Atma Environmental) in 2010 to assess the potential for contamination resulting from current and/or former uses of the site.*
- *Following completion of the assessments, Atma Environmental provided PEET with recommendations for further work at the site, in order to address 'localised items of confirmed environmental concern'.*
- *Atma Environmental has expressed that sufficient information exists for the property in order to effectively manage potential localised site contamination issues (if any).*

Based on a summary letter prepared by Atma Environmental on 18 June 2013, SKM is satisfied that no further assessment of the site is warranted at Parcel 81 at this stage, and that the qualitative risk ranking can be downgraded to M (moderate). However, it is noted that in order to accommodate future intended uses, further works may be required based on information provided by Atma Environmental.

Table 7.1 : Summary of potential on site sources of contamination

Property No.	Site Use/Activity	Potentially Contaminated Medium	Potential Contaminants of Concern	Findings of Site Inspection	Potential Contamination Risk	Further Site Specific Assessment *
Rockbank PSP Area						
4	Farm Residence with sheds	Soil	TPH and metals	Well maintained house and garage. Suburban style property with no features of note.	**VL**	None
5	Potential stockyard structure	Soil and groundwater	Herbicides, insecticides and fungicides around the stockyard with various other contaminants associated with stockpiling	Stockyard present. Appears well maintained but too far from road to see clearly. Imagery suggests a stockpile to the west (nature unknown)	**L - M**	None
6	Farm Residence with sheds	Soil	TPH and metals	Well maintained house and shed to the rear of the property. No other notable features.	**L**	None
7	Nursery	Soil and groundwater	Nutrients, herbicides and pesticides	Rockbank Nursery. Orchard/plant nursery within. Large stockpile of gravel in the car park.	**L - M**	None
8	Farm Residence with sheds	Soil	Various associated with stockpiling	Well maintained house and shed. Limited visibility from the road. Imagery suggests potential stockpile of car parts or similar (although not visible during the site visit as obscured).	**L – M**	None
9	Former school or public building	Soil	Metals	Concrete slab of former buildings also present as well as a former basketball court.	**L - M**	None
10	Potential stockyard structure	Soil and groundwater	TPH and metals most likely around sheds with nutrients around animal pens	Horse pen present at the site as well as old run down sheds.	**L - M**	None
12	Farm Residence with sheds	Soil	TPH and metals	Well maintained house and shed. Limited visibility from the road.	**L**	None
13	Farm Residence with trotting track, sheds and some areas of disturbed soil	Soil and groundwater	Herbicides, insecticides and fungicides around the stockyard with various others associated with stockpiled material	House and garage appear well maintained. An old stockyard is also present. Some dumped material visible including building materials. View of the rear of the property was obstructed. Aerial imagery suggests further dumped material, although the nature of this is unknown.	**M**	None
14	Farm Residence with plantation area and small stockpiles of material	Soil and groundwater	Herbicides, nutrients and pesticides around the orchard with various other contaminants associated with stockpiling	Well maintained house and garage. Stockpile of soil is present as well as an orchard.	**L - M**	None
15	Farm Residence with large shed areas (inferred to be horse stables)	Soil	Nutrients associated with the stables, TPH and metals around buildings with various other contaminants associated with stockpiling	Well maintained house and garage. Multiple stockpiles of soil and stables.	**L - M**	None
16	Former structure	Soil	TPH and metals	Nothing notable identified. Noted that 2001 imagery suggests a potential former structure.	**L – M**	None
17	Farm shed	Soil	Metals	Semi constructed building. Appears to be a garage. Stockpiles of metal and wood present (building materials).	**L**	None
18	Former shed and stockpiled materials	Soil	Various contaminants associated with former stockpiling	Well maintained shed. Stockpile of bricks present. Otherwise no notable features. It is noted that numerous stockpiles were observed in the 2007 imagery for the site, mostly appear to be soil.	**L - M**	None
20	Higher density residential	Soil	Metals	Urban style residences with garages. Houses well kept. No other notable features.	**L**	None
21	Farm machinery sale / rental yard	Soil and groundwater	Metals and TPH associated with machinery sheds and fuel storage as well as various other contaminants associated with stockpiling	Kubota Farm machinery yard with multiple farming vehicles and towed machinery present. Also dumped material (tin, wood and other metal) along the fence. Owner is preparing for new building along Marton Court (adjacent) Telecommunications tower present. Appears to be fuel storage on site.	**M**	None
22	General store / stockfeed depot	Soil	Various contaminants associated with stockpiling	Rockbank General Store and Stockfeed. Gas bottle storage and a hazardous chemicals store also present. Dumped material (mostly dead trees and soil) in adjacent empty lot.	**L - M**	None
23	Pre-school	Soil	Metals	Rockbank Community Centre. Kindergarten, Maternal and Child health centre. Buildings well kept with no other notable features.	**VL**	None
24	Storage site with large warehouse, stockpiled material and plantation area	Soil	Various potential contaminants associated with stockpiling as well as nutrients, herbicides and pesticides around the orchard.	Dilapidated warehouse with panels falling off the sides. General dumping ground for multiple rusted vehicles, scrap metal and building materials. Orchard in one corner of the property with stockpile of soil outside. Abandoned vehicles outside property.	**M - H**	Limited Phase 2 assessment focussing on potential shallow soil contamination associated with dumped waste material and historic use of chemicals
25	Farm Residence with sheds	Soil	TPH and metals	Well maintained house and garage. Limited visibility from the road.	**L**	None

Property No.	Site Use/Activity	Potentially Contaminated Medium	Potential Contaminants of Concern	Findings of Site Inspection	Potential Contamination Risk	Further Site Specific Assessment *
26	Farm shed and some form of public building	Soil	TPH and metals	Well maintained shed. Adjacent is a children's play park and associated buildings.	L	None
27	Farm shed	Soil	TPH and metals	Well maintained house and garage. Limited visibility from the road.	L	None
28	Farm Residence with sheds	Soil	Nutrients associated with stables	Well maintained house and garage with horse pen and stables present. Brick stockpile also present.	L	None
29	Former shed (and potential stockyard)	Soil	TPH and metals	No stockyards present. No notable features. Noted that aerial imagery suggests a number of small shed are present at the site.	L - M	None
30	Farm Residence with sheds	Soil	TPH and metals	Well maintained house and garage. No other notable features.	L	None
31	Caravan Park	Soil and groundwater	TPH and metals	Caravan park occupies the site with multiple vehicles present. No other features of note visible from the road.	L - M	None
32	Concrete structure and disturbed soil	Soil	TPH and metals	Boulders stockpiled with the site overgrown by grass. Concrete slab present with no other structures evident.	L - M	None
33	Farm Residence with sheds	Soil and groundwater	TPH and metals	Well maintained houses with accompanying garages and sheds. One property has multiple fuel bowsers and construction vehicles.	M	None
34	Farm Residence with sheds	Soil and groundwater	TPH and metals most likely around sheds with herbicides, pesticides and nutrients around the orchard	Well maintained house and garage with multiple vehicles and trucks present. Small orchard and gas tank present.	L - M	None
35	School and sporting oval	Soil	Metals	Rockbank Primary School. Features present include gas tanks, a skateboard park, a sports oval, synthetic pitches and various buildings.	L	None
36	CFA Depot	Soil	TPH and metals	CFA depot present at the site comprising a single building and shipping container. No other notable features present.	L - M	None
37	Area potentially used for stockpiling materials	Soil	Various	No stockpiles observed during the site inspection. Noted that 2007 imagery suggests a degree of disturbance.	L - M	None
44	Farm residence with sheds and trotting track	Soil	TPH and metals	No visibility from road	L -M	None
45	Farm shed and possible disturbed ground	Soil	TPH and metals	No visibility from road	L - M	None
46	Farm residence with plantation area and sheds	Soil	TPH and metals around sheds with herbicides, pesticides and nutrients around the orchard	No visibility from road	M	None
47	Potential stockpile	Soil	Various	No visibility from road	M	None
48	Farm Residence with sheds	Soil	TPH and metals	No visibility from road	M	None
49	Residence / church	Soil	TPH and metals	Serbian Orthodox Church as well as various sheds with wood stockpiles. All appear well maintained.	L - M	None
50	Farm residence with plantation area	Soil and groundwater	TPH and metals most likely with herbicides, pesticides and nutrients around the orchard	Well maintained house and sheds with an orchard at the rear.	L - M	None
51	Farm residence with plantation area, horse stables and trotting track	Soil and groundwater	TPH and metals most likely with various others associated with stockpiled material. Herbicides, pesticides and nutrients may also be encountered in the orchard	Well maintained house and sheds. The adjacent property to the north has dumped material consisting of metals, soil and building materials as well as an orchard at the rear.	L - M	None
53	Farm Residence with sheds	Soil	TPH and metals most likely with various others associated with stockpiled material	No visibility from road. Aerial imagery suggests stockpiles of building materials and general dumped items across the property. Multiple vehicles also noted.	M	None
54	Farm shed	Soil	TPH and metals	Well maintained shed. No other notable features.	L - M	None
55	Farm Residence with sheds	Soil	TPH and metals	Well maintained house with trucks present. Aerial imagery suggests two sheds are located at the rear of the property, although this could not be confirmed during the site inspection.	L -M	None
60	Farm residence with sheds and trotting track	Soil	Metals and TPH most likely around sheds with various contaminants associated with stockpiling	Well maintained house. Limited visibility of the remainder of the property from the road. Aerial imagery suggests there are a number of sheds also present with limited material stockpiling.	M	None
61	Farm residence with sheds, horse stables and trotting track	Soil	TPH and metals	Stables and pens present with some farm machinery. Stockpile of wood also present.	L - M	None
62	Farm residence with sheds, horse stables and trotting track	Soil	TPH and metals	No visibility from road. Aerial imagery suggests a number of sheds but otherwise no features of note visible.	L - M	None
63	Potential stockpile	Soil	Various associated with stockpiling	No visibility from road. Unclear from aerial imagery what the material might be, but likely tin or timber.	L - M	None
64	Farm sheds with some disturbed soil	Soil	TPH and metals	No visibility from road.	M	None

Property No.	Site Use/Activity	Potentially Contaminated Medium	Potential Contaminants of Concern	Findings of Site Inspection	Potential Contamination Risk	Further Site Specific Assessment *
65	Farm shed	Soil	Herbicides, insecticides and fungicides	Animal pen present.	L - M	None
66	Farm residence / stock feed depot	Soil and groundwater	Various associated with stockpiling as well as Insecticides, fungicides and herbicides around the stockyard.	Barastoc Stock Feed depot. Warehouse present with forklifts and gas tanks. Multiple large silos also present. While not visible from the road aerial imagery suggests various stockpiles of material at the rear of some of the sheds. Possible stockyard also visible from the imagery.	M	None
67	Farm Residence with sheds	Soil	Various associated with stockpiling	Well maintained house and sheds. Large gas tank in yard. Aerial imagery suggests multiple vehicles and boats at the rear of the property with some limited dumped material (unknown nature).	L - M	None
68	Farm residence with industrial type sheds and storage dams	Soil and groundwater	Metals most likely with herbicides, nutrients and pesticides around the polytunnels. Insecticides, fungicides and herbicides may also be present around the stockyard.	Residence with sheds as well as stockpile of wood, bricks and boulders. Polytunnels also present although only partially constructed. Old stockyard also located on site.	M	None
69	Farm residence with sheds and trotting track	Soil	Metals as well as nutrients associated with stables and horse yards.	Well maintained house with stables and horse yards present. No other notable features present.	L - M	None
70	Potential stockyard structure	Soil and groundwater	Herbicides, insecticides and fungicides	Old stockyard present.	L - M	None
71	Farm shed with plantation	Soil and groundwater	TPH and metals most likely as well as nutrients, herbicides and pesticides associated with the plantation	Shed present on site. Very limited visibility beyond. Imagery suggests a plantation is present.	L - M	None
72	Farm Residence with sheds	Soil and groundwater	TPH and metals most likely but various others associated with stockpiling	Old run down house and shed. Frequent dumped material including tyres, wood and soil. Farm machinery also present. Limited visibility of the rear of the property although imagery suggests further dumped material as well as animal pens and various sheds. Possible tanks present on site	M	None
73	Disturbed soils and dumped material	Soil	TPH and metals most likely but various others associated with stockpiling	No visibility from road however aerial imagery suggests very frequent dumped material across the entire area. Abandoned vehicles, timber and other miscellaneous materials noted. Generally very poor housekeeping.	M - H	Limited Phase 2 assessment focussing on potential shallow soil contamination associated with dumped waste material.
74	Orchard / plantation	Soil and groundwater	Pesticides, herbicides and nutrients	No visibility from road.	L - M	None
75	Orchard / plantation	Soil and groundwater	Pesticides, herbicides and nutrients	Plantation present with some soil stockpiles near the road.	L - M	None
76	Farm Residence with sheds	Soil	TPH and metals around farm sheds with various potential contaminants associated with stockpiling	Well maintained house and sheds. Multiple trucks present at the site as well as stockpiles of rock. Although not visible during the inspection, imagery suggests further stockpiled materials to the rear of the property although the nature of this material is unclear.	L - M	None
77	New farm residence	Soil	Metals	New houses with some stockpiles of rocks around the property. Limited visibility from the road.	L	None
78	Farm shed and stockpiles	Soil	TPH and metals around farm sheds with various potential contaminants associated with stockpiling	No visibility from road. However, aerial imagery suggests frequent dumped material across the western half of the area. Multiple vehicles also present.	M	None
79	New farm residence	Soil	Metals	New house with limited visibility from road	L	None
80	Farm Residence with trotting track, sheds and some areas of disturbed soil	Soil	TPH and metals around farm sheds, insecticides, pesticides and herbicides around animal pens with various potential contaminants associated with stockpiling	Well maintained house and sheds with some farm machinery present. Stockpiles of bricks also noted. Possible animal pens present at the site although visibility is otherwise limited.	M	None
81	Industrial type farming sheds (likely broiler farm)	Soil and groundwater	TPH, metals, nutrients and biological	Farm sheds in a dilapidated condition. Fuel storage tank noted on site as well as feed silos. Site probably used as a broiler farm or former broiler farm. Horse stables also present as well as dumped material in yard.	M	None
82	Farm Residence with sheds	Soil	TPH and metals	Farm residence with a shed to the rear. Skip bins noted on site containing probable tiles and ceramics.	L	None
83	Orchard / plantation	Soil and groundwater	Pesticides, herbicides and nutrients	Small orchard with stockpiles or rock in the field.	L - M	None
84	Orchard / plantation	Soil and groundwater	Pesticides, herbicides and nutrients	Small orchard	L - M	None

Property No.	Site Use/Activity	Potentially Contaminated Medium	Potential Contaminants of Concern	Findings of Site Inspection	Potential Contamination Risk	Further Site Specific Assessment *
85	Farm Residence with sheds	Soil	Metals most likely with potential additional contaminants associated with fill material	Well maintained house with dumped material consisting of rocks, brick, wood pallets and soil to the rear of the property.	**L - M**	None
86	Farm sheds with horse stables	Soil	TPH and metals	Run down sheds and house. Limited visibility of the remainder of the site although aerial imagery suggests further dilapidated buildings to the north of the site.	**L - M**	None
87	Farm Residence with sheds	Soil	TPH and metals	Well maintained house and sheds. A stockpile of wood is noted as well as some car bodies. Multiple farming vehicles also located on site.	**L - M**	None
88	Potential stockyard structure	Soil and groundwater	Herbicides, fungicides and insecticides	Old stockyard present.	**L - M**	None
89	Farm Residence with sheds	Soil	TPH and metals	Well maintained house and sheds. No other notable features at the site.	**L**	None
90	Farm Residence with sheds	Soil	TPH and metals with possible nutrients, biologicals, herbicides, fungicides and insecticides around pens.	Dilapidated stone sheds. Limited visibility, but aerial imagery suggests animal pens to the east of the building.	**L - M**	None
95	Farm shed	Soil and groundwater	TPH and metals most likely around sheds with herbicides insecticides and fungicides around stockyards	Old stockyard and sheds.	**L - M**	None
96	Farm Residence with sheds	Soil and groundwater	TPH and metals most likely around sheds, herbicides insecticides and fungicides around stockyards with various others associated with stockpiling	Well maintained house and sheds. A gas tank is present on site. Although not visible during the inspection, aerial imagery suggests stockpiling of soil to the north of the property and a potential stockyard structure.	**M**	None
97	Residence	Soil	Metals	Well maintained house and sheds. Poor visibility although a stockpile of gravel adjacent to property is noted. Aerial imagery suggests no other notable features.	**VL**	None
98	Farm sheds	Soil	TPH and metals	Sheds and garage present with multiple vehicles present. View beyond obstructed with imagery suggesting further small sheds and possible animal pens.	**L - M**	None
99	Farm Residence with sheds	Soil	TPH and metals most likely but various others associated with stockpiling	Well maintained house and sheds. Site used by MSZ Tree Lopping and Stump Removal. Wood stockpiles observed. Visibility beyond the main house obstructed, although aerial imagery suggests further sheds, and stockpiles (unknown material) as well as vehicles and animal sheds.	**M**	None
100	Farm shed	Soil	TPH and metals	Well maintained house although limited visibility from road. Imagery suggests sheds present with the largest partially damaged. Animal pens also noted.	**L - M**	None
101	Sheds with disturbed soil and potentially stockpiled soils / other materials	Soil and surface water (farm dam)	TPH and metals most likely but various others associated with stockpiling	Limited visibility from the road as obstructed by residence. Imagery suggests the area is occupied by frequent dumped materials (unknown in nature) as well as car bodies. Multiple sheds present and animal pens. Generally very poor housekeeping. Property may be associated with the adjacent site also reporting poor housekeeping (refer property number 73).	**M - H**	Limited Phase 2 assessment focussing on potential shallow soil contamination associated with dumped waste material.
102	Farm Residence with sheds	Soil	Metals	Residence with wood stockpile present.	**L**	None
125	Area immediately adjacent rail line - potential historical use of fill material and pesticides	Soil	Various associated with fill material	Railway alignment with no features of note present other than typical railway infrastructure. Rockbank railway station is present.	**M**	None

Notes:

TPH – Total Petroleum Hydrocarbons

Nutrients – Ammonia, nitrate, nitrite, phosphate

*Note this excludes further broad-acre sampling recommended to assess potential soil contamination resulting from the historic uses of agricultural chemicals across farmland in general. Such an assessment would not target individual properties; rather representative samples would be collected across the wider extent of the PSP study area. Refer to **Section 9** for further details.

7.1.2 Potential off-site sources of contamination

Sites located out-with the PSP study area boundary were also considered during the Stage 1 assessment in order to identify any potentially contaminative land uses that may impact upon the future uses of land within the PSP study area itself. Off-site sources identified in the vicinity of the PSP area are summarised in **Table 7.2** and illustrated on **Figure 7A** to **Figure 7C**. Sites listed in this table were inspected during the Stage 2 assessment based on their proximity to the PSP area and the land use.

The sites located outside of the Rockbank PSP area with the highest risk rankings were properties 113 and 117, both allocated a risk ranking of low to moderate. These sites are farms with associated residences located to the south of the PSP boundary. A number of storage tanks (contents unknown) were reported at each of these properties therefore presenting a potential risk to groundwater. The PSP site is down hydraulic gradient of these sites (based on the findings of the audit report reviewed in Section 6.3.2) and therefore any migration of contaminants may encroach upon the study area. By the same token the BP service station located to the north-east of the study area (property number 38) has been allocated a risk ranking of low. Despite the likely presence of multiple underground fuel tanks, this site lies down hydraulic gradient of the PSP boundary and as such any contaminants entering groundwater will likely migrate away from the PSP study area.

The remaining off-site properties assessed generally comprised small farms which, based on their proximity to the PSP as well as the nature of the operations observed at these sites were considered to present either a low or very low potential for contamination of the PSP study area.

In relation to potential odour issues and constraints on development, two key off-site properties were also identified. Properties 38 (BP Petrol Station), approximately 150m away from the NE site boundary and property 93 (Nevas Chicken Farm) approximately 450m away from the SW boundary were identified. The impact of odours (if any) from the two offsite sources should be assessed prior to any development within the PSP Area.

Table 7.2 : Summary of potential off site sources of contamination

Property No.	Site Use/Activity	Potentially Contaminated Medium	Potential Contaminants of Concern	Findings of Site Inspection	Potential Contamination Risk	Further Site Specific Assessment
Rockbank PSP Area						
1	Farm Residence with trotting track, sheds and some areas of disturbed soil	Soil and groundwater	TPH and metals most likely around sheds. Herbicides, insecticides and fungicides around the stockyard with various other contaminants associated with stockpiling.	Abandoned building, very run down. Old stockyard present. Area used as a dumping ground for metal and wood.	**L**	None
2	Farm shed	Soil and groundwater	TPH and metals	Well maintained shed with an old stockyard present. Dumping ground for dead trees and soil.	**L**	None
3	Farm Residence with sheds	Soil and groundwater	TPH and metals	Could not view from the road. Aerial imagery suggests above ground storage tanks present. Contents unknown.	**VL**	None
11	Farm Residence with sheds	Soil and groundwater	TPH and metals most likely around buildings with various potential contaminants associated with stockpiling	Various properties including farm buildings and residences. Large tanks also present, likely water tanks. Multiple trucks present as well as pens and stockpiles of soil, gravel and rocks. Dumped material (mostly timber) also present.	**L**	None
19	Former residential area	Soil	Metals	Site now occupied by the Leakes Road/Western Freeway In Ramp and farmland. Former residential premises have been demolished.	**VL**	None
38	BP service station and McDonalds roadside complex	Soil and groundwater	TPH and metals	Service station and McDonalds restaurant. Multiple pumps present. Site appears to be relatively new with no notable housekeeping issues observed.	**L**	None
39	Farm Residence with sheds	Soil	Metals and TPH most likely around sheds with various other contaminants associated with stockpiling	Well maintained house and multiple large garages. Limited visibility from the road, particularly of the northern extent of the property where imagery suggests stockpiling.	**VL**	None
40	Farm Residence with sheds	Soil and groundwater	Metals with herbicides, pesticides and nutrients around the orchard	Well maintained house and garage with a small orchard.	**L**	None
41	Farm sheds with disturbed soil and cattle / horse yards	Soil	TPH and metals most likely with nutrients around horse stabling.	No visibility from road	**VL**	None
42	Farm Residence with sheds	Soil	TPH and metals	No visibility from road	**VL**	None
43	Farm Residence with sheds	Soil	TPH and metals most likely with various others associated with stockpiled material	Well maintained house and garage. Farm machinery present. Imagery suggests some stockpiling towards the rear of the property, although no visibility during inspection.	**L**	None
52	Farm Residence with sheds	Soil	TPH and metals most likely with various others associated with stockpiled material	Well maintained house and shed. Multiple soil stockpiles in the adjoining paddock to the north.	**L**	None
56	Farm shed	Soil	TPH and metals	Well maintained shed with no other features of note other than what appears to be a water tank.	**VL**	None
57	Potential stockpile	Soil	N/A	Wood stockpile. Limited visibility from road.	**VL**	None
58	Farm Residence with sheds	Soil and groundwater	TPH and metals most likely around sheds, nutrients, pesticides and herbicides around orchards and herbicides, insecticides and fungicides around the stockyard.	Orchard with some sheds. An old stockyard also present.	**VL**	None
59	Farm Residence with sheds	Soil	Metals	Well maintained house. No other features of note visible from the road.	**VL**	None
91	Farm Residence with sheds	Soil and groundwater	TPH and metals most likely around sheds with herbicides, pesticides and nutrients around the orchard	Well maintained house and small shed. Water tanks in the garden and a small orchard. Otherwise no notable features.	**L**	None
92	Sheds and stables	Soil and groundwater	TPH, metals, nutrients and biological most likely around sheds and stables with various others associated with stockpiling	Stables present on site as well as multiple animal pens. These are in varying conditions. Farm machinery and excavators present on site. Miscellaneous tanks present, possibly water but unconfirmed. Dumped material (building rubble) observed. Although not visible during the inspection, further deposited material (unknown nature) also present towards the north of the site.	**L**	None
93	Broiler farm	Soil and groundwater	TPH, metals, nutrients and biological	Nevas Chicken Farm present at the site. Very limited visibility but aerial imagery suggests the facility is relatively new. Possible gas tank located at the front entrance as well as water storage.	**L**	None
94	Farm Residence with sheds	Soil	TPH and metals	Nevas Chicken Farm. Residence with a small machinery shed.	**VL**	None
103	Farm Residence with sheds	Soil	TPH and metals most likely with various others associated with stockpiling	Well maintained house and sheds with a metal stockpile adjacent to the property. Visibility beyond the property is limited by imagery suggests further sheds and some material stockpiling, although unknown in nature.	**VL**	None

Property No.	Site Use/Activity	Potentially Contaminated Medium	Potential Contaminants of Concern	Findings of Site Inspection	Potential Contamination Risk	Further Site Specific Assessment
104	Farm sheds with disturbed soil	Soil and groundwater	TPH and metals most likely around sheds, herbicides insecticides and fungicides around stockyards with various others associated with stockpiling	Stockpiles of wood and other dumped materials present on site including metal. A stockyard is also present as well as dilapidated sheds.	VL	None
105	Horse stables	Soil	Nutrients and biological	Horse stables present. No other notable features evident.	VL	None
106	Farm Residence with sheds	Soil	TPH and metals	Well maintained house and sheds. No other notable features present.	VL	None
107	Farm Residence with sheds	Soil and groundwater	TPH and metals most likely with various others associated with stockpiling	Well maintained house and sheds. Some farm machinery noted at the site including a tank (possibly water). Stockpiles of soil and wood noted in the adjacent field.	L	None
108	Potential stockyard structure	Soil and groundwater	Herbicides insecticides and fungicides	Stockyard present and still appears active.	L	None
109	Farm Residence with sheds	Soil	TPH and metals	Well maintained house and sheds with no other notable features present.	VL	None
110	Farm Residence with sheds	Soil and groundwater	TPH and metals	Potential resort. Limited visibility of the property. Adjacent western yard contains dumped vehicles while the adjacent eastern yard has plantation.	L	None
111	Farm Residence with sheds	Soil	TPH and metals	Well maintained house and sheds with a gas tank present. No other notable features present.	VL	None
112	Farm Residence with sheds	Soil	Metals	Tennis courts present on the site as well as an access track. Appears to be a partially completed residential property with no other features of note.	VL	None
113	Farm Residence with significant number of sheds and disturbed soil	Soil and groundwater	TPH and metals most likely around sheds, herbicides insecticides and fungicides around stockyards with various others associated with stockpiling	Property with multiple sheds and miscellaneous structures including stables. A stockyard is also present. Stockpile of soil, wood and compost were observed although visibility towards the south of the site was obstructed. Aerial imagery suggests further dumped material (unknown in nature) as well as animal pens and further sheds. Multiple vehicles and tanks present at the site, although unclear what these contain.	L - M	None
114	Farm Residence with sheds	Soil and groundwater	TPH and metals most likely with various others associated with stockpiling	Munic Boy Lodge. Well maintained house and sheds. Stockpiles of brick, gravel and wood present. No visibility of the southern extent of the site although imagery suggests sheds with storage tanks present (contents unknown).	L	None
115	Horse stables	Soil	Nutrients and biological	Stables present at the site with no other notable features.	VL	None
116	Horse stables	Soil	Nutrients and biological	Stables present at the site with no other notable features.	VL	None
117	Farm Residence with sheds and storage tanks	Soil and groundwater	TPH and metals	Multiple fuel storage tanks and gas tanks. Also present is farm machinery and trucks. Abandoned vehicles are also present. Multiple silos also present on the site. Dumped material noted includes pallets, tyres, broken machinery and car batteries.	L - M	None
118	Horse stables	Soil	Nutrients and biological	Stables present at the site with no other notable features.	VL	None
119	Farm Residence with sheds	Soil	TPH and metals	Well maintained house with a dilapidated shed. High fence provides low visibility.	L	None
120	Farm Residence with sheds	Soil	Metals most likely with various others associated with stockpiles	Semi constructed building with stockpiles of soil in the field.	VL	None
121	Farm Residence with sheds	Soil	TPH and metals most likely around sheds with herbicides, pesticides and nutrients around the orchard	Well maintained house and sheds with some farm machinery present. Stockpile of wood noted as well as a small orchard. No other notable features observed.	L	None
122	Farm sheds with large plantation areas	Soil and groundwater	TPH and metals most likely with various others associated with stockpiles	Di Nicca Transport occupies the site. Stockpiles of rocks and soil observed as well as an orchard to the south of the property. Aerial imagery suggests dilapidated buildings also present on site.	VL	None
123	Farm Residence with sheds	Soil	TPH and metals most likely with various others associated with stockpiles	House and various sheds located at the site. Some stockpiling around the premises is noted in imagery including wood and metal observed during the inspection.	VL	None
124	Shed	Soil	Metals	Semi constructed shed with hay bales present. No other notable features.	VL	None

Notes:

TPH – Total Petroleum Hydrocarbons

Nutrients – Ammonia, nitrate, nitrite, phosphate

7.1.3 Potential receptors of contamination

Potential receptors of contamination (should any exist) at or near the site include:

- site workers at the site
- residents at the site
- future construction workers at the site
- visitors to the site
- underground utilities located on and around the site (including easements)
- surrounding residents and occupants and visitors (via windblown contamination during excavation works)
- sensitive land based ecosystems on and near the site
- the nearest surface water bodies (including aquatic ecosystems), namely Dry Creek, an unnamed watercourse draining eastwards into Kororoit Creek and a further unnamed watercourse draining into Dry Creek.

7.1.4 Exposure pathways & routes

These potential receptors may be impacted through ingestion, inhalation or dermal contact with potentially contaminated soil (on site) and groundwater (on and off site). Off-site receptors (including humans and aquatic and land based ecosystems) may be impacted through the transport of contamination via a number of pathways such as trenches/conduits containing underground services (from the site to off-site locations), storm water drainage networks, surface drainage via overland flow (runoff), groundwater flow and surface water transport (e.g. to and in the nearest surface water bodies to the site, namely Dry Creek, an unnamed watercourse draining eastwards into Kororoit Creek and a further unnamed watercourse draining into Dry Creek).

7.2 Geotechnical assessment

Based on the available geological information, it is anticipated that the site is underlain by the quaternary aged Newer Volcanics Formation. The upper portion of the basalt profile in this formation (usually up to several metres) is typically weathered to highly reactive residual clay. However, shallow rock can be encountered, and large near surface basalt boulders (known as “floaters” or “corestones”) are often encountered in a clay matrix.

An indicative site classification of Class “H2 to E” is applicable to these conditions in accordance with AS2870-2011 (Residential Slabs and Footings). This classification would depend on the depth, thickness and reactivity of the clay material in this area. The thickness of the residual soil profile in the Newer Volcanics is variable, and it is our experience in this area and with this geological unit that the depth to basalt can vary significantly over relatively short horizontal distances.

Given the previous use of the site, it is considered that areas of fill material may be present. A site classification of Class “P” would apply for such areas where the history of the filling is unknown. A site classification of Class “P” requires that footings be designed on the basis of engineering principles as opposed to the adoption of the standard footing designs presented in AS2870.

The above site classifications are based on regional geological information and are intended for preliminary consideration only. Site specific geotechnical site investigations which may include soil sampling and laboratory testing should be undertaken prior to the design and construction of any footing systems, pavements and associated civil infrastructure as art of any future building permit application.

7.3 Hydrogeological general

Based on the regional hydrogeological information and bore data in the vicinity of the site, the conceptual hydrogeological model for the site is:

- The Rockbank PSP area is located at the northern edge of the Port Phillip Basin, north of the site the Basin is around 100 m thick, south of the site the Basin increases in thickness to around 400 m.
- The main aquifer of the site is the Newer Volcanics regional aquifer. The water table residues within both the fractured rock of Newer Volcanic aquifer and where shallow within the regolith that has formed upon the volcanic.
- Historical GMS water table data recorded levels range between approximately 8.5 and 13.0 meters below natural surface elevation. The Atlas of Groundwater Dependent Ecosystems (BoM, 2012) identifies an area of wetland in the east section of the site as having “high potential for groundwater interaction”, therefore it is likely that the depth to water table in these areas of low elevation would be < 2 m as exist in Deanside wetland directly to the north of site and that a shallower of the water table in the east is likely to occur.
- The 158 registered bores range in depth for from 8.5 – 146 m. The depths of these bores indicate that groundwater extraction is occurring in the Newer Volcanics aquifer, however this fractured basalt aquifer is lightly to have a generally low permeability, providing low bore yields and sluggish groundwater flow.
- Groundwater discharge areas are associated with major drainage lines, geological boundaries and topographic depressions (e.g. wetlands).
- All locations where groundwater is not discharging are potential recharge areas. The basalt aquifer is recharged naturally by direct infiltration of rainfall (through the soil) and downward leakage from surface streams and wetlands that collect surface water.
- Groundwater quality in the regional aquifer can range from 1,000 – 3,500mg/L TDS and is therefore saline. Based on the beneficial use segments defined in the SEPP, the groundwater is suitable for all purposes except potable water use.

8. Development opportunities and constraints

8.1 Site contamination

Based on the information described in this report, there do not appear to be any significant constraints from a site contamination perspective which would render the land unsuitable for any feasible land use. However, there are particular areas which have been identified as having a potentially moderate to high risk of contamination (see **Table 7.1**). It is likely that the identified areas of concern will comprise discrete or localised areas of contamination that can be cost-effectively remediated or managed. These areas will need to be assessed in greater detail through intrusive soil and groundwater sampling before a more robust conclusion regarding the site's suitability for a particular land use can be made. These risks are typically associated with general deposited waste at properties 24, 73 and 101. While these present an aesthetic impact predominantly there is also potential for shallow soil impact in localised areas through leaching processes. The stockpiles/materials themselves appear to be surficial and as such relatively easily removed.

A long history of agricultural land use has been identified within the Rockbank PSP area. The DSE (2005) *Potentially Contaminated Land General Practice Note* recommends that such land undergo detailed Phase (Stage) 1 and 2 environmental site assessments prior to change of land use to a more sensitive receptor. This is based on the potential contamination which may have resulted from such land uses. Therefore, further and more detailed site specific investigations would be required prior to change of land use to accommodate more sensitive end uses.

Subject to the findings of the further assessments identified above (and, if required, the implementation of any remedial measure or ongoing management requirements) the land may then be considered suitable for proposed sensitive end uses.

Alternatively, the Stage 1 and 2 assessments may be completed as part of a statutory Environmental Audit prior to the re-zoning of land to a more sensitive use in accordance with Environment Protection Act 1970. This may be considered a potential constraint due to the time and costs required to complete an Environmental Audit. If an audit results in a Statement of Audit being issued (not a Certificate of Audit), the Statement may also specify a number of site management measures that may constrain future development.

8.2 Geotechnical

The following issues requiring consideration in the planning and design of any development and should be assessed through a geotechnical site investigation.

- The depth and reactivity of the Newer Volcanics residual clay which forms the surface geology across the site would determine the site classification for foundation design. It is expected that the site would be considered highly reactive (Class "H2 to E").
- The variable thickness of the clay horizon over relatively short horizontal distances can lead to differential settlement of structures. As such, a geotechnical investigation is required to assess the depth to rock across the site;
- Excavations in the Newer Volcanics formation can transition abruptly from readily easily excavatable clays into high strength basalt, which may require rock breaking techniques or blasting. In the case of developments requiring excavations, delineation of the soil/rock interface should be assessed;
- Design of roads, drainage works and underground assets would require consideration of the highly reactive nature of the clays to ensure serviceable performance and minimise ongoing maintenance requirements;
- Fill material, which may be present, is expected to be uncontrolled and may not be suitable as a founding material in its current state

8.3 Hydrological

The location of the site at the headwaters of minor drainage lines results in low flood risk across most of the site prior to PSP development. All of the site is situated above the 1% AEP flood level. It is unclear the extent to which the marshes located across the site become inundated in wet weather for runoff events smaller than the 1% AEP flood.

Integrated water cycle management could potentially be utilised to harvest stormwater from the developed area. The existing marsh areas could be utilised to provide temporary stormwater storage. This is likely to have the benefit of reducing flood peaks, as well as improving the quality of stormwater runoff to Kororoit Creek and Dry Creek. The depth of these marsh areas when inundated is unknown, but they appear to be quite shallow and hence the above benefits may be negligible.

8.4 Hydrogeological

Over the majority of the site there does not appear to be any significant hydrogeological constraints which would render the land unsuitable for development. However, within the east of the site it is likely shallow groundwater tables will exists. The following issues would need to be considered however, in the planning and design of any development:

- the shallow watertable may cause groundwater inflow to excavations
- the saline nature of the groundwater may require careful monitoring if dewatering or extraction was required
- decreased local groundwater recharge in winter and early spring has the potential to reduce discharge to nearby surface water features, which could potentially have a negative impact on the ecological health of local waterways.

Opportunities for groundwater use include extraction for garden watering and irrigation of parks and ovals, depending on the precise nature of the salinity of the groundwater and potential to shandy with less saline sources.

8.5 Heritage

A review of the Australian Heritage Database yielded no sites of significance within the Rockbank PSP area and as such there are no significant constraints to future site development in this regard.

9. Conclusion and recommendations

9.1 Conclusions

Site contamination assessment

Based on the information gathered during the Stage 1 & 2 assessments, the following conclusions can be made in relation to the Rockbank PSP area:

- The site history assessment found that the site has a long history of agricultural land uses with much of the areas remaining under cultivation to the present day.
- Based on the available information including a site walkover and site history assessment the following primary potential sources of contamination have been identified:
  - Potentially contamination associated with general dumping/stockpiling across entire areas of land at properties 24, 73 and 101. At these sites potential contamination may not be confined to a single, localised area but instead encountered across the wider extent of these sites to one degree or another.
  - Highly localised areas of potential contamination associated with frequently encountered land uses. These include potential contamination hotspots associated with uses such as stockyards and general farm premises. These hotspots are likely to be localised to areas such fuel tanks, chemical storage areas and similar.
  - Highly localised areas of potential contamination associated with stockpiles and general dumped materials (this excludes the three sites identified above where tipped material was more widespread). In these locations contamination is likely to be localised to stockpiles themselves and in some instances shallow underlying soils.
  - Diffuse but low level sources of contamination associated with the widespread application of agricultural chemicals on farmland as well as orchards and plant nurseries. These chemicals may include pesticides, herbicides, fungicides and fertilizers.
- A number of off-site sources of contamination have been identified in the vicinity of the PSP site. Based on the nature of the site uses as well as the environmental setting of the site (hydrological, hydrogeological and geological conditions), the greatest risk to the Rockbank PSP is presented by two farm premises with multiple tanks present (although the contents are unknown) to the south of the study area (properties 113 and 117). The remaining properties were deemed to present either a low or very low potential for contamination of the PSP area.

Based on the information obtained from the sources described in this report, with the exception of highly localised areas of potential contamination associated with current and/or former land uses identified above, there do not appear to be any significant risks from a site contamination perspective which would render the land unsuitable for residential or other sensitive land uses. Any areas of localised contamination are likely to be able to be effectively managed or remediated during any future site development. However, it should be noted that the site has a long history of agricultural use. While unlikely, it is possible that the broad application of agricultural chemicals may have impacted upon soil at the site.

**In relation to potential odour issues and constraints on development, two key off-site properties were identified. Properties 38 (BP Petrol Station), approximately 150m away from the NE site boundary and property 93 (Nevas Chicken Farm) approximately 450m away from the SW boundary were identified. The impact of odours (if any) from the two offsite sources should be assessed prior to any development within the PSP Area.

Geotechnical assessment

Based on the available geological information, it is anticipated that the site is underlain by highly reactive residual clay overlying basalt rock. An indicative site classification of Class “H2 to E” has been assessed in accordance with Table D1, AS2870-1996.

Key geotechnical issues associated with development of the site include the depth and reactivity of the basaltic clay in terms of its influence on site classification, foundation selection, differential settlement, subgrade performance and excavations. Fill material, if present, is expected to be uncontrolled and may not be suitable for development in its present state. Areas subject to poor drainage may comprise soft material which provides low bearing capacity for foundations.

Hydrology assessment

The PSP area is located in the headwaters of three small drainage lines. These are an unnamed watercourse draining eastward into Kororoit Creek, Dry Creek draining southwards and an unnamed watercourse also draining southwards which drains into Dry Creek downstream of the PSP area. All of the PSP area is situated above the 1% AEP flood level, indicating no major flood risk. The several shallow marshes across the PSP area may provide opportunities for stormwater harvesting in smaller flood events post development.

Hydrogeological assessment

Based on the regional hydrogeological information and bore data in the vicinity of the site, the unconfined aquifer is associated with the Basalt Volcanics.

Over the majority of the site there does not appear to be any significant hydrogeological constraints which would render the land unsuitable for development. However, within the east of the site it is likely shallow groundwater tables will exists. The following issues would need to be considered however, in the planning and design of any development:

- the shallow watertable may cause groundwater inflow to excavations
- the saline nature of the groundwater may require careful monitoring if dewatering or extraction was required
- decreased local groundwater recharge in winter and early spring has the potential to reduce discharge to nearby surface water features, which could potentially have a negative impact on the ecological health of local waterways.

Opportunities for groundwater use include extraction for garden watering and irrigation of parks and ovals, depending on the precise nature of the salinity of the groundwater and potential to shandy with less saline sources.

9.2 Recommendations

We understand that the proposed future use of the site is as a broad ranging urban development and is likely thus to include sensitive uses such as residential and community facilities in addition to open space, retail and a range of business uses such as offices, light industrial and manufacturing. However, since specific future land uses within the PSP boundary are yet to be confirmed, this assessment has been completed based on the assumption that residential or other sensitive uses will be the probable land future uses across the study area.

No general geotechnical or hydrogeological constraints have been identified warranting further investigation at this stage. However, some potential specific issues have been identified in relation to contamination. The following further works are recommended, including recommended timings:

- Assessment of potential contamination associated with the widespread dumping of miscellaneous materials at properties 24, 73 and 101. These sites are likely to present the greatest potential for property-wide contamination issues. This process may be best undertaken through the preparation of a Sampling, Analysis and Quality Plan (SAQP) followed by a Phase 2 Environmental Site Assessment (which may include targeted sampling of soils and groundwater). *Timing: It is recommended that this task be undertaken in the near future. If contamination is identified an environmental audit may be required prior to future development. Completion of these assessments and appreciation of the contaminant regimes in advance of finalising the PSP land uses may also provide an opportunity to nominate those sites for less sensitive commercial/industrial land uses.*

- Odour monitoring / assessment should be undertaken along the PSP boundary opposite off-site properties 38 (BP Petrol Station) and 93 (Nevas Chicken Farm), prior to any development of the PSP area. Odours (if any) emanating from these properties could potentially impact upon future development in the vicinity of these sites. Additionally, if these properties are ever incorporated into a future PSP Area, they should be thoroughly assessed (e.g. via a Phase 2 ESA). *Timing: It is recommended that this task be undertaken to coincide with the cessation or scaling down of current site operations and prior to the commencement of the proposed development and construction works.*
- Further limited assessment of frequently encountered land uses which may present potential hotspots of contamination. Such sites include stockyards and general farm storages. Rather than target each individual property where such features have been identified, it is recommended that a limited number of representative sites are selected from which targeted soil samples are collected around potential point sources of contamination (i.e. fuel tanks or stockyard structures). The results for these targeted locations can then be used to clarify the potential for contamination at similar sites elsewhere within the PSP areas. *Timing: It is recommended that this task be undertaken to coincide with the cessation or scaling down of current site operations and prior to the commencement of the proposed development and construction works.*
- Further limited assessment of the potential for contamination associated with diffuse but low level sources of contamination. Given the long history of agricultural land use within the PSP area and the potential widespread use of agricultural chemicals throughout this period, further limited sampling would provide valuable information as to the true extent and significance of these potential contaminants of concern. Such an investigation may comprise the collection of 10 to 20 soil samples from selected representative fields and orchards across the study area. These samples would be analysed for pesticides, herbicide and nutrients with the results providing an overview of the potential risk associated with these diffuse sources. *Timing: It is recommended that this task be undertaken in the near future owing to the potential implications (albeit unlikely) of widespread contamination associated the widespread application of agricultural chemicals.*
- Further drilling and collection of soil samples for the purposes of assessing the geotechnical soil properties for building foundation and road design. *Timing: This task should be undertaken on a site-by-site basis during future development as part of the building permit application process.*
- Drilling and installation of groundwater monitoring wells to determine the depth to groundwater as well as aquifer hydraulics testing to determine aquifer properties. *Timing: It is recommended that this task be undertaken to coincide with the cessation or scaling down of current site operations and prior to the commencement of the proposed development and construction works.*
- Excavation and removal of underground storage tanks, soil remediation and tank pit validation if USTs are found on properties. *Timing: This task should be undertaken on a site-by-site basis during future site development.*
- Removal of other potentially contaminating infrastructure (e.g. septic tanks and above ground storage tanks) followed by soil validation. *Timing: This task should be undertaken on a site-by-site basis during future site development.*
- Classification and appropriate removal (if required) of various stockpiles and dumped materials observed at numerous sites across the study area. This includes subsequent validation following removal. It is noted that sampling of some stockpiles of soil observed may indicate that the material is suitable for re-use as part of future development and as such removal may not be required in all instances. *Timing: This task should be undertaken on a site-by-site basis during future site development.*

Based on the findings of this report, SKM recommend that in the short-term Phase 2 ESAs be undertaken at properties 24, 73 and 101 prior to determining whether a statutory environmental audit is necessary. If an environmental audit of any of the above sites is required, a period of at least 6 months prior to development should be allowed to progress through the audit process. It is likely that a longer period of time will be required should significant contamination be identified to allow for remediation works.

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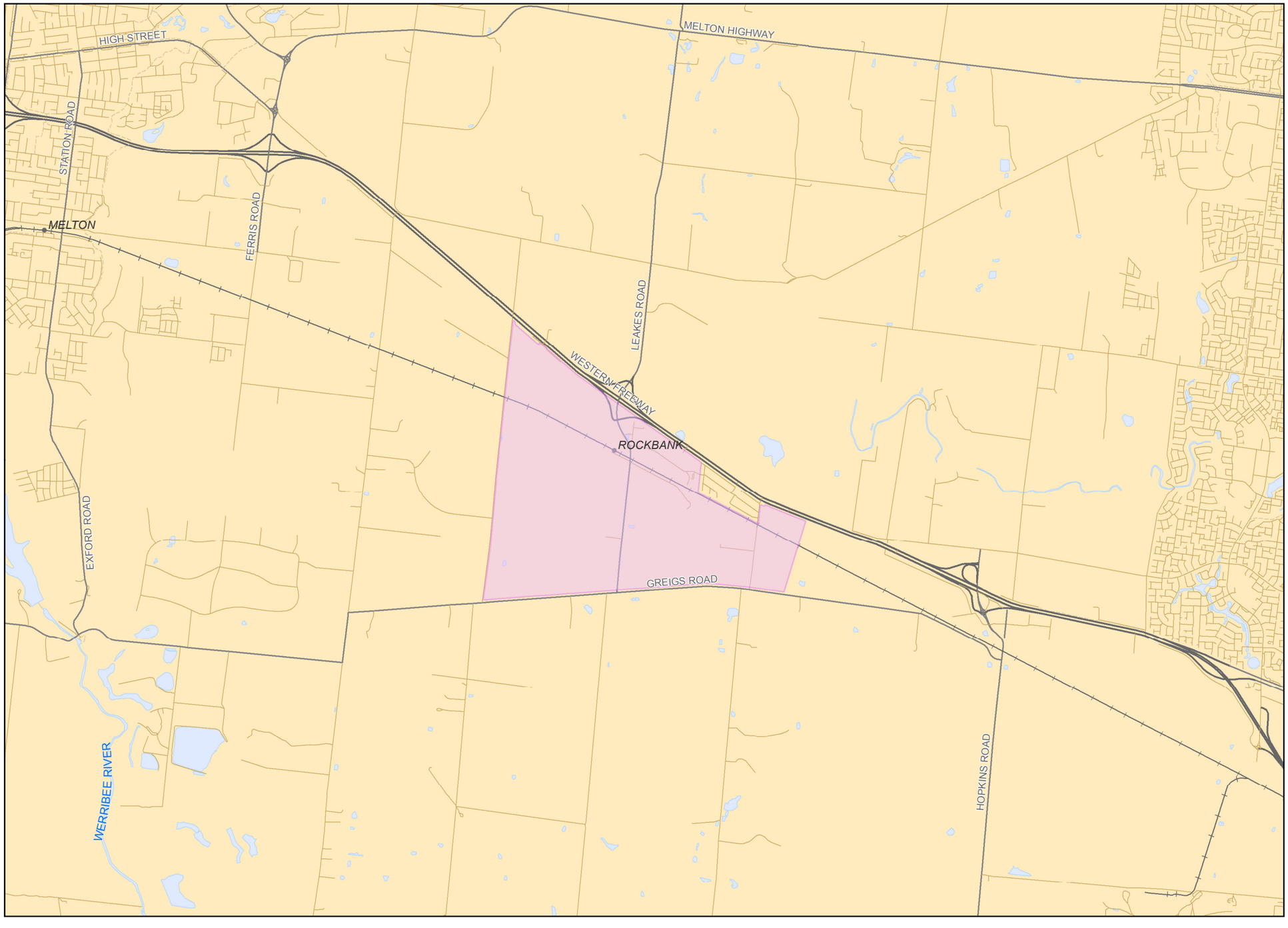
Figures

[Figure 1 - Site Location Plan]



LEGEND

- Precinct Structure Plan Boundary

Infrastructure

- Freeway
- Major Roads
- Local Road
- Walking/Cycling Track
- Railway
- Railway Station

Hydrology

- Watercourse
- Waterbody

NOTES

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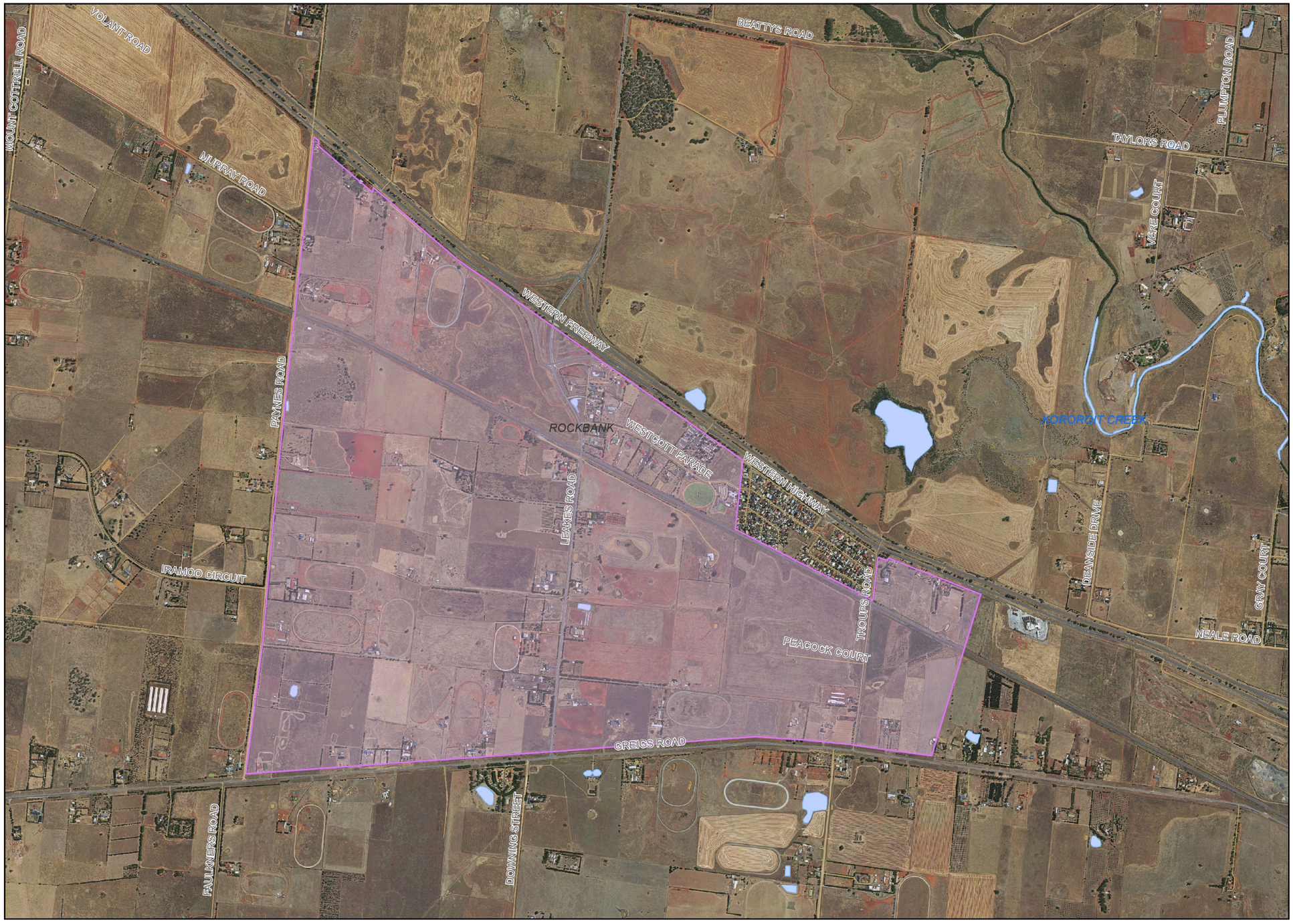
[Figure 2 - Site Layout Plan]



LEGEND

- Precinct Structure Plan Boundary

Infrastructure

- Freeway
- Major Roads
- Local Road
- Walking/Cycling Track
- Railway
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Hydrology

- Watercourse
- Waterbody

NOTES

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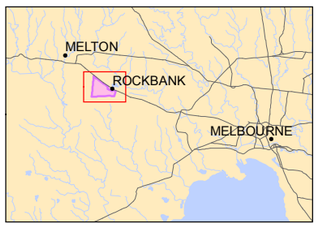
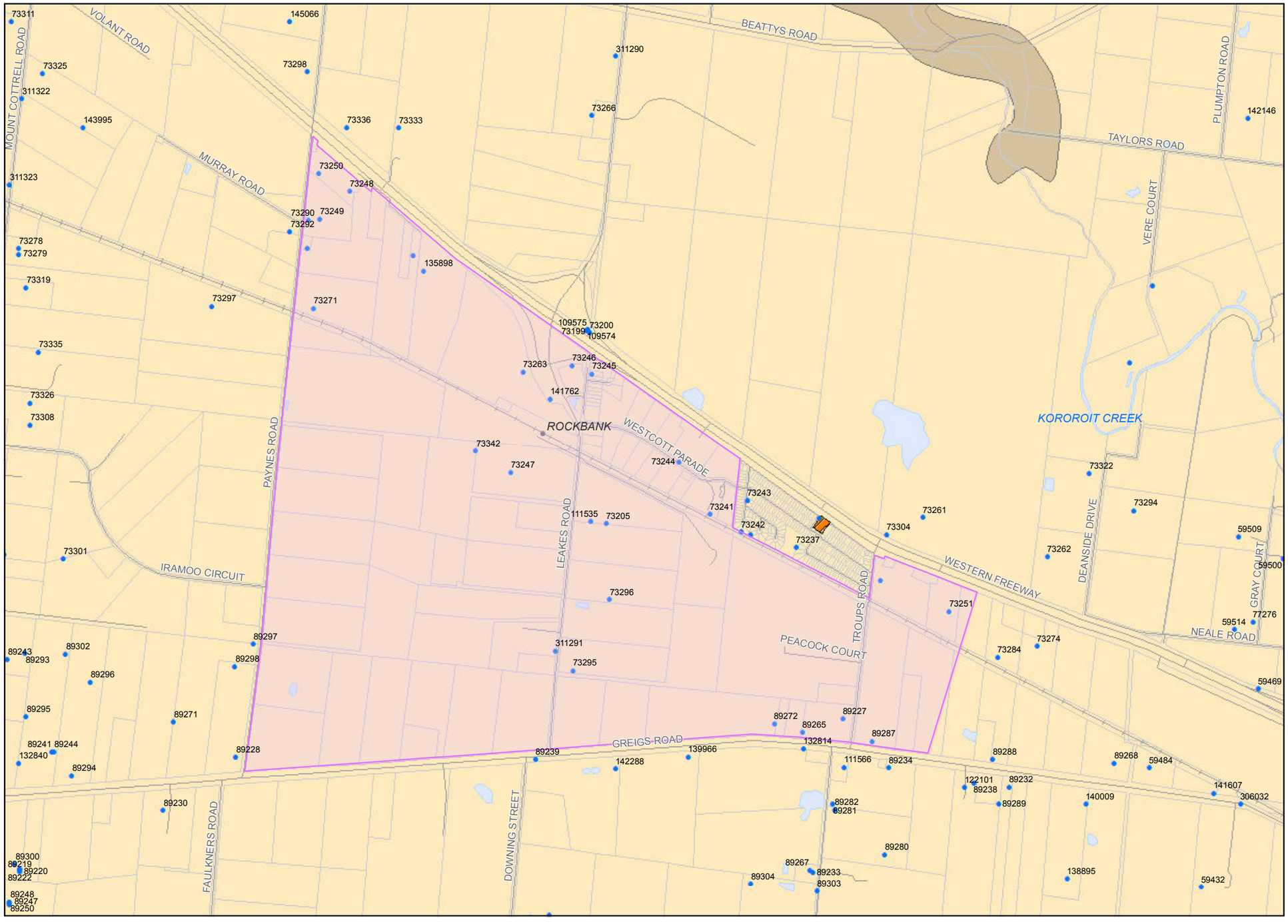


[Figure 3A - Rockbank PSP Site Environmental Setting]



LEGEND

- GMS Bore
- Environmental Audit Site
- Cadastre
- Precinct Structure Plan Boundary

Geology

- Igneous (Extrusive)
- Sedimentary (Non-Marine (Alluvial))

NOTES

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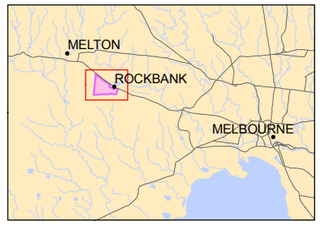

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[Figure 3B - Rockbank PSP Site Wetlands]

LEGEND

- Precinct Structure Plan Boundary
- Cadastre
- Wetland

Infrastructure

- Road
- Railway
- Railway Station

Hydrology

- Watercourse
- Waterbody

NOTES

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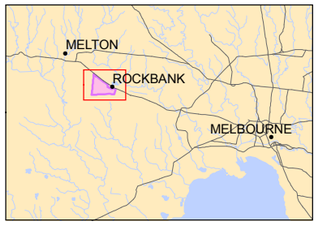
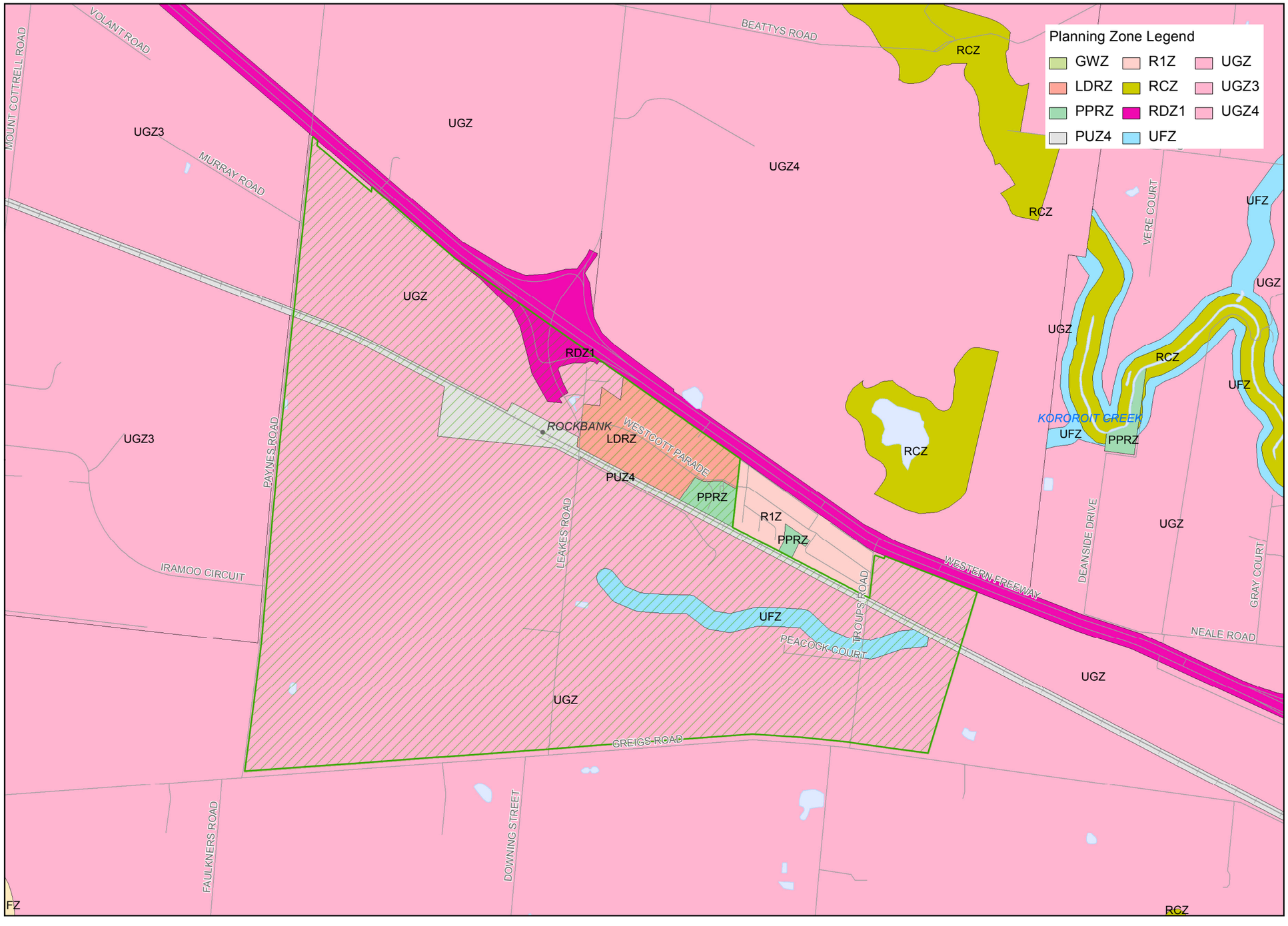


[Figure 4 - Rockbank Planning Zone]



LEGEND

Precinct Structure Plan Boundary

Infrastructure

- Road
- Railway
- Railway Station

Hydrology

- Watercourse
- Waterbody

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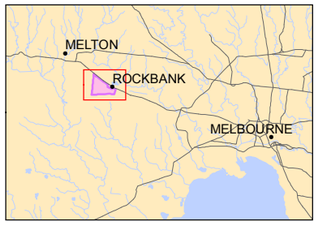

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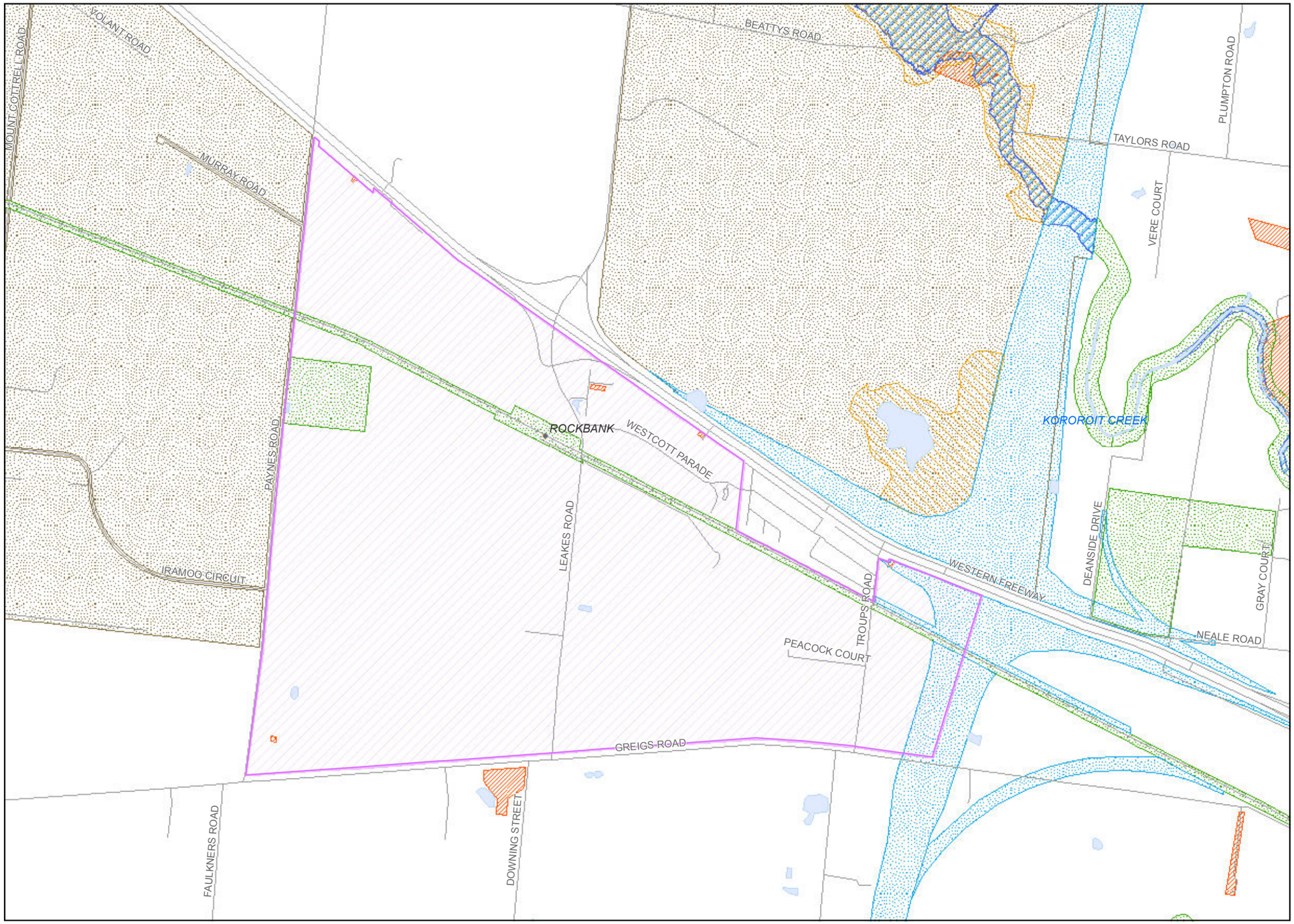
[Figure 5 - Rockbank Planning Overlay]



LEGEND

Precinct Structure Plan Boundary

Planning Overlay

- DCPO
- ESO
- HO
- IPO
- LSIO
- PAO

Infrastructure

- Road
- Railway
- Railway Station

Hydrology

- Watercourse
- Waterbody

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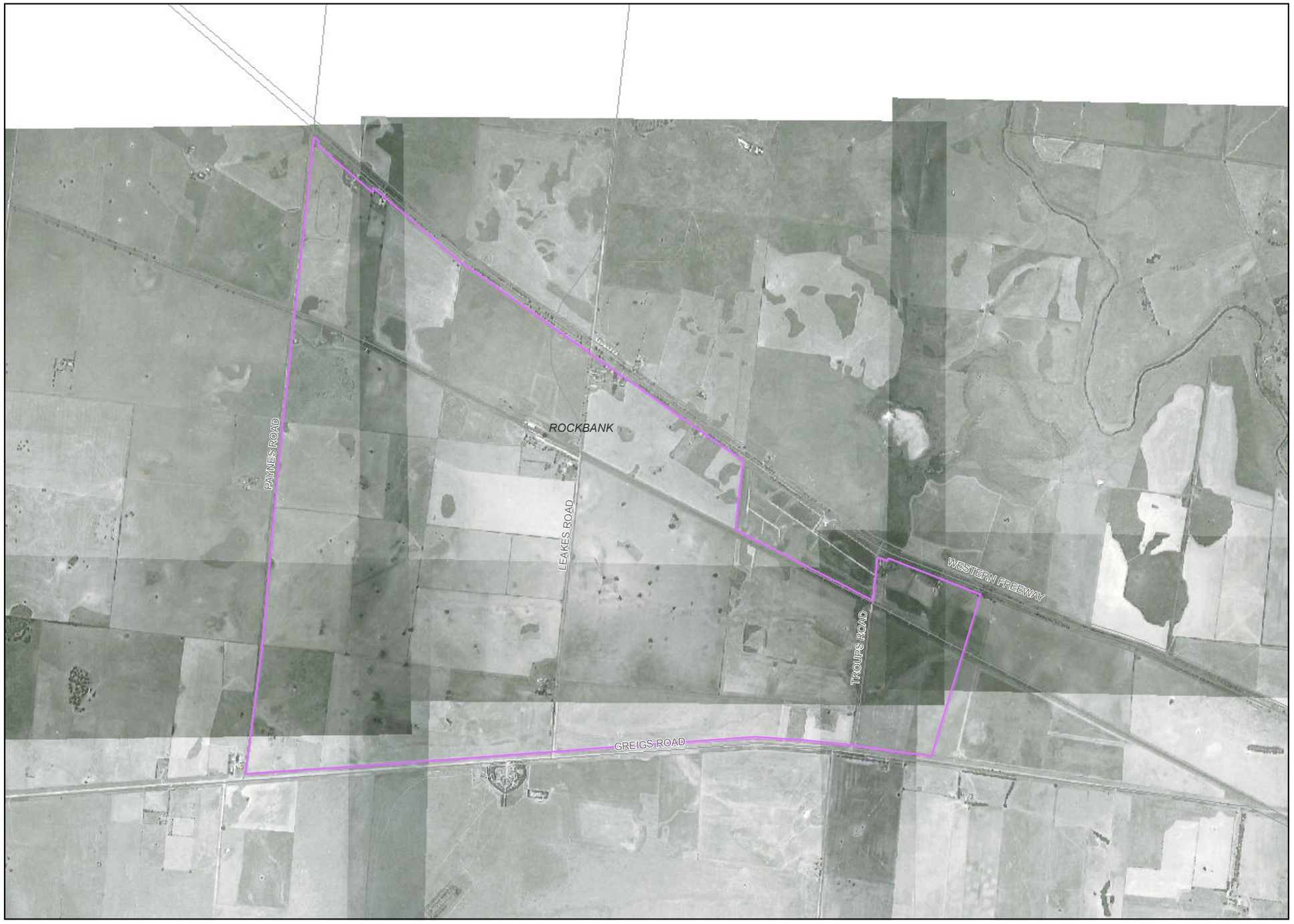
[Figure 6A - Rockbank - 1962]



LEGEND

Precinct Structure Plan Boundary

Infrastructure

Road

Railway

Railway Station

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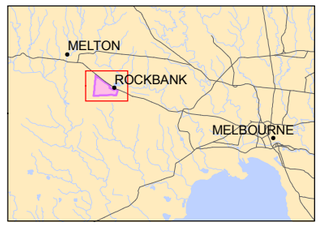

[Figure 6B - Rockbank - 1970]

LEGEND

Precinct Structure Plan Boundary

Infrastructure

Road

Railway

Railway Station

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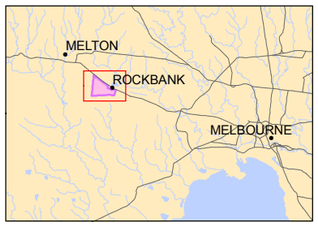

[Figure 6C - Rockbank - 1982]

LEGEND

Precinct Structure Plan Boundary

Infrastructure

Road

Railway

Railway Station

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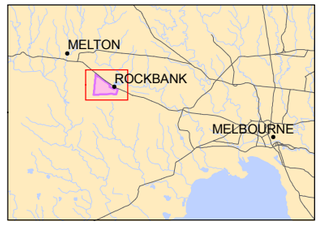

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[Figure 6D - Rockbank - 1991]

LEGEND

Precinct Structure Plan Boundary

Infrastructure

Road

Railway

Railway Station

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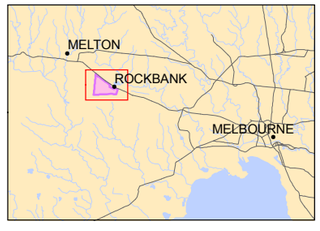

[Figure 6E - Rockbank - 1994]

LEGEND

Precinct Structure Plan Boundary

Infrastructure

- Road
- Railway
- Railway Station

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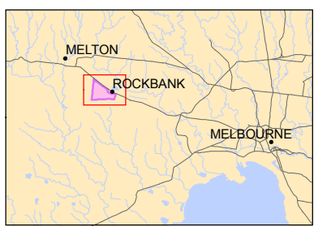

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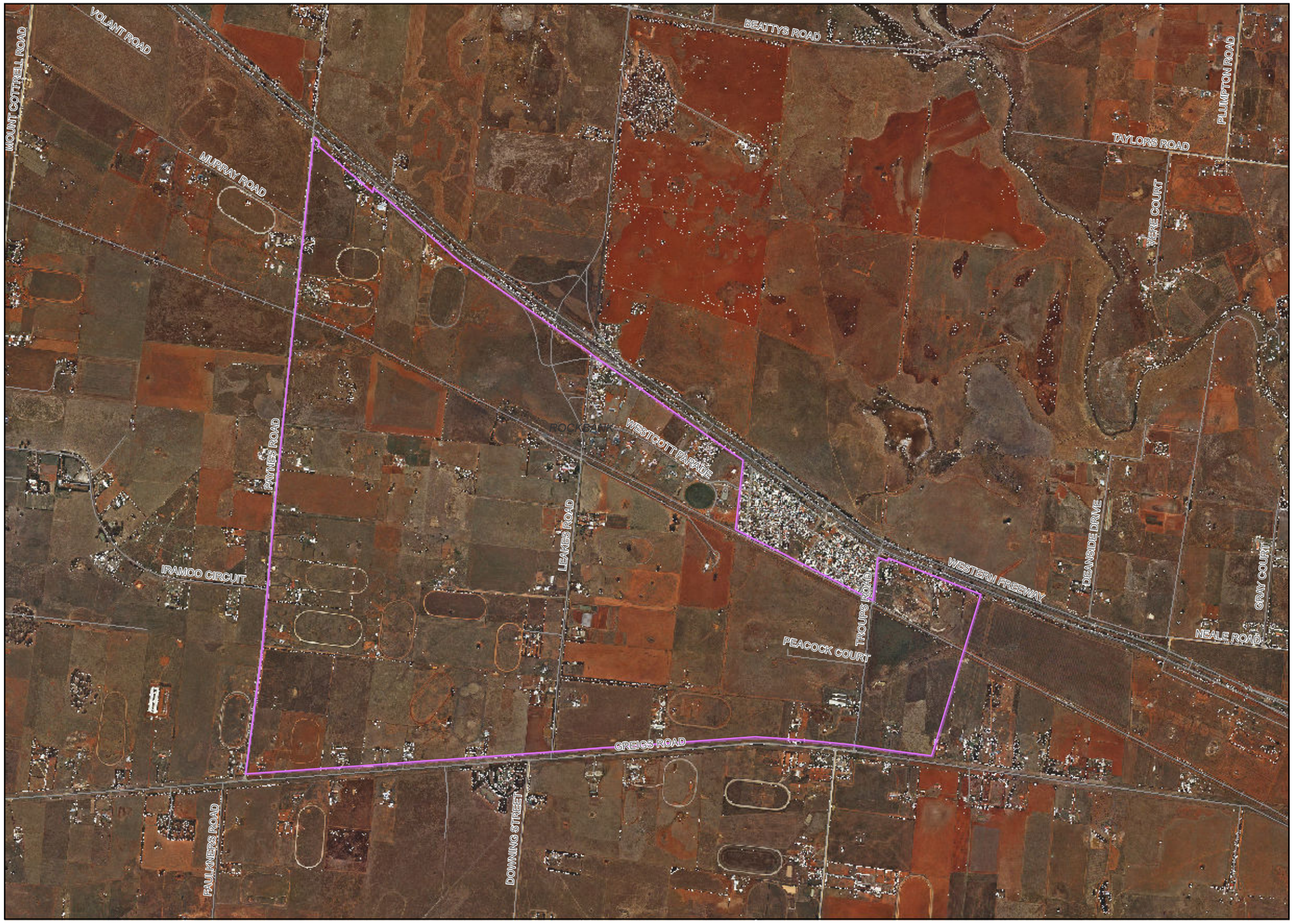
[Figure 6F - Rockbank - 2001]



LEGEND

- Precinct Structure Plan Boundary

Infrastructure

- Road
- Railway
- Railway Station

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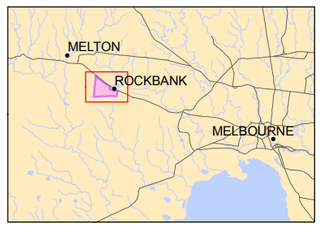

[Figure 6G - Rockbank - 2007]

LEGEND

Precinct Structure Plan Boundary

Infrastructure

- Road
- Railway
- Railway Station

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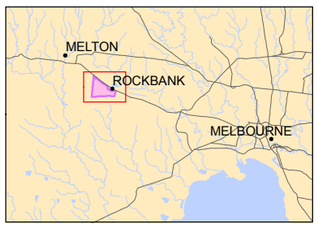

[Figure 6H - Rockbank - 2013]

LEGEND

Precinct Structure Plan Boundary

Infrastructure

- Road
- Railway
- Railway Station

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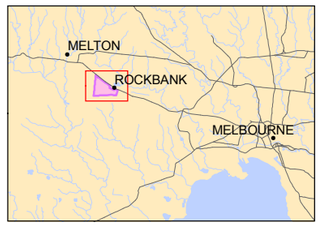
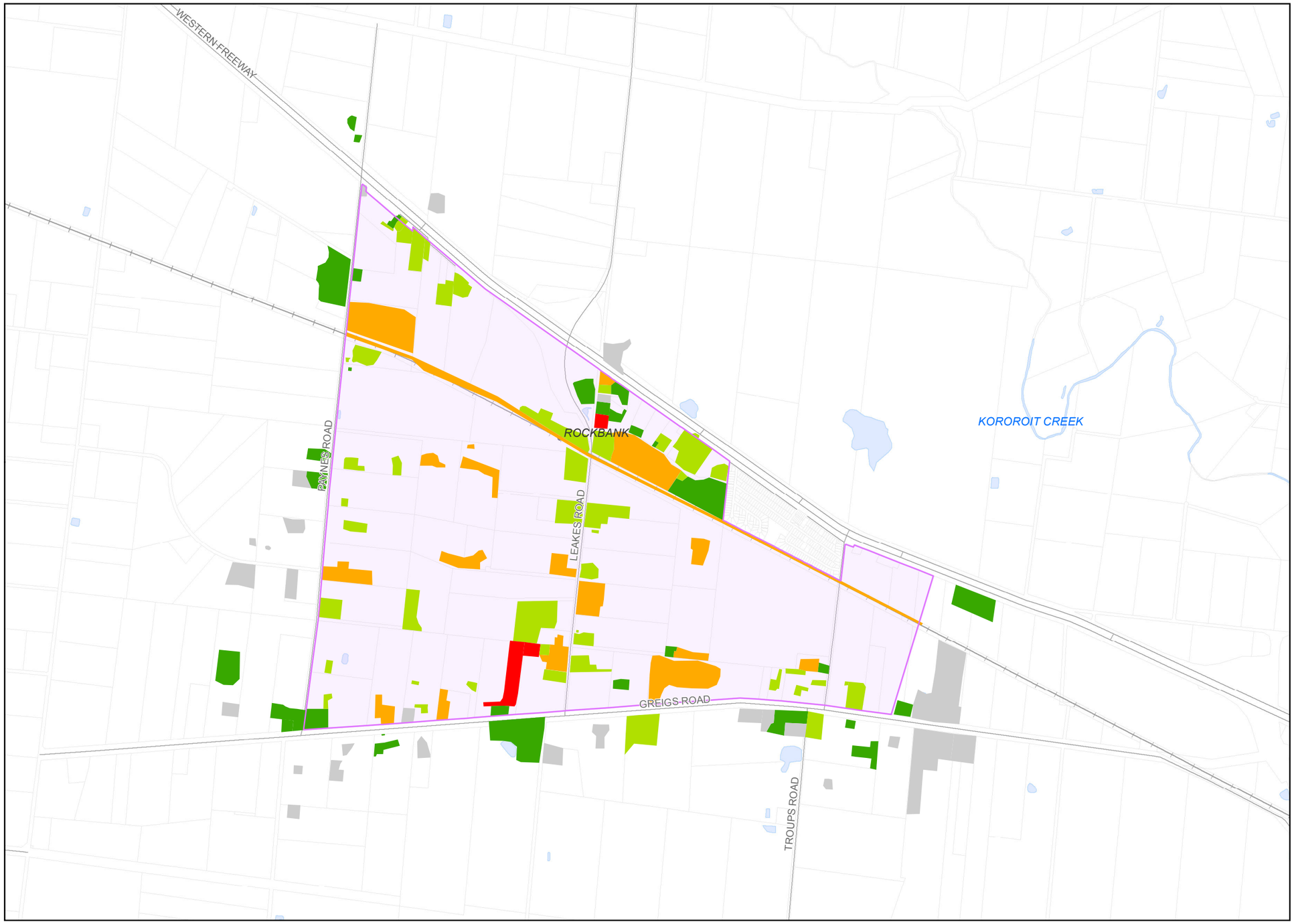


[Figure 7 - Rockbank PSP Site Qualitative Risk Assessment Overview]



LEGEND

Precinct Structure Plan Boundary

Cadastre

Qualitative Risk Rating

M - H

M

L - M

L

VL

Infrastructure

Road

Railway

Railway Station

Hydrology

Watercourse

Waterbody

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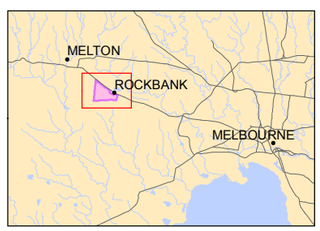

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[Figure 7A - Rockbank PSP Site Qualitative Risk Assessment]

LEGEND

- Precinct Structure Plan Boundary
- Cadastre

Qualitative Risk Rating

- M - H
- M
- L - M
- L
- VL

Infrastructure

- Road
- Railway
- Railway Station

Hydrology

- Watercourse
- Waterbody

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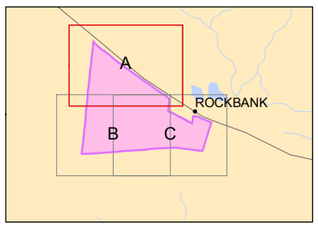

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[Figure 7B - Rockbank PSP Site Qualitative Risk Assessment]

LEGEND

- Precinct Structure Plan Boundary
- Cadastre

Qualitative Risk Rating

- M - H
- M
- L - M
- L
- VL

Infrastructure

- Road
- Railway
- Railway Station

Hydrology

- Watercourse
- Waterbody

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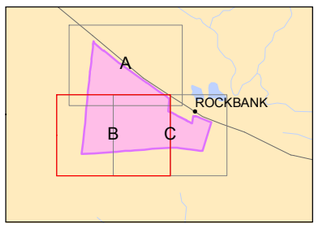

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[Figure 7C - Rockbank PSP Site Qualitative Risk Assessment]

LEGEND

- Precinct Structure Plan Boundary
- Cadastre

Qualitative Risk Rating

- M - H
- M
- L - M
- L
- VL

Infrastructure

- Road
- Railway
- Railway Station

Hydrology

- Watercourse
- Waterbody

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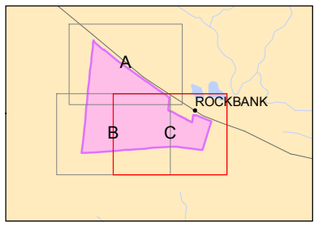

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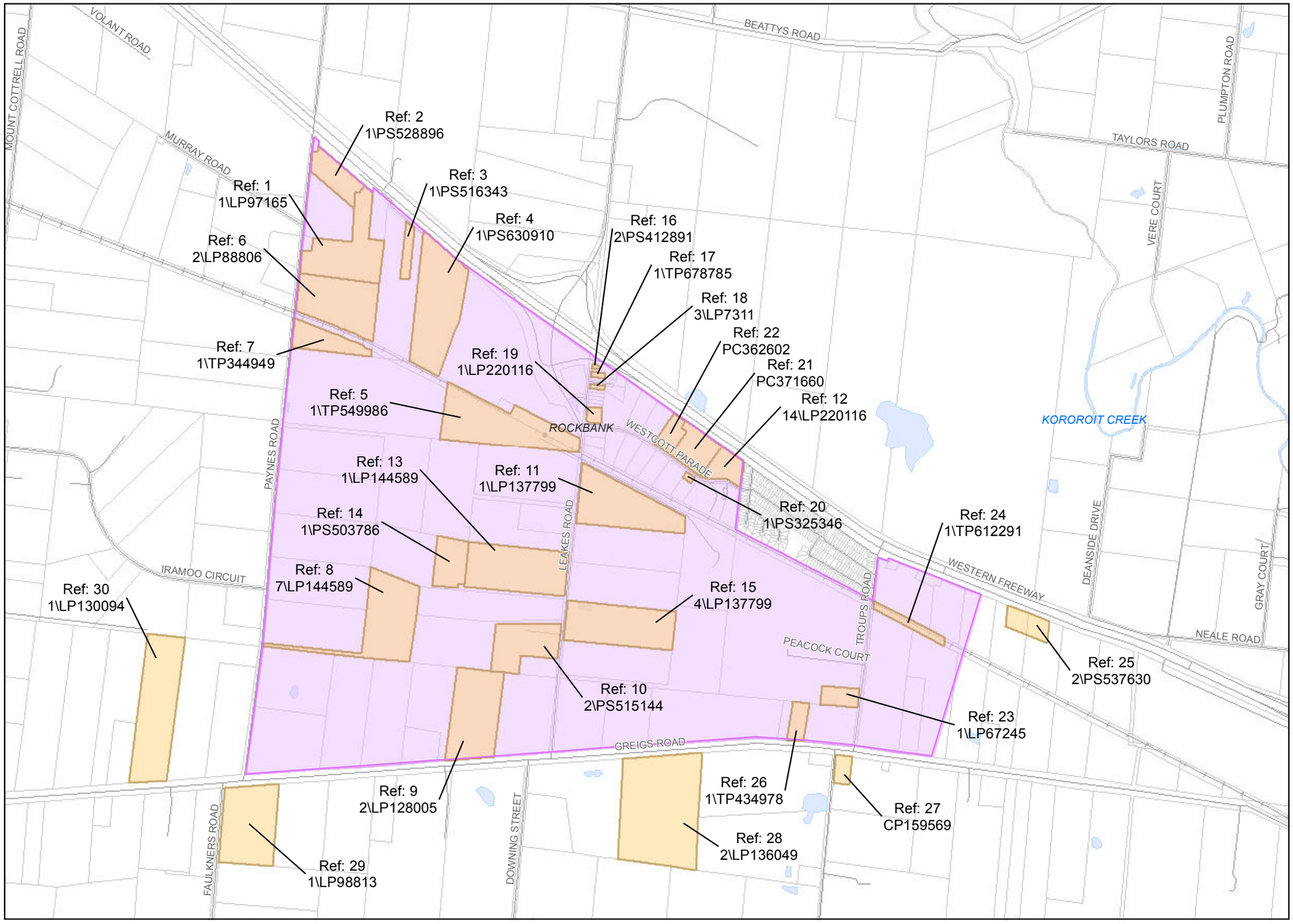
[Figure 8 - Rockbank PSP Current Property Titles]



LEGEND

- Title Information
- Precinct Structure Plan Boundary

Infrastructure

- Road
- Railway
- Railway Station

Hydrology

- Watercourse
- Waterbody

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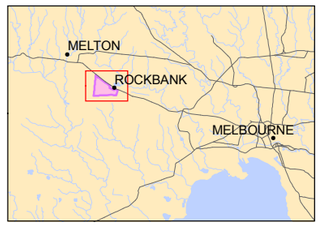

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Appendix A. SEPP information

A.1 Land SEPP

A.1.1 Land use categories

The following land use categories are defined in Clause 9(1) of the Land SEPP:

- *"Sensitive uses: consisting of land used for residential use, a child care centre, pre-school, or primary school. A sensitive use may occur in an area of high density)where development makes maximum use of available land space and there is minimal access to soil) or in Other low density areas (where there is generally substantial access to soil)";*
- *"Agricultural: consisting of rural areas involved in agricultural or horticultural practices"*
- *"Parks and Gardens: consisting of parks and forested area as defined in any Victorian or Commonwealth legislation or subordinate legislation, or any regions designated by the Authority or Department of Natural Resources and Environment"*
- *"Recreation / Open Space: consisting of general open space and public recreation areas";*
- *"Commercial: consisting of a range of commercial and business activities"; and*
- *"Industrial: consisting of utilities and a range of industrial activities".*

We understand that the end use of the site is yet to be determined and may comprise one or more of the above land uses.

A.1.2 Beneficial uses of land to be protected

The Land SEPP (2002) states that the following beneficial uses must be protected for the following land uses:

Table A.1 : Beneficial uses of land

Land Use/ Beneficial Use	**Parks & Reserves**	**Agricultural**	**Sensitive Use**		**Recreation / Open Space**	**Commercial**	**Industrial**
			High Density	***Other***			
Maintenance of Ecosystems							
• *Natural Ecosystems*	✓						
• *Modified Ecosystems*	✓	✓		✓	✓		
• *Highly Modified Ecosystems*		✓	✓	✓	✓	✓	✓
Human Health	✓	✓	✓	✓	✓	✓	✓
Buildings and Structures	✓	✓	✓	✓	✓	✓	✓
Aesthetics	✓		✓	✓	✓	✓	
Production of food, flora & fibre	✓	✓		✓			

A.2 Groundwater SEPP

A.2.1 Beneficial uses of groundwater to be protected

Table A.2 : Beneficial uses of groundwater

	Segment (TDS)				
Segment / Beneficial Use	**Segment A1 (0-500 mg//L)**	**Segment A2 (501-1000 mg//L)**	**Segment B (1001-3500 mg//L)**	**Segment C (3501-13000 mg/L)**	**Segment D (> 13,000 mg/L)**
Maintenance of Ecosystems	✓	✓	✓	✓	✓
Potable Water Supply					
a) Desirable	✓				
b) Acceptable		✓			
Potable Mineral Water Supply	✓	✓	✓		
Agricultural, parks & gardens	✓	✓	✓		
Stock Watering	✓	✓	✓	✓	
Industrial Water Use	✓	✓	✓	✓	✓
Primary Contact Recreation	✓	✓	✓	✓	
Buildings and Structures	✓	✓	✓	✓	✓

Appendix B. Certificate of Title information

B.1 Summary of Title information

Refer to **Figure 8** for land parcel locations.

Parcel	No.	SKM Ref	Volume Folio	Registered Proprietors	Date	Status
1\LP97165	1	2	V.8966 F.832	Maria Borg	19.09.2003	History
				Charles & Maria Borg	23.08.2000	History
				Nancy & Peter Iverseb (Wharf Labourer)	23.08.1978	History
				Ethel Peacock	04.11.1974	History
				George Peacock (Farmer)	11.04.1973	History
			V.6114 F.610	George Peacock (Farmer)	15.10.1946	History
				Robert Peacock (Farmer)	05.05.1937	History
			V.2055 F.819	Sarah Harris & James Pitson (Farmer)	09.04.1937	History
				Edward Pitson (Farmer)	04.08.1892	History
				William & Alfred George (Gentleman) & John Turner (Auctioneer)	14.08.1888	History
1\PS528896	2	4	V.10915 F.940	Elizabeth Micallef	07.12.2005	History
			V.9864 F.608	Elizabeth Micallef	12.08.1997	History
				Mario & Elizabeth Micallef	08.08.1996	History
				Norma & Morris Forte	20.09.1988	History
			V.9208 F.843	Norma & Morris Forte	10.10.1986	History
				Ethel Peacock same as history for item 1	21.03.1977	History
1\PS516343	3	5	V.10899 F.206	Youseff Daoud	03.10.2005	History
				Christos & Terezija Kartalis	22.08.1997	History
			V.9531 F.291	Shirley & Emil Jongebloed (Farmer)	21.09.1983	History
1\PS630910	4	6	V.11305 F.585	Alphonse & Antoinette Gatt	23.09.2011	History
				Faredin & Dalanduse Nuredini & Alphonse & Antoinette Gatt	30.09.2011	History
			V.10105 F.927	Alphonse & Antoinette Gatt	24.04.1997	History
			V.6015 F.996	Dalanduse & Faredin Nuredini	01.07.1997	History
				Anthony Longo	07.03.1985	History
				Ben Frenkel (Solicitor) & Phillip Benjamin (Chartered Accountant)	09.11.1977	History
				William Rowe (Chartered Accountant) & Ben Frenkel (Solicitor)	26.10.1976	History
				David Thomas Solicitor) & William Rowe (Chartered Accountant)	03.05.1966	History
				William Cockbill (Manufacturer)	02.10.1947	History
				The Equity Trustees Executors And Agency Company Ltd	13.11.1944	History
				William & John Cockbill (Manufacturers)	08.02.1936	History
1\TP549986	5	8	V.1523 F.410	The Board of Land and Works	14.12.1883	History

Parcel	No.	SKM Ref	Volume Folio	Registered Proprietors	Date	Status
2\LP88806	6	9	V.8903 F.211	Joseph & Loretta Xuereb	15.08.1985	History
				Doris Caruana	14.05.1984	History
				Carmen & Gregory Stellini (Bread Carter) & Doris & Anthony Caruana (Baker)	10.02.1978	History
				Alexandra & Joseph (Labourer)	26.01.1972	History
				Adelina & Sam Apap (Businessman)	13.09.1971	History
1\TP344949	7	10	V.4594 F.635	A Perfectly Straight Line Pty Ltd	22.06.2009	History
				Peter Davies	08.03.2003	History
				Cedric Arvidson	02.08.2001	History
				Verena & Cedric Arvidson (Butcher)	20.04.1982	History
				Ben Frenkel (Solicitor) & Phillip Benjamin (Chartered Accountant)	09.11.1977	History
				William Rowe (Chartered Accountant) & Ben Frenkel (Solicitor)	26.10.1976	History
				David Thomas Solicitor) & William Rowe (Chartered Accountant)	03.05.1966	History
				William Cockbill (Manufacturer)	25.09.1944	History
				William & John Cockbill (Manufacturers)	24.07.1922	History
				Gerald Coulter (Traveller)	24.07.1922	History
7\LP144589	8	14	V.9728 F.543	Alfred Spiteri	19.12.2009	History
				Lynn Lambert & Alfred Spiteri	19.11.1991	History
				Leonard Missen	25.02.1987	History
			V.4454 F.684	Leonard Missen (Farmer)	14.08.1953	History
				Daisy & Alfred Missen (Farmer)	14.08.1953	History
				Albert Missen (Farmer)	02.06.1921	History
			V.3906 F.004	Leonard Missen (Farmer)	14.08.1953	History
				Daisy & Alfred Missen (Farmer)	14.08.1953	History
				Albert Missen (Farmer)	28.06.1915	History
			V.2212 F.244	Leonard Missen (Farmer)	14.08.1953	History
				Daisy & Alfred Missen (Farmer)	14.08.1953	History
				Albert Missen (Farmer)	02.06.1921	History
				Thomas Missen	21.08.1889	History
2\LP128005	9	16	V.9508 F.441	Joanne Hussein	03.03.2000	History
				Georgia & Sam Magri (Invalid Pensioner) & Mario Magri (Labourer)	20.12.1982	History
			V.4540 F.828	Darryl Missen (Farmer)	18.10.1968	History
				Alfred Missen (Farmer)	31.07.1964	History
				Ernest Missen (Farmer)	25.03.1922	History
2\PS515144	10	13	V.10725 F.167	Fouz Superannuation Pty Ltd	13.02.2012	History
				John & Patricia Montesano	20.05.2003	History
			V.10465 F.837	John & Patricia Montesano	01.03.2000	History

Parcel	No.	SKM Ref	Volume Folio	Registered Proprietors	Date	Status
			V.1417 F.283	Darryl Missen (Farmer)	18.10.1968	History
				Alfred Missen (Farmer)	31.07.1964	History
				Ernest Missen (Farmer)	02.06.1921	History
				Thomas Missen (Grazier)	30.07.1895	History
				Joseph Missen (Farmer)	07.11.1882	History
1\LP137799	11	26	V.9437 F.677	Angelo & Maria Attard	01.04.1985	History
				June Trethowan	14.10.1981	History
			V.3183 F.440	June Missen (Laboratory Technician)	18.10.1968	History
				Alfred Missen (Farmer)	31.07.1964	History
				Ernest Missen (Farmer)	06.09.1917	History
				Thomas Missen (Grazier)	16.02.1907	History
14\LP220116	12	36	V.9994 F.851	Care Nominees Pty Ltd	16.06.2003	History
				The Trustees For The Time Being Of The Apostolic Christian Church (Nazarene) Trust	29.12.1995	History
				Alfred Missen (Farmer)	19.12.1990	History
			V.9518 F.681	Alfred Missen (Farmer)	25.07.1983	History
			V.8758 F.354	Alfred Missen (Farmer)	18.10.1968	History
			V.3782 F.297	Alfred Missen (Farmer)	31.07.1964	History
				Ernest Missen (Farmer)	10.01.1914	History
			V.3207 F.371	Alfred Missen (Farmer)	31.07.1964	History
				Ernest Missen (Farmer)	13.03.1919	History
				Charles Barrie (Chaffcutter)	17.06.1908	History
				George Kyd (Merchant)	12.06.1907	History
1\LP144589	13	20	V.9728 F.537	Carmen Stellini	12.07.2010	History
				Gregory & Carmen Stellini	24.04.1987	History
				Leonard Missen same as history for item 8	25.02.1987	History
1\PS503786	14	23	V.10632 F.525	Marina, Slavica & Arandel Ilic	18.06.2007	History
				Algimantas & Susanne Kacinskas	21.02.2002	History
				Leonard Missen same as history for item 8	25.02.1987	History
4\LP137799	15	27	V.9437 F.680	Thomas Giordmaina	20.09.2002	History
				Mary & Thomas Giordmaina (Waterside Worker)	22.06.1982	History
				June Trethowan same as history for item 11	14.10.1981	History
2\PS412891	16	30	V.10413 F.042	Telstra Corporation Ltd	20.11.1998	History
			V.10024 F.869	Nyborian Pty Ltd	28.06.1991	History
			V.9967 F.892	Nyborian Pty Ltd	25.02.1991	History
				Allstates Grader Hire Pty Ltd	08.08.1990	History

Parcel	No.	SKM Ref	Volume Folio	Registered Proprietors	Date	Status
			V.8844 F.311	Nyborian Pty Ltd	25.02.1991	History
				Allstates Grader Hire Pty Ltd	21.08.1978	History
				Paul Blake (Storeman)	01.09.1975	History
				Dorothy Blake	16.07.1970	History
			V.8498 F.517	Australian Telecommunications Commission	23.09.1986	History
				The Commonwealth of Australia	28.02.1964	History
			V.8476 F.434	Nyborian Pty Ltd	25.02.1991	History
				Allstates Grader Hire Pty Ltd	21.08.1978	History
				Paul Blake (Storeman)	05.04.1974	History
				Leslie Thompson (Welder)	29.10.1963	History
			V.8125 F.098	Maxwell Blake (Mechanic)	19.07.1956	History
			V.7142 F.248	Bessie & Noel Cornish (Poultry Farmer)	26.07.1948	History
1\TP678785	17	31	V.3782 F.298	Glenkara Pty Ltd	20.02.2012	History
				Peter & Glenda Thomas	07.04.2007	History
				Mark & Judie Sobotnicki	08.01.2004	History
				Peter & Glenda Thomas	31.03.1998	History
				Ulrich Saathoff	29.10.1990	History
				Karen & Gregory Woolfe & Janice & Ronald Davidson	03.08.1988	History
				Betty & Peter Atkins	17.01.1986	History
				Betty & Cyril Mactaggart (Storekeeper)	10.03.1983	History
				Pamela & Graeme Lucas (Storekeeper)	31.05.1967	History
				William Lewis (Storekeeper)	03.11.1943	History
				Cyril Kuster (Storekeeper)	14.11.1934	History
				Alfred Cornish (Storekeeper)	08.10.1926	History
				John Orgill (Storekeeper)	30.03.1914	History
3\LP7311	18	32	V.4267 F.301	The President Councillors & Ratepayers of The Shire of Melton	10.06.1988	History
				The Trustees For The Time Being Of The Rockbank Mechanics Institute and Free Library Trust	30.07.1958	History
				Frederick Holden (Grazier), Thomas Missen & Robert Peacock (Farmers)	14.07.1930	History
				John Orgill (Merchant), Thomas Missen (Farmer) & Frederick Holden (Grazier)	02.12.1919	History
1\PS325346	19	34	V.9994 F.838	Mladenka Mitic	30.04.2001	History
				Goran Mitic	18.11.1997	History
				Ranko Popovic & Goran Mitic	18.11.1997	History
				Goran Mitic & Ranko & Gordana Popovic	31.01.1991	History
				Alfred Missen (Farmer)	19.12.1990	History
				same as history for item 12		

Parcel	No.	SKM Ref	Volume Folio	Registered Proprietors	Date	Status
1\PS325346	20	37	V.10148 F.604	Country Fire Authority	25.10.1994	History
			V.9994 F.854	The President Councillors And Ratepayers Of The Shire Of Melton	20.06.1991	History
				Alfred Missen (Farmer) same as history for item 12	19.12.1990	History
PC371660	21	38	V.11289 F.609	Michael, Jaye, Anthony & Adam Klooger	12.08.2011	History
				Country Roads Board	28.02.1968	History
				Jacobina Gustas	23.07.1962	History
				Ronald Rowe (Welder)	10.12.1957	History
			V.5831 F.092	A & M Klooger P/L, A & N Klooger P/L & Sundowner Pine Hill P/L	26.09.2001	History
				Keith Jefferson	01.12.1986	History
				K.V.B. Nominees Pty Ltd	24.04.1980	History
				Paul Murray (Manager)	17.10.1974	History
				Ernest Harrison (Farmer)	10.12.1945	History
				Michael Ryan (Timber Merchant)	08.01.1942	History
				Desmond Fitzgerald (Solicitor) & Michael Ryan (Timber Merchant)	27.05.1939	History
				Denis Ryan (Cartage Contractor)	16.03.1933	History
PC362602	22	39	V.10415 F.751	Melbourne Linh Son Buddhist Congregation Inc	26.06.2009	History
				David & Sharna Glover	14.02.2005	History
				Kim Nguyen & Ngoc Huynh	03.11.2004	History
				Hai Nguyen	28.03.2002	History
				Danh Vu & Hai Nguyen	24.10.2000	History
			V.9994 F.842	Alfred Missen (Farmer)	19.12.1990	History
			V.9518 F.682	Mark & Judie Sobotnicki	17.09.1998	History
				Alfred Missen (Farmer)	25.07.1983	History
				Alfred Missen (Farmer)	25.07.1983	History
				Alfred Missen (Farmer) same as history for item 12	18.10.1968	History
1\LP67245	23	40	V.8581 F.146	Peet Rockbank Ltd	10.03.2006	History
				Pamela & Malcolm Peacock (Poultry Farmer)	23.07.1965	History
			V.8241 F.073	Frank Peacock (Farmer)	25.09.1959	History
			V.7112 F.272	Aubrey Armstrong & Frank Peacock (Farmers)	24.05.1948	History
1\TP612291	24	41	V.1505 F.901	Board of Land and Works	12.10.1883	History
2\PS537630	25	43	V.9541 F.065	RP Petroleum Pty Ltd	17.03.2007	History
				Bestsize Pty Ltd	15.02.1989	History
				Lewis Bonnici	18.03.1987	History
				Mary & Lewis Bonnici	11.03.1986	History

Parcel	No.	SKM Ref	Volume Folio	Registered Proprietors	Date	Status
				Bertha & John Missen (Farmer)	13.12.1983	History
			V.8909 F.612	Bertha & James Missen (Farmer)	18.10.1971	History
			V.8075 F.567	James Missen (Farmer)	10.12.1954	History
1\TP434978	26	44	V.8953 F.965	Charlie Zerafa & Adrian Owen	05.07.2007	History
				Zilha Cufurovic	08.06.2006	History
				Mehmed & Zilha Cufurovic	01.04.2003	History
				Cassandra Portelli	05.03.1997	History
				George Dimech (Fitter) & John Galea (Mechanical Driver)	13.11.1973	History
				Judith & Robert Smith (Civil Engineer)	06.10.1972	History
			V.8255 F.179	Henry Collins	03.12.1971	History
				Ethel & Henry Collins (Builder) & Thomas Collins (Builder)	26.03.1962	History
CP159569	27	46	V.9621 F.312	Carole & Geoffrey Harrison	18.07.1985	History
			V.9613 F.467	Carole & Geoffrey Harrison	29.03.1985	History
			V.9478 F.666	Geoffrey Harrison (Farmer)	28.10.1981	History
			V.8426 F.523	Carole & Geoffrey Harrison	08.02.1965	History
				Geoffrey Harrison (Farmer)	26.09.1962	History
			V.8144 F.653	Geoffrey Harrison (Farmer)	11.11.1955	History
2\LP136049	28	48	V.9696 F.624	Arthur Mangion	20.08.2012	History
				Henrietta & Arthur Mangion	08.07.1986	History
			V.8127 F.199	Frank Peacock (Farmer)	17.06.1955	History
			V.8127 F.198	George Harrison (Farmer)	17.06.1955	History
			V.4773 F.485	Reginald Peacock (Labourer) & George Peacock (Farmer)	17.06.1955	History
				Robert Peacock (Farmer)	26.10.1923	History
1\LP98813	29	49	V.8994 F.128	Nazarene, Peter & Marjorie Schembri & Philomena Zahra	22.11.1984	History
				Marjorie & Nazarene Schembri (Driver), Philomena Zahra, Madeline & Peter Schembri (Driver)	28.04.1981	History
				Urban Land Nominees Pty Ltd	12.10.1973	History
			V.8978 F.894	Urban Land Nominees Pty Ltd	27.11.1972	History
			V.8367 F.740	Henry Collins	03.12.1971	History
				Ethel & Henry Collins (Builder) & Thomas Collins (Builder)	13.04.1962	History
			V.8367 F.739	Urban Land Nominees Pty Ltd	27.11.1972	History
				Henry Collins	03.12.1971	History
				Ethel & Henry Collins (Builder) & Thomas Collins (Builder)	13.04.1962	History
1\LP130094	30	50	V.9330 F.229	Nevas Pty Ltd	08.03.2006	History
				Bailton Pty Ltd	06.09.1999	History

Parcel	No.	SKM Ref	Volume Folio	Registered Proprietors	Date	Status
				William & Gina Grech	28.11.1991	History
				William Grech	11.04.1991	History
				Rose Azzopardi (Bank Accountant)	14.07.1981	History
				Evangelista Rapa	14.07.1981	History
				Nike Pty Ltd	08.06.1979	History
			V.9254 F.325	Nike Pty Ltd	03.01.1979	History

B.2 Copies of Title documents

Refer to enclosed CD for copies of title documents.

Appendix C. Priority sites register

PRIORITY SITES REGISTER

Date generated 28 February 2013

BACKGROUND

EPA has a key responsibility in protecting beneficial uses of land. Many of these uses are regulated or controlled through a range of measures to prevent contamination of land and groundwater. Land contaminated by former waste disposal, industrial and similar activities is frequently discovered during changes to land use - for example, from industrial to residential use. In most cases these can be managed at the time that the change of land use occurs. Some sites however, present a potential risk to human health or to the environment and must be dealt with as a priority. Such sites are typically subject to clean-up and/or management under EPA directions.

WHAT ARE PRIORITY SITES?

Priority Sites are sites for which EPA has issued a Cleanup Notice pursuant to section 62A, or a Pollution Abatement Notice pursuant to section 31A or 31B (relevant to land and/or groundwater) of the Environment Protection Act 1970. Typically these are sites where pollution of land and/or groundwater presents a potential risk to human health or to the environment. The condition of these sites is not compatible with the current or approved use of the site without active management to reduce the risk to human health and the environment. Such management can include cleanup,monitoring and/or institutional controls.

The Priority Sites Register does not list sites managed by voluntary agreements or sites subject to management by planning controls (eg. sites managed in accordance with a section 173 agreement under the Planning and Environment Act 1987). Land purchasers should be aware of these limitations and make their own enquiries. A site is listed on the Priority Sites Register when EPA issues a CleanupNotice or a Pollution Abatement Notice (relevant to land and/or groundwater). A notice is a means by which EPA formalises requirements to manage pollution. Sites are removed from the Priority Sites Register once all conditions ofa Notice have been complied with. This is formalised through a Notice of Revocation pursuant to section 60B of the Act.

FURTHER INFORMATION

Additional information is available from:
EPA Information Centre
200 Victoria Street
Carlton VIC 3053
Tel: 03 96952722 Fax: 03 96958610
Media Enquiries: 03 96952704
EPA internet site: www.epa.vic.gov.au

Municipality	Suburb	Address	Issue	Notice Number
Moreland City Council	COBURG NORTH	46 Newlands RD AU/3058	Current Service Station. Requires assessment and/or clean up	0090000000
Wyndham City Council	LAVERTON NORTH	19 Little Boundary RD AU/3026	Current Industrial Site. Requires assessment and/or clean up	0090000003
Yarra Ranges Shire Council	KILSYTH	1 76 Fussell RD AU/3137	Former Industrial Site. Requires assessment and/or clean up	0090000004

Yarra Ranges Shire Council	KILSYTH	2 76 Fussell RD AU/3137	Former Industrial Site. Requires assessment and/or clean up	0090000005
Yarra Ranges Shire Council	KILSYTH	1 76 Fussell RD AU/3137	Former Industrial Site. Requires assessment and/or clean up	0090000006
Yarra Ranges Shire Council	KILSYTH	2 76 Fussell RD AU/3137	Former Industrial Site. Requires assessment and/or clean up	0090000007
Hobsons Bay City Council	ALTONA	401 Kororoit Creek RD AU/3018	Current Industrial Site. Requires assessment and/or clean up	0090000009
Greater Geelong City Council	NORLANE	5 PRINCES HWY AU/3214	Former Industrial Site. Requires assessment and/or clean up	0090000011
Whittlesea City Council	KEON PARK	6 Dunstans CT AU/3073	Former Industrial Site. Requires assessment and/or clean up	0090000016
Greater Bendigo City Council	CALIFORNIA GULLY	45 Sandhurst RD AU/3556	Current Service Station. Requires assessment and/or clean up	0090000021
Greater Geelong City Council	CORIO	Refinery RD AU/3214	Current petroleum storage site. Requires ongoing management	0090000024
Golden Plains Shire Council	SMYTHESDALE	1380 Glenelg HWY AU/3351	Current landfill. Requires ongoing management	0090000035
Wellington Shire Council	COWWARR	Part C/a 41 Parish Of Toongabbie Nth Cert Of Title Vol 8713 Folio 830 AU/3857	Former Landfill. Requires assessment and/or clean up	0090000036
Greater Geelong City Council	GEELONG SOUTH	1 Barwon TCE AU/3220	Former Industrial Site. Requires assessment and/or clean up	0090000058
Whittlesea City Council	THOMASTOWN	51 High ST AU/3074	Current Industrial Site. Requires assessment and/or clean up	0090000059
Greater Bendigo City Council	LOCKWOOD	74 Hazeldenes RD AU/3551	Land and/or groundwater impacted by intensive animal industry. Requires assessment and/or clean up	0090000061
Hume City Council	DIGGERS REST	50 Edwards RD AU/3427	Illegal dumping. Requires assessment and/or clean up	0090000070
Wyndham City Council	QUANDONG	1225 Ballan RD AU/3030	Illegal dumping. Requires assessment and/or clean up	0090000073
Greater Shepparton City Council	KIALLA WEST	7358 Goulburn Valley HWY AU/3631	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090000083
Greater Geelong City Council	GEELONG NORTH	343 Melbourne RD AU/3215	Former Industrial Site. Requires assessment and/or clean up	0090000091
Kingston City Council	DINGLEY VILLAGE	370 Old Dandenong RD AU/3172	Current landfill. Requires ongoing management	0090000093
Mornington Peninsula Shire Counci	SOMERVILLE	182 Eramosa RD AU/3912	Illegal dumping. Requires assessment and/or clean up	0090000097
Greater Dandenong City Council	DANDENONG	2 Hazel AV AU/3175	Current Industrial Site. Requires assessment and/or clean up	0090000108
Greater Geelong City Council	WAURN PONDS	5 Katelyn CT AU/3216	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090000113
East Gippsland Shire Council	SWIFTS CREEK	349 Swifts Creek East RD AU/3896	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090000114
Wyndham City Council	LITTLE RIVER	LOT 1 EDGARS RD (1\PS544576) AU/3211	Solid inert waste has been dumped at the site. Requires assessment and/or clean up	0090000121
Maribyrnong City Council	YARRAVILLE	1 High ST AU/3013	Former Industrial Site. Requires ongoing management	0090000134
Murrindindi Shire Council	THORNTON	969 Goulburn Valley HWY AU/3712	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090000149
Greater Geelong City Council	CORIO	246 Princes HWY AU/3214	Current Service Station. Requires assessment and/or clean up	0090000150
Nillumbik Shire Council	ELTHAM	197 Sherbourne RD AU/3095	Former Industrial Site. Requires assessment and/or clean up	0090000158
Melton Shire Council	PLUMPTON	1 Holden RD AU/3335	Solid inert waste has been dumped at the site. Requires assessment and/or clean up	0090000159
Hume City Council	BULLA	315 Loemans RD AU/3428	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090000177
Knox City Council	WANTIRNA	706 Boronia RD AU/3152	Illegal dumping. Requires assessment and/or clean up	0090000181
Mount Alexander Shire Council	CASTLEMAINE	74 TOMKIES LANE AU/3450	Contaminated soil is retained and managed onsite. Requires ongoing management	0090000189
Greater Geelong City Council	NORTH GEELONG	Foreshore Area At End Of Crowle ST AU/3215	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090000226
Bass Coast Shire Council	GRANTVILLE	1685 Bass HWY AU/3984	Current landfill. Requires ongoing management	0090000239
Macedon Ranges Shire Council	LANCEFIELD	Baynton RD AU/3435	Former Landfill. Requires assessment and/or clean up	0090000241

Swan Hill Rural City Council	TOL TOL	3216 Murray Valley HWY AU/3549	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090000256
Melton Shire Council	MOUNT COTTRELL	180 Faulkners RD AU/3030	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090000259
Hepburn Shire Council	CRESWICK	18 Clunes RD AU/3363	Former Service Station. Requires assessment and/or clean up	0090000263
Maribyrnong City Council	WEST FOOTSCRAY	1 Graingers RD AU/3012	Current chemical storage facility. Requires assessment and/or clean up	0090000266
Brimbank City Council	SUNSHINE	49 Mcintyre RD AU/3020	Current Industrial Site. Requires assessment and/or clean up	0090000284
Greater Shepparton City Council	SHEPPARTON	60 Old Dookie RD AU/3630	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090000289
Corangamite Shire Council	COBRICO	County Boundary RD AU/3266	Current landfill. Requires ongoing management	0090000292
Melton Shire Council	PLUMPTON	627 Plumpton RD AU/3335	Solid inert waste has been dumped at the site. Requires assessment and/or clean up	0090000300
Kingston City Council	CHELSEA	Former Chelsea Landfill Mulkarra DR AU/3196	Former Landfill. Requires ongoing management	0090000311
Melton Shire Council	MOUNT COTTRELL	180 Faulkners RD AU/3030	Solid inert waste has been dumped at the site. Requires assessment and/or clean up	0090000416
Hobsons Bay City Council	ALTONA	541 Kororoit Creek RD AU/3018	Current chemical storage facility. Requires assessment and/or clean up	0090000425
Knox City Council	WANTIRNA SOUTH	Cathies LANE AU/3152	Former Landfill. Requires ongoing management	0090000475
Mornington Peninsula Shire Counci	MOUNT ELIZA	250 Moorooduc HWY AU/3930	Former Landfill. Requires ongoing management	0090000477
Warrnambool City Council	ALLANSFORD	137 Ziegler PDE AU/3277	Contaminated soil is retained and managed onsite. Requires assessment and/or clean up	0090000492
Ballarat City Council	BALLARAT	Canadian Gully Reserve Geelong RD AU/3350	Historical deposit of mine tailings. Requires assessment and/or clean up	0090000494
Greater Geelong City Council	GEELONG EAST	AU/3219	Gun, pistol or rifle range. Requires assessment and/or clean up	0090000498
Darebin City Council	PRESTON	62 Albert ST AU/3072	Current Industrial Site. Requires ongoing management	0090000535
Hobsons Bay City Council	ALTONA	Millers RD AU/3018	Current Industrial Site. Requires assessment and/or clean up	0090000597
Greater Dandenong City Council	SPRINGVALE SOUTH	East Side Of Clarke RD AU/3172	Former Landfill. Requires ongoing management	0090000608
Moreland City Council	BRUNSWICK	227 Barkly ST AU/3056	Former Industrial Site. Requires assessment and/or clean up	0090000624
Bayside City Council	BRIGHTON	601 Hampton ST AU/3186	Current Service Station. Requires ongoing management	0090000642
Mornington Peninsula Shire Counci	RYE	Point Nepean RD AU/3941	Current Service Station. Requires ongoing management	0090000658
Darebin City Council	PRESTON	140 High ST AU/3072	Former Industrial Site. Requires assessment and/or clean up	0090000660
Stonnington City Council	PRAHRAN	549 High ST AU/3181	Current Service Station. Requires assessment and/or clean up	0090000662
Port Phillip City Council	ELWOOD	54A MARINE PDE AU/3184	Current Service Station. Requires assessment and/or clean up	0090000663
Moonee Valley City Council	MOONEE PONDS	783 Mt Alexander RD AU/3039	Current Service Station. Requires assessment and/or clean up	0090000664
Brimbank City Council	SUNSHINE	49 Mcintyre RD AU/3020	Current Industrial Site. Requires assessment and/or clean up	0090000665
Moreland City Council	BRUNSWICK	225 Barkly ST AU/3056	Former Industrial Site. Requires assessment and/or clean up	0090000747
Greater Geelong City Council	CORIO	Of Harpur RD AU/3214	Former Service Station. Requires assessment and/or clean up	0090000782
Hobsons Bay City Council	SPOTSWOOD	512 Melbourne RD AU/3015	Railway yard. Requires assessment and/or clean up	0090000799
Mornington Peninsula Shire Counci	MORNINGTON	25 Mayne AV AU/3931	Former Landfill. Requires assessment and/or clean up	0090000855
Wyndham City Council	LAVERTON NORTH	41 LEAKES RD AU/3026	Former Industrial Site. Requires assessment and/or clean up	0090000864
Brimbank City Council	SYDENHAM	362 SYDENHAM RD AU/3037	Former Landfill. Requires assessment and/or clean up	0090000921
Maribyrnong City Council	YARRAVILLE	Yarraville Terminal Francis ST AU/3013	Current petroleum storage site. Requires assessment and/or clean up	0090000989

Greater Geelong City Council	LARA	Princes HWY AU/3212	Accidental spill/leak (non-industrial site). Requires assessment and/or clean up	0090001012
Maribyrnong City Council	YARRAVILLE	2A FRANCIS ST AU/3013	Current Industrial Site. Requires assessment and/or clean up	0090001122
Yarra Ranges Shire Council	GRUYERE	108 Killara RD AU/3770	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090001184
Moreland City Council	BRUNSWICK	227 Barkly ST AU/3056	Former Industrial Site. Requires assessment and/or clean up	0090001205
Moreland City Council	BRUNSWICK	225 Barkly ST AU/3056	Former Industrial Site. Requires assessment and/or clean up	0090001206
Moorabool Shire Council	MOUNT EGERTON	Cnr Yendon-Egerton Rd & Ballan-Egerton Rd AU/3352	Former Landfill. Requires ongoing management	0090001283
Hobsons Bay City Council	NEWPORT	Burleigh ST AU/3015	Current petroleum storage site. Requires assessment and/or clean up	0090001325
Kingston City Council	CHELSEA	476 Nepean HWY AU/3196	Former Service Station. Requires assessment and/or clean up	0090001389
Kingston City Council	Dingley Village	Waterway East of Boundary Road AU/#	Former Industrial Site. Requires assessment and/or clean up	0090001391
Darebin City Council	PRESTON	67 High ST AU/3072	Former Service Station. Requires assessment and/or clean up	0090001449
Hobsons Bay City Council	NEWPORT	Underground Section Of Petroleum Pipelines That Run Under Champion Rd AU/3015	Current Industrial Site. Requires assessment and/or clean up	0090001459
Colac-Otway Shire Council	COLAC	Bruce ST AU/3250	Former Landfill. Requires ongoing management	0090001464
Melton Shire Council	RAVENHALL	53 Rebecca DR AU/3030	Industrial waste has been dumped at the site. Requires ongoing management	0090001469
Melton Shire Council	RAVENHALL	53 Rebecca DR AU/3030	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090001470
Glen Eira City Council	CAULFIELD SOUTH	371 Hawthorn RD AU/3162	Former Service Station. Requires assessment and/or clean up	0090001532
Brimbank City Council	SUNSHINE	47 Mcintyre RD AU/3020	Former Industrial Site. Requires ongoing management	0090001549
East Gippsland Shire Council	BAIRNSDALE	201 Main ST AU/3875	Former Service Station. Requires assessment and/or clean up	0090001552
East Gippsland Shire Council	BAIRNSDALE	205 Main ST AU/3875	Former Service Station. Requires assessment and/or clean up	0090001553
Greater Dandenong City Council	SPRINGVALE	917 Princes HWY AU/3171	Former Industrial Site. Requires assessment and/or clean up	0090001557
East Gippsland Shire Council	BAIRNSDALE	201 Main ST AU/3875	Former Service Station. Requires assessment and/or clean up	0090001562
Wellington Shire Council	MAFFRA	57 Johnson ST AU/3860	Current Industrial Site. Requires assessment and/or clean up	0090001587
East Gippsland Shire Council	ORBOST	44 Salsibury ST AU/3888	Former Service Station. Requires assessment and/or clean up	0090001588
Greater Dandenong City Council	SPRINGVALE	310 Springvale RD AU/3171	Former Service Station. Requires ongoing management	0090001607
Murrindindi Shire Council	GHIN GHIN	67 Homewood-Ghin Ghin Rd (crown Allotment 167b Parish Of Yea) & AU/3717	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090001636
Greater Geelong City Council	GEELONG NORTH	1 Roseneath ST AU/3215	Former chemical storage facility. Requires assessment and/or clean up	0090001664
Bayside City Council	CHELTENHAM	18 Hamlet ST AU/3192	Current Industrial Site. Requires ongoing management	0090001671
Murrindindi Shire Council	GHIN GHIN	67 Homewood-Ghin Ghin Rd (crown Allotment 167b Parish Of Yea) & AU/3717	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090001680
Greater Geelong City Council	MANIFOLD HEIGHTS	35 Shannon AV AU/3218	Current Service Station. Requires assessment and/or clean up	0090001688
Bayside City Council	BRIGHTON	316 New ST AU/3186	Former Service Station. Requires assessment and/or clean up	0090001698
Hobsons Bay City Council	SPOTSWOOD	18 Drake ST AU/3015	Current petroleum storage site. Requires assessment and/or clean up	0090001709
Hobsons Bay City Council	SOUTH KINGSVILLE	22 New ST AU/3013	Former Landfill. Requires assessment and/or clean up	0090001727
Mitchell Shire Council	NORTHWOOD	1630 Northwood RD AU/3660	Solid inert waste has been dumped at the site. Requires assessment and/or clean up	0090001730
Mitchell Shire Council	NORTHWOOD	1630 Northwood RD AU/3660	Solid inert waste has been dumped at the site. Requires assessment and/or clean up	0090001731
Mitchell Shire Council	SEYMOUR	117 Wimble ST AU/3660	Current Industrial Site. Requires assessment and/or clean up	0090001737

Ararat Rural City Council	ARARAT	26 Grano ST AU/3377	Former Industrial Site. Requires assessment and/or clean up	0090001739
Ararat Rural City Council	ARARAT	Mclellan ST AU/3377	Railway yard. Requires assessment and/or clean up	0090001744
Campaspe Shire Council	BAMAWM	Lot 2 Plan Of Subdivision 544316m Parish Of Torrumburry AU/3561	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090001745
Glen Eira City Council	CAULFIELD SOUTH	818 Glen Huntly RD AU/3162	Former Service Station. Requires assessment and/or clean up	0090001761
Maribyrnong City Council	MAIDSTONE	9 Williamson RD AU/3012	Former Industrial Site. Requires assessment and/or clean up	0090001771
Greater Shepparton City Council	SHEPPARTON NORTH	280 Daldy RD AU/3631	Former Industrial Site. Requires assessment and/or clean up	0090001776
Maroondah City Council	RINGWOOD EAST	18 Mount Dandenong RD AU/3135	Current Service Station. Requires assessment and/or clean up	0090001804
Greater Geelong City Council	DRYSDALE	97 High ST AU/3222	Current Service Station. Requires ongoing management	0090001808
Greater Geelong City Council	MOOLAP	132 Point Henry RD AU/3221	Current Industrial Site. Requires assessment and/or clean up	0090001832
Greater Geelong City Council	MOOLAP	132 Point Henry RD AU/3221	Current Industrial Site. Requires assessment and/or clean up	0090001833
Hume City Council	GREENVALE	AU/3059	Illegal dumping. Requires ongoing management	0090001856
Ballarat City Council	BALLARAT	1003 Humffray ST AU/3350	Former Industrial Site. Requires assessment and/or clean up	0090001857
Moreland City Council	COBURG NORTH	737 Sydney RD AU/3058	Former Service Station. Requires assessment and/or clean up	0090001860
Mildura Rural City Council	MILDURA	42 Ninth ST AU/3500	Current Service Station. Requires assessment and/or clean up	0090001869
Moorabool Shire Council	BACCHUS MARSH	AU/3340	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090001880
Brimbank City Council	DEER PARK	765 BALLARAT RD AU/3023	Current Industrial Site. Requires assessment and/or clean up	0090001886
Ballarat City Council	BALLARAT	Volume 6747 Folio 250 AU/3350	Current Industrial Site. Requires assessment and/or clean up	0090001913
Yarra City Council	RICHMOND	3-21a Kent St 1/4-14/4 Little Buckingham St AU/3121	Former Industrial Site. Requires ongoing management	0090001920
Wellington Shire Council	SALE	35 Mcghee ST AU/3850	Former Industrial Site. Requires assessment and/or clean up	0090001928
Surf Coast Shire Council	WINCHELSEA	114 Trebeck CT AU/3241	Illegal dumping. Requires assessment and/or clean up	0090001935
Maribyrnong City Council	Yarraville	325 Whitehall Street AU/3013	Former Industrial Site. Requires ongoing management	0090001941
Maribyrnong City Council	Yarraville	325 Whitehall Street AU/3013	Former Industrial Site. Requires assessment and/or clean up	0090001942
Whittlesea City Council	THOMASTOWN	342 Settlement RD AU/3074	Former Service Station. Requires assessment and/or clean up	0090001959
Glenelg Shire Council	PORTLAND	210 Cape Nelson RD AU/3305	Current landfill. Requires ongoing management	0090001966
Kingston City Council	MOORABBIN	105 Cochranes RD AU/3189	Current Industrial Site. Requires assessment and/or clean up	0090001994
Monash City Council	GLEN WAVERLEY	310 SPRINGVALE RD AU/3150	Current Industrial Site. Requires assessment and/or clean up	0090002027
Moonee Valley City Council	ASCOT VALE	421 Mt Alexander RD AU/3032	Former Service Station. Requires assessment and/or clean up	0090002031
Maribyrnong City Council	BROOKLYN	550 Geelong RD AU/3012	Former Industrial Site. Requires assessment and/or clean up	0090002056
Southern Grampians Shire Council	HAMILTON	358 Glenelg HWY AU/3300	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090002058
Whitehorse City Council	BLACKBURN	2 Central RD AU/3130	Former Service Station. Requires assessment and/or clean up	0090002076
Colac-Otway Shire Council	CORONOOKE	Factory RD AU/3254	Current Industrial Site. Requires assessment and/or clean up	0090002082
Nillumbik Shire Council	PANTON HILL	165 MOTSCHALL RD AU/3759	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090002083
Casey City Council	CRANBOURNE	Lot 7, 9, 10, 11 & 12 Stevensons Rd AU/3977	Former Landfill. Requires ongoing management	0090002085
Hobsons Bay City Council	NEWPORT	411 Douglas PDE AU/3015	Current Industrial Site. Requires assessment and/or clean up	0090002086

Darebin City Council	PRESTON	194 Bell ST AU/3072	Former Industrial Site. Requires assessment and/or clean up	0090002088
Ballarat City Council	SANDHILL LAKE	C/a 14 Section A - Parish Of Bael Bael AU/3581	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090002097
Mornington Peninsula Shire Counci	RED HILL	87 Arthurs Seat RD AU/3937	Current Service Station. Requires assessment and/or clean up	0090002114
Greater Dandenong City Council	DANDENONG SOUTH	20 Cahill ST AU/3175	Former Industrial Site. Requires assessment and/or clean up	0090002115
Greater Geelong City Council	BALLAN	1 6511 Western FWY AU/3342	Former Service Station. Requires assessment and/or clean up	0090002139
Northern Grampians Shire Council	STAWELL	25 Horsham RD AU/3380	Former Industrial Site. Requires ongoing management	0090002140
Northern Grampians Shire Council	STAWELL	25 Horsham RD AU/3380	Former Industrial Site. Requires ongoing management	0090002142
Maribyrnong City Council	WEST FOOTSCRAY	Somerville RD AU/3012	Former Industrial Site. Requires assessment and/or clean up	0090002163
Hobsons Bay City Council	SPOTSWOOD	42 Simcock AV AU/3015	Former Industrial Site. Requires assessment and/or clean up	0090002179
Hobsons Bay City Council	ALTONA MEADOWS	306 Queen ST AU/3028	Current Service Station. Requires assessment and/or clean up	0090002186
Greater Geelong City Council	CORIO	391 Princes HWY AU/3214	Former Service Station. Requires assessment and/or clean up	0090002217
Greater Geelong City Council	GEELONG WEST	151 Church ST AU/3218	Former Service Station. Requires assessment and/or clean up	0090002218
Kingston City Council	MORDIALLOC	78 White ST AU/3195	Former Industrial Site. Requires assessment and/or clean up	0090002256
Brimbank City Council	SUNSHINE NORTH	56 Spalding AV AU/3020	Current Industrial Site. Requires assessment and/or clean up	0090002269
Brimbank City Council	SUNSHINE NORTH	56 Spalding AV AU/3020	Current Industrial Site. Requires assessment and/or clean up	0090002270
Kingston City Council	MOORABBIN	1 10 Ebden ST AU/3189	Former Industrial Site. Requires ongoing management	0090002273
Greater Geelong City Council	BELMONT	180 Barwon Heads RD AU/3216	Former Service Station. Requires assessment and/or clean up	0090002289
Moonee Valley City Council	ASCOT VALE	Mt Alexander RD AU/3032	Current Service Station. Requires assessment and/or clean up	0090002299
Darebin City Council	NORTHCOTE	24 Leinster GR AU/3070	Current Industrial Site. Requires assessment and/or clean up	0090002323
Greater Geelong City Council	CORIO	83 Purnell RD AU/3214	Current Service Station. Requires ongoing management	0090002343
Greater Geelong City Council	CORIO	1500 Biddlecombe AV AU/3214	Current landfill. Requires assessment and/or clean up	0090002361
Greater Geelong City Council	NORLANE	60 NORTH SHORE RD AU/3214	Current Industrial Site. Requires assessment and/or clean up	0090002362
Moyne Shire Council	ALLANSFORD	5331 Great Ocean RD AU/3277	Current Industrial Site. Requires ongoing management	0090002367
Hume City Council	CAMPBELLFIELD	1735 Sydney RD AU/3061	Current Industrial Site. Requires assessment and/or clean up	0090002373
Greater Dandenong City Council	BANGHOLME	790 Frankston Dendenong RD AU/3175	Solid inert waste has been dumped at the site. Requires assessment and/or clean up	0090002377
Hobsons Bay City Council	SOUTH KINGSVILLE	38 Blackshaws RD AU/3013	Former Industrial Site. Requires ongoing management	0090002381
Yarra Ranges Shire Council	BELGRAVE	2 Monbulk RD AU/3160	Former petroleum storage site. Requires assessment and/or clean up	0090002405
Ballarat City Council	WARRENHEIP	Ballarat-Burrumbeet RD AU/3352	Accidental spill/leak (non-industrial site). Requires ongoing management	0090002430
Hobsons Bay City Council	WILLIAMSTOWN	12 Seaview PDE AU/3016	Current Industrial Site. Requires ongoing management	0090002444
Hume City Council	SOMERTON	Cliffords RD AU/3062	Former Industrial Site. Requires assessment and/or clean up	0090002446
Wyndham City Council	LAVERTON NORTH	87 Pipe RD AU/3026	Current Industrial Site. Requires assessment and/or clean up	0090002450
Greater Bendigo City Council	MAIDEN GULLY	195 Marong RD AU/3551	Historical deposit of mine tailings. Requires ongoing management	0090002451
Wodonga Rural City Council	WODONGA	Carrolls La (lot 5 Ps345280) AU/3690	Illegal dumping. Requires assessment and/or clean up	0090002471
Brimbank City Council	SUNSHINE	Hulett ST AU/3020	Former Landfill. Requires assessment and/or clean up	0090002476

Greater Geelong City Council	PORTARLINGTON	46 Fenwick ST AU/3223	Current petroleum storage site. Requires assessment and/or clean up	0090002499
Wyndham City Council	LAVERTON NORTH	105 Dohertys RD AU/3026	Current Industrial Site. Requires assessment and/or clean up	0090002506
Wangaratta Rural City Council	NORTH WANGARATTA	150 STAMPS LANE AU/3678	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090002536
Moreland City Council	PASCOE VALE	512 PASCOE VALE RD AU/3044	Current Service Station. Requires assessment and/or clean up	0090002542
Maribyrnong City Council	BRAYBROOK	30 SOUTH RD AU/3019	Former Industrial Site. Requires assessment and/or clean up	0090002546
Maribyrnong City Council	BRAYBROOK	30 SOUTH RD AU/3019	Former Industrial Site. Requires assessment and/or clean up	0090002547
Swan Hill Rural City Council	SWAN HILL	5 HASTINGS ST AU/3585	Former petroleum storage site. Requires assessment and/or clean up	0090002549
Wangaratta Rural City Council	NORTH WANGARATTA	150 STAMPS LANE AU/3678	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090002555
Banyule City Council	GREENSBOROUGH	131 Grimshaw ST AU/3088	Current Service Station. Requires assessment and/or clean up	0090002585
Wodonga Rural City Council	BARANDUDA	219 & Part Of 221 Whytes Rd AU/3691	Current Industrial Site. Requires ongoing management	0090002587
Moorabool Shire Council	ROWSLEY	C/a 5e Section 13 Parish Of Gorrockburkgap County Of Grant AU/3340	Gun, pistol or rifle range. Requires ongoing management	0090002652
Nillumbik Shire Council	DIAMOND CREEK	50 Fraser ST AU/3089	Historical deposit of mine tailings. Requires assessment and/or clean up	0090002671
Brimbank City Council	BROOKLYN	Bunting RD AU/3012	Former Landfill. Requires ongoing management	0090002743
Hobsons Bay City Council	ALTONA	Elfield Meadows Estate Defined By Volume 10426 AU/3018	Waste Acid Sulfate Soils. Requires ongoing management	0090002765
Nillumbik Shire Council	PANTON HILL	165 MOTSCHALL RD AU/3759	Current Industrial Site. Requires ongoing management	0090002787
Greater Dandenong City Council	DANDENONG	230 Frankston-Dandenong RD AU/3175	Current Service Station. Requires assessment and/or clean up	0090002792
Whitehorse City Council	BLACKBURN	21 Blackburn RD AU/3130	Current Service Station. Requires ongoing management	0090002839
Maroondah City Council	CROYDON	Mt Dandenong RD AU/3136	Former Service Station. Requires ongoing management	0090002862
Maroondah City Council	RINGWOOD	385 Canterbury RD AU/3134	Current Service Station. Requires assessment and/or clean up	0090002884
Wellington Shire Council	TRARALGON	Loy Yang Switchyard Bartons LANE AU/3844	Ash pond with a Groundwater Attenuation Zone. Requires ongoing management	0090002893
Latrobe City Council	TRARALGON	3 4 Bench Bartons LANE AU/3844	Ash pond with a Groundwater Attenuation Zone. Requires ongoing management	0090002894
Mornington Peninsula Shire Counci	CRIB POINT	The ESP AU/3919	Former Industrial Site. Requires ongoing management	0090002897
Wyndham City Council	TRUGANINA	99 Palmers RD AU/3029	Solid inert waste has been dumped at the site. Requires ongoing management	0090002914
Darebin City Council	PRESTON	140 High ST AU/3072	Former Industrial Site. Requires assessment and/or clean up	0090002948
Whitehorse City Council	BLACKBURN	21 Blackburn RD AU/3130	Current Service Station. Requires ongoing management	0090003034
Wellington Shire Council	YARRAM	Off Yarram-Traralgon RD AU/3971	Former Landfill. Requires ongoing management	0090003055
Hume City Council	CRAIGIEBURN	Craigieburn RD AU/3064	Former Landfill. Requires ongoing management	0090003107
Whitehorse City Council	BOX HILL	14 Federation ST AU/3128	Former Landfill. Requires ongoing management	0090003134
Wangaratta Rural City Council	WANGARATTA	22 NEWMAN ST AU/3677	Accidental spill/leak (non-industrial site). Requires assessment and/or clean up	0090003137
Darebin City Council	PRESTON	3 & 7 NEWMAN ST AU/3072	Former Industrial Site. Requires assessment and/or clean up	0090003150
Whitehorse City Council	BLACKBURN	24 Blackburn RD AU/3130	#. #	0090003153
Brimbank City Council	SUNSHINE WEST	527 SOMERVILLE RD AU/3020	Current Industrial Site. Requires assessment and/or clean up	0090003166
Moorabool Shire Council	FISKVILLE	Geelong-Ballan RD AU/3342	Current Industrial Site. Requires assessment and/or clean up	0090003174
Wellington Shire Council	FULHAM	SALE-HEYFIELD ROAD Sale-Heyfield RD AU/3851	Illegal dumping. Requires assessment and/or clean up	0090003190

Frankston City Council	FRANKSTON	3 Rosella ST AU/3199	Former Industrial Site. Requires assessment and/or clean up	0090003211
Frankston City Council	FRANKSTON	3 Rosella ST AU/3199	Former Industrial Site. Requires assessment and/or clean up	0090003213
Kingston City Council	CLAYTON SOUTH	Fraser RD AU/3169	Current landfill. Requires ongoing management	0090003226
Brimbank City Council	SUNSHINE	16 THIRD AV AU/3020	Current Industrial Site. Requires assessment and/or clean up	0090003227
Brimbank City Council	SUNSHINE NORTH	51 Mcintyre RD AU/3020	Current Industrial Site. Requires assessment and/or clean up	0090003274
Hume City Council	CAMPBELLFIELD	5 Reo CR AU/3061	Current Industrial Site. Requires assessment and/or clean up	0090003276
Hobsons Bay City Council	SPOTSWOOD	144 HALL ST AU/3015	Current Industrial Site. Requires assessment and/or clean up	0090003301
Mildura Rural City Council	MILDURA	LOTS 12 & 13 ETIWANDA AV AU/3500	Former Landfill. Requires ongoing management	0090003306
Moorabool Shire Council	FISKVILLE	Geelong-Ballan RD AU/3342	Current Industrial Site. Requires assessment and/or clean up	0090003319
Moyne Shire Council	PORT FAIRY	Allotment 36a (pt) Parish Of Koroit Township Of Port Fairy - AU/3284	Former Landfill. Requires assessment and/or clean up	0090003337
Swan Hill Rural City Council	ROBINVALE	AU/3459	Illegal dumping. Requires assessment and/or clean up	0090003340
Knox City Council	WANTIRNA SOUTH	14 Coppelia Street RD AU/3152	Former Landfill. Requires ongoing management	0090003344
Yarra Ranges Shire Council	HEALESVILLE	271 MAROONDAH HWY AU/3777	Former Industrial Site. Requires assessment and/or clean up	0090003355
Yarra Ranges Shire Council	HEALESVILLE	271 MAROONDAH HWY AU/3777	Former Industrial Site. Requires assessment and/or clean up	0090003356
Knox City Council	BAYSWATER	836 Mountain HWY AU/3153	Current Industrial Site. Requires assessment and/or clean up	0090003366
Monash City Council	OAKLEIGH	1386 Dandenong RD AU/3166	Current Service Station. Requires assessment and/or clean up	0090003367
Hobsons Bay City Council	ALTONA	401 Kororoit Creek RD AU/3018	Current Industrial Site. Requires assessment and/or clean up	0090003368
Wyndham City Council	LAVERTON NORTH	105 Dohertys RD AU/3026	Current Industrial Site. Requires assessment and/or clean up	0090003370
Port Phillip City Council	PORT MELBOURNE	14 Woodruff ST AU/3207	Former Industrial Site. Requires assessment and/or clean up	0090003384
Greater Dandenong City Council	DANDENONG SOUTH	3 SWIFT WAY AU/3175	Current Industrial Site. Requires assessment and/or clean up	0090003386
Mount Alexander Shire Council	CASTLEMAINE	74 TOMKIES LANE AU/3450	Contaminated soil is retained and managed onsite. Requires ongoing management	0090003388
Warrnambool City Council	WARRNAMBOOL	52 ROACHES RD AU/3280	Accidental spill/leak (non-industrial site). Requires assessment and/or clean up	0090003440
Whitehorse City Council	BOX HILL	14 Federation ST AU/3128	Former Landfill. Requires ongoing management	0090003499
Strathbogie Shire Council	NAGAMBIE	GOULBURN VALLEY HWY AU/3608	Accidental spill/leak (non-industrial site). Requires assessment and/or clean up	0090003519
Hume City Council	DIGGERS REST	65 Edwards RD AU/3427	Industrial waste has been dumped at the site. Requires assessment and/or clean up	0090003640
Melton Shire Council	PLUMPTON	1 HOLDEN RD AU/3335	Solid inert waste has been dumped at the site. Requires assessment and/or clean up	0090003652
Hume City Council	KEILOR	Annandale RD AU/3036	Former Landfill. Requires ongoing management	0090003689
Surf Coast Shire Council	MOUNT MORIAC	450 Hendy Main RD AU/3240	Former Industrial Site. Requires assessment and/or clean up	0090003712
Hume City Council	KEILOR	Annandale RD AU/3036	Former Landfill. Requires ongoing management	0090003730

Appendix D. Groundwater bores

Site no	MGA zone	Distance	Easting	Northing	Date completed	Total depth	Site type	Uses
59432	55	3950.48	296514.15	5819197.19	31.12.1970	51.80	BOR	DM ST
59440	55	4903.01	297877.15	5820402.19	31.12.1970	19.80	BOR	ST DM
59443	55	4911.54	297924.15	5820894.19	31.12.1970	17.60	BOR	DM
59444	55	4908.30	297905.15	5820614.19	31.12.1970	0.00	BOR	ST DM
59445	55	4882.84	297747.15	5819828.19	31.12.1970	33.50	BOR	DM
59455	55	4827.94	297666.15	5819737.19	31.12.1970	39.60	BOR	DM
59468	55	4248.60	297244.15	5820629.19	31.12.1970	0.00	BOR	NKN
59469	55	3882.71	296821.15	5820265.19	31.12.1970	0.00	BOR	NKN
59472	55	4902.21	297769.15	5819836.19	31.12.1964	0.00	BOR	NKN
59479	55	4862.81	297665.15	5819609.19	06.04.1972	36.57	BOR	DM ST
59480	55	4804.12	297641.15	5819736.19	03.02.2002	54.80	BOR	ST DM DS
59481	55	4776.93	297723.15	5820225.19	18.08.1974	21.33	BOR	ST
59483	55	4735.98	297580.15	5819771.19	07.03.1977	39.62	BOR	DM ST
59484	55	3431.48	296233.15	5819840.19	19.02.1978	30.50	BOR	DM
59490	55	4848.83	297813.15	5820334.19	08.11.1981	26.00	BOR	DM ST
59491	55	4970.46	297933.15	5820314.19	09.10.1981	26.00	BOR	DM ST
59494	55	4615.75	297623.15	5820774.19	04.04.1984	42.00	BOR	DM ST
59496	55	4847.86	297773.15	5820104.19	20.08.1984	24.40	BOR	DM ST
59500	55	3939.21	296953.15	5820964.19	16.03.1987	47.00	BOR	DM ST
59501	55	4703.07	297653.15	5820254.19	13.03.1987	46.00	BOR	DM ST
59508	55	4875.69	297763.15	5819924.19	08.03.1989	38.00	BOR	ST DM MI
59509	55	3699.07	296713.15	5821084.19	05.12.1988	22.80	BOR	DM ST
59514	55	3705.56	296693.15	5820584.19	18.07.1991	36.00	BOR	DM
138895	55	3302.96	295793.14	5819244.19	04.11.1999	63.00	BOR	DM ST
141607	55	3806.93	296583.15	5819704.19	23.10.1998	48.00	BOR	DM ST
306032	55	3961.88	296726.15	5819644.19	13.06.1972	115.82	BOR	NG
S9028564/1	55	4839.31	297820.00	5820459.00	02.03.2007	46.00	BOR	DS
S9028903/1	55	4791.81	297783.00	5820558.00	28.02.2007	30.00	BOR	DS
134089	55	4454.91	297413.15	5820324.19	06.05.1998	30.00	BOR	DM
60511	55	4092.46	297093.15	5820694.19	02.11.1988	41.00	BOR	DM ST
60506	55	3587.23	289663.14	5822309.20	28.12.1983	24.00	BOR	DM ST
132477	55	4278.09	293193.15	5825304.20	17.04.1997	36.00	BOR	DM
73204	55	4316.61	291254.14	5824971.20	11.01.1957	30.40	BOR	ST
73205	55	323.13	293313.14	5821153.19	31.12.1960	0.00	BOR	NKN
73221	55	4406.86	294171.15	5825282.20	31.12.1970	18.30	BOR	ST DM
73222	55	3824.96	290982.14	5824270.20	31.12.1970	36.50	BOR	ST DM
73223	55	3688.50	292073.14	5824596.20	31.12.1970	21.30	BOR	DM
73203	55	4899.10	289757.14	5824689.20	12.10.1947	51.20	BOR	NKN
73224	55	3504.65	292043.14	5824397.20	31.12.1970	16.70	BOR	DM

Site no	MGA zone	Distance	Easting	Northing	Date completed	Total depth	Site type	Uses
73225	55	4121.54	292386.15	5825103.20	31.12.1970	8.50	BOR	DM
73226	55	4952.81	293760.15	5825926.20	31.12.1970	13.70	BOR	DM
73230	55	4994.73	291496.14	5825788.20	31.12.1970	30.40	BOR	ST
73237	55	1320.67	294335.14	5821025.19	31.12.1970	27.40	BOR	DM
73238	55	4233.50	290860.14	5824674.20	31.12.1970	19.50	BOR	ST DM
73240	55	3728.10	289294.14	5821270.20	31.12.1970	48.70	BOR	DM
73241	55	873.83	293871.14	5821202.19	31.12.1970	15.20	BOR	DM
73242	55	1026.66	294038.14	5821108.19	31.12.1970	15.20	BOR	DM
73243	55	1086.66	294072.14	5821279.19	31.12.1970	15.20	BOR	DM
73244	55	828.38	293707.14	5821484.19	31.12.1970	15.20	BOR	NKN
73245	55	956.63	293237.14	5821960.20	31.12.1970	19.50	BOR	DM ST
73246	55	982.19	293130.14	5822005.20	31.12.1970	18.20	BOR	DM
73247	55	453.24	292800.14	5821429.19	31.12.1970	35.00	BOR	ST
73248	55	2196.04	291933.14	5822941.20	31.12.1970	24.40	BOR	DM
73249	55	2156.47	291773.14	5822793.20	31.12.1968	13.70	BOR	NKN
73250	55	2361.95	291768.14	5823036.20	31.12.1970	15.80	BOR	ST DM
73251	55	2172.82	295159.15	5820681.19	31.12.1970	15.20	BOR	ST
73253	55	4346.64	289504.14	5823593.20	31.12.1970	0.00	BOR	NKN
73254	55	4533.40	289340.14	5823685.20	31.12.1970	27.40	BOR	NKN
73256	55	4781.21	288569.14	5822790.20	31.12.1970	0.00	BOR	NKN
73257	55	4218.70	291397.14	5824926.20	31.12.1970	21.30	BOR	ST
73261	55	2006.77	295015.15	5821186.19	31.12.1970	0.00	BOR	NKN
73284	55	2477.10	295419.15	5820435.19	24.02.1982	23.97	BOR	ST DM
73263	55	952.14	292865.14	5821970.20	31.12.1970	0.00	BOR	NKN
73264	55	3919.31	291675.14	5824713.20	31.12.1970	0.00	BOR	NKN
73265	55	3568.02	291147.14	5824070.20	31.12.1970	0.00	BOR	NKN
73266	55	2330.82	293235.14	5823350.20	31.12.1970	0.00	BOR	NKN
73267	55	4474.19	294663.15	5825189.20	31.12.1970	0.00	BOR	NKN
73271	55	1809.27	291738.14	5822312.20	02.08.1972	19.81	BOR	DM ST
73272	55	4158.53	293305.15	5825178.20	01.04.1974	18.89	BOR	DM ST
73273	55	3477.46	292090.14	5824382.20	07.11.1974	12.19	BOR	DM ST
73274	55	2669.95	295630.15	5820494.19	30.06.1976	25.90	BOR	DM ST
73277	55	4727.44	293273.15	5825750.20	10.11.1977	34.00	BOR	DM ST
73279	55	3265.86	290153.14	5822604.20	18.01.1982	31.00	BOR	DM
73281	55	4029.53	289363.14	5822734.20	17.12.1980	23.00	BOR	DM
73282	55	4821.41	288493.14	5822704.20	19.04.1982	31.00	BOR	DM ST
73202	55	4944.72	289668.14	5824670.20	12.10.1947	0.00	BOR	NKN
73285	55	4616.88	288493.14	5821964.20	20.04.1982	34.00	BOR	ST DM
73287	55	2941.70	290073.14	5820984.20	04.04.1984	37.80	BOR	DM ST

Site no	MGA zone	Distance	Easting	Northing	Date completed	Total depth	Site type	Uses
73288	55	4766.16	288433.14	5822344.20	18.01.1984	37.00	BOR	ST
73289	55	3842.35	289393.14	5822314.20	03.04.1984	26.00	BOR	DM ST
73290	55	2184.32	291713.14	5822784.20	11.06.1984	25.90	BOR	DM ST
73292	55	2198.77	291613.14	5822724.20	01.10.1984	25.00	BOR	DM ST
73294	55	3144.68	296153.15	5821224.19	16.09.1986	29.00	BOR	ST DM
73295	55	676.14	293133.14	5820364.19	28.03.1986	93.00	BOR	DM ST
73296	55	427.95	293333.14	5820744.19	28.01.1986	39.50	BOR	ST DM
73297	55	2234.42	291193.14	5822324.20	27.11.1984	35.00	BOR	DM ST
73298	55	2871.30	291703.14	5823584.20	07.04.1983	13.71	BOR	ST DM
73300	55	3051.38	289963.14	5821044.20	17.03.1987	62.00	BOR	ST DM
73301	55	2622.16	290393.14	5820964.20	23.03.1987	32.00	BOR	ST DM
73302	55	3720.71	291513.14	5824434.20	15.05.1987	27.00	BOR	DM ST
73304	55	1809.81	294823.15	5821094.19	19.05.1987	49.00	BOR	ST DM
73305	55	3117.04	293233.15	5824139.20	14.05.1987	30.00	BOR	DM ST
73308	55	2876.75	290213.14	5821684.20	07.04.1988	26.00	BOR	ST DM
73309	55	4662.46	289383.14	5823954.20	30.06.1983	45.10	BOR	NKN
73310	55	4333.10	289763.14	5823894.20	30.06.1983	25.20	BOR	NKN
73311	55	4049.05	290113.14	5823854.20	30.06.1983	45.00	BOR	NKN
73312	55	3794.15	290063.14	5823414.20	30.06.1983	25.16	BOR	NKN
73313	55	3584.51	290003.14	5822974.20	30.06.1983	45.27	BOR	NKN
73314	55	3932.88	289673.14	5823104.20	30.06.1983	25.10	BOR	NKN
73315	55	4304.58	289323.14	5823244.20	30.06.1983	45.10	BOR	NKN
73316	55	4458.61	289353.14	5823574.20	30.06.1983	25.04	BOR	NKN
73319	55	3147.09	290193.14	5822424.20	24.03.1981	36.00	BOR	DM ST
73322	55	2925.37	295913.15	5821424.19	11.05.1987	23.00	BOR	DM ST
73324	55	3445.00	291563.14	5824154.20	17.10.1988	30.00	BOR	DM
73325	55	3732.82	290283.14	5823574.20	12.05.1988	50.00	BOR	DM ST
73328	55	3826.87	289193.14	5820824.20	09.09.1988	77.00	BOR	DM ST MI
73331	55	3589.20	289733.14	5822484.20	18.05.1990	80.00	BOR	DM ST
73333	55	2396.41	292196.14	5823282.20	01.01.1988	70.00	BOR	DM ST
73335	55	2947.69	290259.14	5822077.20	01.01.1988	12.20	BOR	ST
73336	55	2507.24	291917.14	5823284.20	01.01.1988	21.90	BOR	ST
73339	55	4583.61	293863.15	5825534.20	12.03.1991	26.00	BOR	DM ST
73340	55	4975.51	297793.15	5819644.19	01.01.1988	34.40	BOR	DM ST
73342	55	652.41	292613.14	5821544.20	13.08.1991	34.50	BOR	DM
73198	55	4524.69	290111.14	5824500.20	31.12.1919	52.42	BOR	ST DM
73197	55	3561.12	293425.15	5824567.20	31.12.1919	16.76	BOR	ST DM
73196	55	3377.97	289659.14	5821420.20	31.12.1919	73.45	BOR	ST DM
73195	55	4983.70	288418.14	5822956.20	31.12.1909	46.32	BOR	ST DM

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73191	55	4598.11	294867.15	5825238.20	31.12.1906	45.72	BOR	ST DM
73262	55	2672.22	295686.15	5820975.19	31.12.1970	0.00	BOR	NKN
135898	55	1633.26	292333.14	5822514.20	07.11.1998	34.50	BOR	DM DS IR
S9033852/1	55	1187.05	293214.00	5822200.00	17.02.2009	31.40	BOR	SON
S9033854/1	55	1187.05	293214.00	5822200.00	17.02.2009	65.00	BOR	SON
GMS-3518	0	3790.91	0.00	0.00	23.05.1996	9999.00	BOR	OB DPI
GMS-3517	0	3827.81	0.00	0.00	28.02.1994	9999.00	BOR	OB DPI
GMS-3516	0	3260.99	0.00	0.00	11.01.1994	9999.00	BOR	OB DPI
GMS-3515	0	4089.78	0.00	0.00	29.03.1999	9999.00	BOR	OB DPI
GMS-3514	0	4258.84	0.00	0.00	03.10.1993	9999.00	BOR	OB DPI
GMS-3513	0	4381.48	0.00	0.00	24.11.1992	9999.00	BOR	OB DPI
GMS-3512	0	4123.94	0.00	0.00	23.11.1993	9999.00	BOR	OB DPI
GMS-3511	0	4158.44	0.00	0.00	26.05.1993	9999.00	BOR	OB DPI
311325	55	3179.94	289988.14	5822006.20	11.04.1983	0.65	BOR	NG
S9029184/1	55	3637.81	291640.00	5824398.00	28.02.2007	23.00	BOR	DS
S9027573/1	55	1075.32	294088.00	5821092.00	23.01.2007	20.00	BOR	DS
S9025172/1	55	4370.15	290860.00	5824832.00	07.04.2006	28.00	BOR	DS
S9025171/1	55	1732.49	292278.00	5822598.00	05.04.2006	40.00	BOR	DS
S9023648/1	55	3356.67	292501.00	5824347.00	30.09.2005	16.50	BOR	DS
S9023139/1	55	3337.44	291873.00	5824166.00	29.07.2005	30.00	BOR	DS
S9023138/1	55	3344.56	292543.00	5824341.00	03.08.2005	30.00	BOR	DS
S9019231/1	55	2070.05	291705.14	5822633.20	03.02.2004	39.00	BOR	DS
S9019167/1	55	4755.62	293769.15	5825725.20	27.01.2004	31.50	BOR	DS
S9018483/1	0	1786.13	0.00	0.00	14.11.2003	22.00	BOR	DS
145066	55	3152.89	291613.14	5823854.20	17.11.2001	31.00	BOR	DM ST
143995	55	3378.48	290498.14	5823284.20	08.01.2000	54.00	BOR	DM ST
142288	55	1245.45	293363.14	5819834.19	20.12.1998	63.00	BOR	DM ST
142146	55	4400.29	296763.15	5823334.19	14.11.1998	40.00	BOR	DM ST
311334	55	3597.07	289654.14	5822313.20	26.04.1983	1.35	BOR	NG
311333	55	3972.99	289270.14	5822358.20	26.04.1983	0.65	BOR	NG
311332	55	4561.64	288672.14	5822427.20	26.04.1983	0.48	BOR	NG
311331	55	4879.85	288430.14	5822702.20	20.04.1983	1.20	BOR	NG
311327	55	3145.64	289869.14	5820986.20	12.04.1983	2.70	BOR	NG
311326	55	3116.09	289932.14	5821487.20	11.04.1983	2.72	BOR	NG
111535	55	256.64	293233.14	5821164.19	03.12.1991	37.50	BOR	DM
311324	55	3303.82	290042.14	5822472.20	11.04.1983	0.65	BOR	NG
311323	55	3502.31	290102.14	5822975.20	11.04.1983	0.76	BOR	NG
311322	55	3728.40	290169.14	5823439.20	08.04.1983	1.75	BOR	NG
311321	55	4052.57	290215.14	5823960.20	08.04.1983	0.75	BOR	NG

Site no	MGA zone	Distance	Easting	Northing	Date completed	Total depth	Site type	Uses
311320	55	4399.91	290264.14	5824464.20	08.04.1983	0.70	BOR	NG
311297	55	4935.88	290335.14	5825175.20	03.03.1983	1.20	BOR	NG
311294	55	3179.94	289843.14	5820796.20	04.04.1975	97.50	BOR	NG
311292	55	3341.23	291732.14	5824115.20	12.07.1972	60.96	BOR	NG
311291	55	560.19	293039.14	5820470.19	30.05.1972	116.27	BOR	NG
311290	55	2659.58	293365.15	5823666.20	09.03.1972	64.31	BOR	NG
141762	55	794.36	293013.14	5821824.20	19.05.1998	48.00	BOR	DM ST
141690	55	4699.49	297413.15	5822684.19	31.03.1998	62.00	BOR	DM ST
140207	55	4490.40	288638.14	5820024.20	29.01.2000	48.00	BOR	DM
139979	55	4258.86	290913.14	5824734.20	31.03.1998	55.00	BOR	DM ST
139966	55	1350.55	293753.14	5819899.19	26.09.1998	32.00	BOR	DM ST
132840	55	3089.66	290153.14	5819864.19	11.07.1997	80.00	BOR	ST
129589	55	4056.10	293133.15	5825084.20	21.12.1996	25.50	BOR	ST
122101	55	2577.92	295243.14	5819734.19	13.07.1994	70.00	BOR	DM ST
109574	55	1181.67	293210.14	5822195.20	27.05.1971	37.49	BOR	IV SON OB
109575	55	1181.67	293210.14	5822195.20	27.05.1971	37.49	BOR	SON IV OB
77276	55	3800.38	296793.15	5820624.19	11.08.1987	46.00	BOR	DM ST
89284	55	2947.21	294353.14	5818404.19	01.08.1985	73.00	BOR	ST DM
115315	55	4514.28	289048.14	5818874.19	12.01.1993	75.00	BOR	IV
89306	55	4749.79	289683.14	5817644.19	15.04.1988	97.00	BOR	ST
89304	55	2111.38	294092.14	5819214.19	01.01.1988	0.00	BOR	ST
89225	55	3343.18	290157.14	5819294.19	31.12.1960	0.00	BOR	NKN
132814	55	1739.14	294373.14	5819944.19	30.05.1997	52.00	BOR	ST
89303	55	2343.38	294448.14	5819176.19	01.01.1988	0.00	BOR	ST
89231	55	3421.50	295026.14	5818262.19	31.12.1970	24.30	BOR	ST
89245	55	3618.99	289803.14	5819361.19	31.12.1970	0.00	BOR	NKN
89244	55	2890.89	290342.14	5819927.19	31.12.1970	0.00	BOR	NKN
89302	55	2672.52	290405.14	5820452.20	01.01.1988	57.91	BOR	NKN
89301	55	4695.14	294205.14	5816488.19	01.01.1988	39.62	BOR	NKN
140009	55	3194.80	295893.15	5819644.19	13.06.1999	57.00	BOR	ST
89300	55	3350.38	290133.14	5819320.19	01.01.1988	45.70	BOR	NKN
89222	55	3349.95	290157.14	5819281.19	31.12.1960	0.00	BOR	NKN
89299	55	3465.55	290027.14	5819273.19	01.01.1988	108.80	BOR	NKN
89298	55	1815.28	291317.14	5820386.19	01.01.1988	27.40	BOR	NKN
89297	55	1684.14	291414.14	5820505.19	01.01.1988	27.40	BOR	NKN
89221	55	3343.18	290157.14	5819294.19	31.12.1960	0.00	BOR	NKN
89296	55	2582.28	290537.14	5820301.20	01.01.1988	36.50	BOR	NKN
89295	55	2965.59	290193.14	5820116.20	01.01.1988	30.40	BOR	NKN
89294	55	2855.57	290439.14	5819796.19	01.01.1988	27.40	BOR	ST

Site no	MGA zone	Distance	Easting	Northing	Date completed	Total depth	Site type	Uses
89293	55	2884.17	290188.14	5820455.20	01.01.1988	54.80	BOR	NKN
89292	55	4426.63	294333.14	5816804.19	01.02.1990	53.00	BOR	DM ST
89290	55	2866.74	294273.14	5818454.19	22.10.1987	55.00	BOR	DM ST
89289	55	2778.79	295423.14	5819644.19	18.06.1988	89.00	BOR	DM ST
89288	55	2640.18	295393.14	5819884.19	02.03.1988	64.00	BOR	DM ST
89287	55	2020.31	294743.14	5819984.19	27.04.1988	59.00	BOR	DM ST
89286	55	4447.99	293963.14	5816684.19	18.05.1985	77.00	BOR	DM ST
89285	55	3553.05	294153.14	5817664.19	01.08.1985	91.00	BOR	DM ST
111566	55	1974.32	294593.14	5819844.19	04.12.1991	43.50	BOR	DM ST
89282	55	2083.48	294543.14	5819614.19	31.10.1984	31.00	BOR	ST
89280	55	2444.66	294813.14	5819374.19	01.05.1984	41.00	BOR	DM ST
89278	55	3885.80	295073.14	5817734.19	30.03.1983	41.00	BOR	DM ST
89272	55	1533.47	294216.14	5820077.19	03.10.1980	55.00	BOR	ST DM
326202	55	4123.57	291001.14	5817431.19	08.07.1975	119.30	BOR	NG
326204	55	4543.97	294218.14	5816648.19	23.03.1976	92.50	BOR	NG
326205	55	3236.14	289815.14	5820543.20	12.04.1983	2.30	BOR	NG
326206	55	3393.56	289759.14	5820071.20	12.04.1983	0.76	BOR	NG
326207	55	3595.25	289704.14	5819627.19	12.04.1983	0.76	BOR	NG
326208	55	3901.19	289637.14	5819077.19	13.04.1983	0.64	BOR	NG
326209	55	4728.43	288676.14	5819149.20	09.06.1983	0.76	BOR	NG
326215	55	3484.83	294338.14	5817806.19	10.11.1981	152.00	BOR	NG
89271	55	2237.53	290986.14	5820085.19	11.11.1979	36.00	BOR	ST DM
89270	55	3113.25	289947.14	5820497.20	01.12.1979	53.00	BOR	DM ST
89268	55	3248.61	296047.15	5819865.19	16.12.1975	37.50	BOR	ST DM
89267	55	2229.83	294408.14	5819289.19	02.03.1977	27.50	BOR	ST DM
89265	55	1683.36	294368.14	5820029.19	04.02.1976	22.00	BOR	ST DM
S9019075/1	55	1983.66	293008.14	5819046.19	08.04.2004	100.00	BOR	DS
89263	55	4952.05	289304.13	5817750.19	01.05.1975	146.00	BOR	ST DM
89261	55	4114.28	289637.14	5818680.19	25.09.1971	64.00	BOR	ST
89257	55	4114.10	292418.14	5816959.19	31.12.1970	0.00	BOR	NKN
89256	55	4377.60	291112.14	5817087.19	31.12.1970	0.00	BOR	NKN
89250	55	3481.74	290105.14	5819117.19	31.12.1970	0.00	BOR	NKN
89249	55	3481.74	290105.14	5819117.19	31.12.1970	0.00	BOR	NKN
89248	55	3481.74	290105.14	5819117.19	31.12.1970	0.00	BOR	NKN
89247	55	3481.74	290105.14	5819117.19	31.12.1970	0.00	BOR	NKN
89220	55	3343.18	290157.14	5819294.19	31.12.1960	45.72	BOR	ST DM
89219	55	3349.95	290157.14	5819281.19	31.12.1960	45.72	BOR	ST DM
89246	55	3488.90	290105.14	5819104.19	31.12.1970	0.00	BOR	NKN
89243	55	2983.26	290093.14	5820425.20	31.12.1970	0.00	BOR	NKN

Site no	MGA zone	Distance	Easting	Northing	Date completed	Total depth	Site type	Uses
89242	55	3379.75	289995.14	5819511.19	31.12.1970	0.00	BOR	NKN
89241	55	2902.91	290329.14	5819927.19	31.12.1970	0.00	BOR	NKN
89239	55	1145.61	292932.14	5819887.19	31.12.1970	0.00	BOR	NKN
89238	55	2606.86	295290.14	5819758.19	31.12.1970	24.30	BOR	DM ST
89237	55	4693.18	295025.14	5816789.19	31.12.1970	39.30	BOR	ST DM
89236	55	4723.13	294311.14	5816488.19	31.12.1970	27.40	BOR	ST
89227	55	1823.64	294585.14	5820103.19	31.12.1970	39.60	BOR	ST
89233	55	2251.24	294426.14	5819276.19	31.12.1970	24.30	BOR	ST DM
89223	55	3343.18	290157.14	5819294.19	31.12.1960	0.00	BOR	NKN
89224	55	3343.18	290157.14	5819294.19	31.12.1960	0.00	BOR	NKN
89230	55	2521.32	290930.14	5819611.19	31.12.1970	47.50	BOR	DM ST
89228	55	2036.67	291321.14	5819898.19	31.12.1970	10.60	BOR	ST DM
89232	55	2785.73	295482.14	5819737.19	31.12.1970	39.60	BOR	ST
89234	55	2174.04	294834.14	5819840.19	31.12.1970	18.20	BOR	DM
141751	55	3991.94	289113.14	5820184.20	29.04.1998	76.00	BOR	DM ST
9038906	55	4411.92	290166.00	5824399.00	25.09.2009	50.50	BOR	DS