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7 February 2024

Dear Robert,

Rev4 Phase 1 Environmental assessment: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic

This rev4 report is an update of our rev3 report dated 25 May 2023. This rev4 update addresses the items set out in Section 2 of the Moorabool Shire Council letter to Whiteman Property and Associates dated 21 December 2023, Re: Planning Scheme Amendment C108. The Section 2 items comprised the comments set out in the EPA Victoria letter to Moorabool Shire Council dated 1 December 2023, Re: Moorabool Shire Council – Ballan Precinct 5 – Planning Scheme Amendment C108.

1 Introduction

Connolly Environmental was engaged by Wel.Co Group to prepare a Phase 1 Contamination Assessment of the proposed Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan. The following Lots were assessed:

Eight Lots owned by Wel.Co with an approximate total area of 87 hectares:

Address	Lot/Plan Description	Approximate area (ha)	Planning Zone
Geelong-Ballan Road Ballan 3342	Lot 1 TP886443	0.6	Rural Living Zone (RLZ) & Schedule to the Rural Living Zone (RLZ)
	Lot 2 TP886443	8.8	
Old Melbourne Road Ballan 3342	Lot 1 TP886442	8.7	
Old Melbourne Road Ballan 3342	Lot 2 TP886442	28.5	
Old Melbourne Road Ballan 3342	Lot 1 TP872395	19.0	
Old Melbourne Road Ballan 3342	Lot 2 TP872395	20.0	
Old Melbourne Road Ballan 3342	Lot 1 TP862922	0.21	
Old Melbourne Road Ballan 3342	Lot 2 TP862922	1.0	

Six Lots adjoining the Wel.Co Lots:

Address	Lot/Plan Description	Approximate area (ha)	Planning Zone
5600 Geelong-Ballan Road Ballan 3342	Lot 1 PS319354	0.6	Rural Living Zone (RLZ) & Schedule to the Rural Living Zone (RLZ)
5590 Geelong-Ballan Road Ballan 3342	Lot 2 PS319354	1.3	
5580 Geelong-Ballan Road Ballan 3342	Lot 2 LP218512	0.8	
5570 Geelong-Ballan Road Ballan 3342	Lot 1 PS308413	0.5	

462 Old Melbourne Road Ballan 3342	Lot 1 LP119886	1.9	
400 Old Melbourne Road Ballan 3342	Lot 1 TP222589	3.9	

For the purpose of this report:

- The eight Lots owned by Wel.Co are referred to as “the Wel.Co site”.
- The six adjoining Lots are referred to as “the adjoining Lots”.
- The 14 Lots are referred to collectively as “the site”.

The Wel.Co site comprised predominantly farmland with scattered vegetation. There was a shed in the southern portion and a rural irrigation channel in the western portion.

The adjoining Lots comprised rural residences with associated sheds/building and scattered trees.

The site was not covered by an Environmental Audit Overlay (EAO).

1.1 Limitations

Conclusions in this report were based on site observations and other information obtained by Connolly Environmental, and on the assumption that these data were representative and reliable. These conclusions must be read in conjunction with the assumptions and uncertainties included in the report. If site conditions or information different to that set out in the report are identified or appear to be present, please advise us promptly. We will re-evaluate our conclusions where necessary.

This report has been prepared for the exclusive use of the client. We have used a degree of care and skill ordinarily exercised under similar conditions by reputable members of our profession, practicing in the same or similar localities. No other warranty, expressed or implied, is made or intended.

This report is issued on the condition that it will not be altered, amended, or abbreviated, issued in part or issued incomplete without our prior approval. We accept no responsibility for any loss, damage or consequence that may arise from breaches of this condition.

1.2 Scope of work

The scope of work comprised:

- A detailed site history review including review of historical aerial photographs, historical maps (online), EPA priority sites register, review of list of issued certificates and statements of environmental audit as review of other available historical information relevant to the site.
- A detailed site inspection.
- Collection of 21 surface samples from across the Wel.Co site. Samples were collected at representative locations from across each of the individual lots.
- Soil vapour survey at each sample location using a portable photoionisation detector (PID).
- Analysis of selected soil samples as detailed in section 8.3 below.
- Preparation of this report, detailing the findings of the site assessment with reference to *Ministerial Direction No 1 – Potentially Contaminated Land* (DSE 1987) and the *Potentially Contaminated Land Planning Practice Note 30, July 2021* (PPN30 2021).

2 Document history and amendment register

Rev No	Date	Description/amendment(s)	Distribution
0	29 April 2022	Phase 1 Environmental assessment: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic	Greg Miller (Wel.Co)
1	1 September 2022	The rev1 report expanded the scope of the original report to include desktop assessment of six adjoining Lots.	Greg Miller (Wel.Co)
2	8 February 2023	The rev2 report was prepared in response to Council's comment that "the contamination survey area needs to include the whole precinct, including public open space, stormwater basins and the Werribee River corridor". The report therefore incorporated specific reference to the growth types and significant features that apply to the Wel.Co landholdings based on the Ballan Framework Plan presented in the Moorabool Planning Scheme (DTP 2022).	Greg Miller (Wel.Co)
3	25 May 2023	The rev3 report was prepared in response to Moorabool Shire Council Request for Further Information (RFI) dated 15 May 2023. The rev3 report specifically addressed items 10. a) and 10. b) in Attachment 1 of the RIF.	Guy Williamson (Wel.Co)
4	5 February 2024	This rev4 update addresses the items set out in Section 2 of the Moorabool Shire Council letter to Whiteman Property and Associates dated 21 December 2023, Re: Planning Scheme Amendment C108.	Robert Hondromatidis (Wel.Co)

3 Background

3.1 Site setting

A summary of general site information for Lots comprising the Wel.Co site is provided in Table 3.1 below. A summary of general site information for the adjoining Lots is provided in Table 2.1 below. The site locality is shown in Attachment 1, Figure 1.

Table 3.1 Site information summary- Wel.Co Lots

Subject area	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8
Lot and Plan Number	Lot 1 TP886443	Lot 2 TP886443	Lot 1 TP886442	Lot 2 TP886442	Lot 1 TP872395	Lot 2 TP872395	Lot 1 TP862922	Lot 2 TP862922
Address	Geelong-Ballan Road Ballan 3342		Old Melbourne Road Ballan 3342					
Approximate area (ha)	0.6	8.8	8.7	28.5	19	20	0.21	1
Surrounding landuse	Agricultural land and rural residential.							
Zoning	Rural Living Zone (RLZ) & Schedule to the Rural Living Zone (RLZ)							
Environmental Audit Overlay (EAO)	None as of 31 August 2022.							

Subject area	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8
Topography	The landholdings were generally flat with a slope down to the east towards Werribee River.							

Table 3.2 Site information summary- adjoining Lots

Lot and Plan Number	Lot 1 PS319354	Lot 2 PS319354	Lot 2 LP218512	Lot 1 PS308413	Lot 1 LP119886	Lot 1 TP222589
Address	5600 Geelong-Ballan Road Ballan 3342	5590 Geelong-Ballan Road Ballan 3342	5580 Geelong-Ballan Road Ballan 3342	5570 Geelong-Ballan Road Ballan 3342	462 Old Melbourne Road Ballan 3342	400 Old Melbourne Road Ballan 3342
Approximate area (ha)	0.6	1.3	0.8	0.5	1.9	3.9
Surrounding landuse	Agricultural land and rural residential.					
Zoning	Rural Living Zone (RLZ) & Schedule to the Rural Living Zone (RLZ)					
Environmental Audit Overlay (EAO)	None as of 31 August 2022.					
Topography	The Lots were generally flat.					

3.2 Geology and hydrogeology

The Ballan map sheet (1:50,000) Geological Survey of Victoria and a check of State Government records (Lotsearch 2022) showed the site geology to comprise Newer Volcanic olivine basalt with minor scoria, tuff and agglomerate; underlain by gravel, sandy silt and clayey gravel; and swamp and lake deposits (comprising clay and silty clay, minor sandy and gravelly clay). Groundwater was likely to be encountered between 5 and 20 m below ground level, (VVG 2022). We considered that the likely groundwater flow direction was towards Werribee River located adjacent to the east boundary of the site.

4 Site history

The review of historical data for the site comprised review of:

- Aerial photographs.
- Historical maps.
- EPA priority sites register.
- Issued certificates and statements of environmental audit.

4.1 Aerial photographs

Historical aerial photographs of the site and surrounding area were reviewed for the period between 1961 and 2022 (Lotsearch 2022). A summary of observations is provided in Table 3.1 below. Copies of the aerial photographs are included in Attachment 2.

Table 4.1 Review of historical aerial photographs

Year	Area	Observations
1961	Wel.Co site	The Wel.Co site appeared to comprise open farmland with dispersed trees and an irrigation channel traversing through the northwest portion of the site, however poor aerial image quality prevented detailed observation.
	Adjoining Lots	The Adjoining Lots to the west and southeast comprised agricultural land with rural residential properties and patches of remnant vegetation, however poor aerial image quality prevented detailed observation.

Year	Area	Observations
	Surrounding area	The surrounding area comprised open farmland, agricultural land and patches of remnant vegetation. Rural residential properties were visible to the north and south of the site. Geelong-Ballan Road was visible to the west and Old Melbourne Road was visible to the south.
1970	**Wel.Co site**	The Wel.Co site did not appear to have undergone any significant changes with the exception of a dam visible in the eastern portion of the site and a shed/building structure in the southern portion of the site.
	Adjoining Lots	The adjoining Lots did not appear to have undergone any significant changes.
	Surrounding area	The surrounding area did not appear to have undergone any significant changes.
1984	**Wel.Co site**	The Wel.Co site did not appear to have undergone any significant changes.
	Adjoining Lots	The adjoining Lots did not appear to have undergone any significant changes.
	Surrounding area	Rural residential properties were visible to the east of the site. The Western Freeway appeared to have been built.
1990	**Wel.Co site**	The Wel.Co site did not appear to have undergone any significant changes.
	Adjoining Lots	The adjoining Lots did not appear to have undergone any significant changes.
	Surrounding area	Rural residential properties were visible to the northeast of the site and low density residential properties were visible to the south of the site.
2012	**Wel.Co site**	The Wel.Co site appeared to be used for cropping.
	Adjoining Lots	Rural residential properties with associated shed/building structures appeared to have been built at 5580 & 5590 Geelong-Ballan Road. Several stockpiles and accumulations of building materials/rubbish/scrap were visible at 5580 Geelong-Ballan Road.
	Surrounding area	Low density residential developments were visible to the east and south of the site.
2016	**Wel.Co site**	The Wel.Co site did not appear to have undergone any significant changes.
	Adjoining Lots	Additional stockpiles of building material/rubbish/scrap and numerous abandoned car bodies were visible at 5580 Geelong-Ballan Road.
	Surrounding area	Additional residential developments were visible to the east and south of the site.
2022	**Wel.Co site**	The Wel.Co site did not appear to have undergone any significant changes.
	Adjoining Lots	The adjoining Lots did not appear to have undergone any significant changes with the stockpiled building material/rubbish/scrap and abandoned car bodies still visible at 5580 Geelong-Ballan Road.
	Surrounding area	Additional residential developments were visible to the east of the site.

4.2 EPA Priority Sites Register

A review of the EPA Priority Sites Register (EPA 2022) showed that as at the last update of the register (28 February 2022) none of the Lots comprising the site were listed on the register and that there were no registered sites within 1 km of the site.

EPA does not have any requirements for the active management of land and groundwater contamination at sites not on the Priority Sites Register. The Priority Sites Register does not list all sites known to be contaminated in Victoria, and as such a site should not be presumed to be free of contamination because it does not appear on the Priority Sites Register.

4.3 Groundwater restricted use zones

A check of EPA records (Lotsearch 2022) identified no groundwater restricted use zones applying to the site.

4.4 List of issued certificates and statements of environmental audit

A review of EPA environmental audit data (Lotsearch 2022) showed that no certificates or statements of environmental audit had been issued for the site, and that there were no listed audit sites within 1 km of the site.

4.5 Waste management facilities and landfills

A review of the EPA Victorian Landfill Register (EPA 2022) showed that there were no landfills within 1 km of the site.

4.6 Historical online maps and photographs

The following historical online maps were reviewed:

- Australia 1:63,360 topographical maps (Commonwealth Section Imperial General Staff) dated 1936.
- NATMAP 1:100,000 topographic map, Geoscience Australia, (1981).

There was no evidence of potentially contaminating landmarks, infrastructure or activities at the site.

The topographical and NATMAP maps did not show any significant detail of the site or surrounding area. Historical maps are provided in Attachment 3.

4.7 Wel.Co site inspection

We inspected the Wel.Co site on 19 April 2022. A summary of observations is provided in Table 3.2 below.

Table 4.2. Summary of Wel.Co site inspection observations

Area	Observation
Area 1 Lot 1 TP886443	At the time of our inspection the Lot comprised fenced paddocks used for sheep grazing. The site vegetation comprised grass and other low vegetation cover.
Area 2 Lot 2 TP886443	At the time of our inspection the Lot comprised fenced paddocks used for sheep grazing. The site vegetation comprised grass and other low vegetation cover.
Area 3 Lot 1 TP886442	At the time of our inspection the Lot comprised fenced paddocks used for sheep grazing. The site vegetation comprised grass and other low vegetation cover with the exception of a remanent bushland that covered a portion to the east.
Area 4 Lot 2 TP886442	At the time of our inspection the Lot comprised fenced paddocks used for sheep grazing. The site vegetation comprised grass and other low vegetation cover with the exception of a remanent bushland that covered a portion to the east. A dam was observed to the east of the Lot.
Area 5 Lot 1 TP872395	At the time of our inspection the Lot comprised a crop (possibly canola) with a road traversing the Lot and sparse vegetation to the northwest.
Area 6 Lot 2 TP872395	At the time of our inspection the Lot comprised a crop (possibly canola) with sheep grazing and a road traversing the Lot. A shed was observed to the southwest of the Lot.
Area 7 Lot 1 TP862922	At the time of our inspection the Lot comprised an irrigation channel which traversed through the north western portion of the site.
Area 8 Lot 2 TP862922	At the time of our inspection the Lot comprised an irrigation channel which traversed through the north western portion of the site.

4.8 Summary of site history and site inspection

The review of site history information showed that the Wel.Co site had been used for agricultural (cropping and/or grazing) and rural residential purposes from as early as 1961. The irrigation channel on Areas 7 and 8 (Lots 1 and 2 TP862922) was established sometime before 1961. The Lots did not appear to have changed significantly over time and their layouts were generally consistent with those observed at the time of inspection.

Aerial photographs showed low-density residential developments to the east and south of the site from 2012 onwards.

5 Wel.Co site soil assessment

5.1 Potential contaminants of concern

Based on the site location we identified the following contaminants of potential concern:

- Petroleum hydrocarbons (as measured by analysis for TPH (total petroleum hydrocarbons) and TRH (total recoverable hydrocarbons).
- Benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN).
- Polyaromatic hydrocarbons (PAH).
- Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc).

However, as well as being analysed for these potential contaminants of concern, selected samples were also analysed for a full suite of analytes, in accordance with EPA publication IWRG 621 (EPA 2009).

6 Adopted environmental assessment criteria

6.1 Soil

The legal framework for the protection and management of Victoria's land environment is provided in the Environmental Reference Standard (ERS) Part 4 Land (ERS 2021). ERS Part 4 Land identifies environmental values of the land environment to be protected and provides indicators and objectives for the protection of environmental values. ERS Part 4 Land endorses the National Environment Protection (Assessment of Contamination) (NEPC, 2013) ("the NEPM"), as the key guidance document in contamination assessment.

In accordance with ERS Part 4 Land, the environmental values of the land environment that must be protected for residential and other sensitive land uses include:

- Land dependent ecosystems and species.
- Human health.
- Building and structures.
- Aesthetics.
- Production of food flora and fibre.

The NEPC (2013) investigation levels adopted for comparison of the soil analytical results for this assessment are discussed below. It should be noted that chemical concentrations above the specified NEPC (2013) investigation levels would not automatically trigger remedial action. However, exceedance of these criteria would suggest that further evaluation of the potential risks that may be posed by site contaminants is appropriate.

Land dependent ecosystems and species

In accordance with ERS Part 4 Land, the assessment criteria adopted for land dependent ecosystems and species were the NEPM criteria provided within Schedule B1 of NEPC (2013). These comprised:

- Ecological Investigation Levels (EILs); developed for selected metals and organic substances for the assessment of risk to terrestrial ecosystems. The application of EILs is dependent on soil characteristics (pH and cation exchange capacity (CEC)) and specified land use scenarios. The EIL is derived by summing the added contaminant limit (ACL) and the ambient background concentrations (ABC). An ACL is the added concentration (above the ABC) of a contaminant above which further appropriate investigation and evaluation of the impact on ecological values is required. ACLs apply to chromium (III), copper, nickel and zinc for site-specific determination. Ambient background concentrations (ABCs) of contaminants assume that the ecosystem has adapted to the ABCs. The ACLs, ABCs and calculated EILs assigned to the site are detailed below. EILs are generally applied to the top 2.0 m of soil, however, a depth of up to 3.0 m may need to be considered for plant species with greater root penetration. Contaminants at the site were considered to be aged for the purpose of EIL derivation given that they were considered to be in the soil for at least two years (NEPC, 2013).
- Ecological Screening Levels (ESLs); developed for selected petroleum hydrocarbon compounds and fractions that are relevant to the assessment of risk to terrestrial ecosystems. The application of ESLs is dependent on soil properties (coarse- or fine-grained soils) and specified land use scenarios. For an overflow carpark, commercial and industrial ESLs were considered most appropriate. Based on investigations at the site, the ESLs for fine grained soils was considered the most suitable. ESLs are generally applied to the top 2.0 m of soil, however, a depth of up to 3.0 m may need to be considered for plant species with greater root penetration.

The land use categories that provide the basis of ecological investigation are divided into the following general groups:

- Natural ecosystems: where planning provisions or land use is designated with the intention to conserve and protect the natural environment. “Areas of ecological significance” as defined in the NEPM would include national parks, state parks, wilderness areas and designated conservation areas. Applies a 99% level of protection.
- Modified ecosystems: where land is used for parks and reserves, sensitive use (residential use other than high density residential use), recreation/open space (ERS 2021); land use is broadly equivalent to HIL A, HIL B and HIL C land use scenario as defined in the NEPM. Applies an 80% level of protection.
- Highly modified ecosystems: Applies a 60% level of protection.

Further information in relation to assessment of maintenance of ecosystems including derivation and background assessment is provided in Schedule B5a, B5b and B5c of NEPC (2013).

Human health

For the protection of human health, ERS Part 4 Land states that the objective for each indicator is the health investigation or screening level in the NEPM (NEPC 2013), unless there is no such investigation or screening level; or a more appropriate site-specific objective is determined (using the risk assessment methodology in the NEPM or the background level determined in accordance with section 36 of the Act). Indicators are specified as inorganic and organic contaminants set out in Appendix A of Schedule B2 of the NEPM, and any other

contaminants present at the site as determined by the current use or site history assessed in accordance with the NEPM (NEPC 2013).

The assessment criteria adopted for human health are provided within Schedule B1 of the NEPM. These comprise:

- Health Investigation Levels (HILs); developed for a broad range of metals and organics for the assessment of human health, via all relevant exposure pathways. The application of HILs is generic to all soil types, and HILs are generally applied to the top 3.0 m for residential site use and to site specific depths (based on actual site conditions) for all other land uses.
- Interim HILs for volatile organic chlorinated substances (Interim HILs); developed for volatile chlorinated compounds via inhalation exposure pathways. The application of the interim HILs for volatile chlorinated substances limited to vapour intrusion (which contributes >99% of total risk when considering all potential exposure pathways). Interim HILs apply a simple (yet conservative) attenuation factor approach for soil and groundwater sources/plumes. It should be noted that their application is generally consistent with general exposure settings (outlined in Table 6.1 below), however residential settings are combined (regardless of exposure to soil), and secondary schools should be assessed as residential.
- Health Screening Levels (HSLs); developed for selected petroleum compounds and fractions for the assessment of human health, via inhalation and direct contact exposure pathways. The application of HSLs is dependent on specific soil properties, land use scenarios, depth and characteristics of buildings and structures. Further information including the HSL application checklist is provided in CRC (2011).

The general exposure settings that provide the basis of human health investigation are outlined in Table 6.1 below.

Table 6.1 General exposure settings (human health assessment)

Health investigation level	Definition
HIL A	Residential with garden/accessible soil including home grown produce <10% for fruit and vegetable intake (excludes poultry). Also includes children's day care centers, preschools and primary schools.
HIL B	Residential with minimal opportunities for soil access including dwellings with fully and permanently paved yard space such as high-rise buildings and flats.
HIL C	Public open space such as parks, playgrounds, playing fields, secondary schools and footpaths. It does not include undeveloped public open space such as bush land and nature reserves which should be subject to site specific assessment.
HIL D	Commercial/Industrial such as shops, offices, factories and industrial sites.

For this assessment, NEPM HIL A and HSL A criteria were adopted for the assessment of human health in a low-density residential setting. Further information in relation to calculation and derivation of human health investigation levels is provided in Schedule B4 and B7 of NEPC (2013).

Buildings and structures

For this environmental value ERS Part 4 Land specifies the objective for land to be not corrosive to or otherwise adversely affecting structures or building materials. Specific indicators include pH, sulphate, chloride, redox potential and salinity. Standards Australia

(AS2159-2009), exposure classifications for concrete piles (Table 6.4.2 (C)) were adopted for the review of buildings and structures.

Aesthetics

For this beneficial use, the Land SEPP states that contamination must not cause the land to be offensive to the senses of human beings.

Production of food, flora and fibre

For this beneficial land use, the review of human health and ecological assessment criteria for low density residential and open space was considered suitable for the protection of food, flora and fibre, as guidelines (particularly HIL A human health guidelines) make an allowance for consumption of home-grown fruit and vegetable produce.

7 Methodology

All work was conducted in accordance with the following guidelines for assessing contaminated sites:

- CRC (2011).
- NEPC (2013).
- Standards Australia (1999, 2005, 2009).
- EPA (2009a, 2009b, 2009c).

Field protocols are provided in Attachment 7.

7.1 Soil vapour survey

At each soil sample location, a headspace measurement of volatile organic compound (VOC) concentrations was taken using a portable MiniRae PID calibrated using isobutylene reference gas. The PID was calibrated in accordance with Connolly Environmental's quality management systems, prior to use on the day of sampling.

7.2 Soil bore sampling methodology

Soil samples were collected from 0-100 mm below the surface using a stainless-steel sampling trowel.

Further discussion regarding sampling location is outlined in section 8.1 below. During sample collection disposable gloves were worn. These were changed following collection of each soil sample.

7.3 Sample collection, storage and analysis

All soil samples were collected into appropriately prepared sample containers provided by the analysing laboratory. After preparation and labelling the samples were placed immediately into an ice-chilled cooler. On return from site, samples were transferred to the sample refrigerator, then couriered to the analysing laboratory on the morning of the following day in ice-chilled coolers.

All laboratory analyses were conducted by NATA endorsed laboratories using NATA approved analytical methods. In addition, laboratory practices were in general accordance with relevant NEPM guidelines outlined in Schedule B (3) Guideline on Laboratory Analysis

of Potentially Contaminated Soils (NEPM 2013). The primary laboratory used for analysis of the primary and duplicate samples was ALS. The secondary laboratory used for analysis of split samples was Envirolab.

The NATA-accredited laboratory analysis reports, issued by ALS and Envirolab were within the holding times recommended by Standards Australia (1999, 2005).

7.4 Soil QA/QC sample collection and analysis

Duplicate and split samples

Duplicate and split samples were collected at a rate of 1 in 20 samples collected for analysis by the laboratory in accordance with Australian Standard 4482.1-2005. Duplicate and split samples (and the corresponding primary sample) were collected from the same sample point and distributed evenly into three pre-labelled soil sampling jars, to ensure representative sampling (as per section 8.2.2 of AS4482.1-2005). Please note that to ensure minimal loss of any volatile organics, the soil samples were not mechanically mixed.

8 Wel.Co site soil investigation

Soil investigation sitework was conducted on 19 April 2022 and is detailed in sections 8.1 to 8.3 below.

8.1 Sample locations

Soil samples were collected from 21 representative locations (SB1-SB21) across the eight Lots owned by Wel.Co (the Wel.Co site). Sampling locations are shown in Figure 2, Attachment 1.

8.2 Field observations

At the time of sitework the site surface was significantly vegetated with crops, grasses, shrubs, trees and weeds. The topsoil comprised brown, brown/red and dark brown silty clay with organic matter content with the exception of Area 7 (Lot 1 TP862922) and Area 8 (Lot 2 TP862922) which comprised a mixture of crushed rock and brown silty clay. Soil odour was recorded at all sampling locations.

Photoionisation detector readings were zero, indicating an absence of volatile petroleum hydrocarbons in the samples tested.

8.3 Laboratory analysis program

We collected and analysed 23 soil samples comprising 21 primary samples and two QA/QC samples as set out in Table 7.1 below. The sampling locations are shown in Figure 2, Attachment 1.

Table 8.1 Soil sample analysis program

Bore	Sample Depth (m)	Location	Laboratory analysis schedule
SB1	0.1	**Area 6** Lot 2 TP872395	TRH, BTEX, PAH
SB2	0.1	**Area 6** Lot 2 TP872395	Screen metals**, pH, CEC
SB3	0.1	**Area 6** Lot 2 TP872395	TRH, BTEX, PAH
SB4	0.1	**Area 6** Lot 2 TP872395	EPA IWRG 621 Screen*
SB5	0.1	**Area 2** Lot 2 TP886443	Screen metals
SB505	0.1	Duplicate of SB5	Screen metals
SB605	0.1	Split of SB5	Screen metals
SB6	0.1	**Area 2** Lot 2 TP886443	TRH, BTEX, PAH
SB7	0.1	**Area 1** Lot 1 TP886443	Screen metals
SB8	0.1	**Area 7** Lot 1 TP862922	TRH, BTEX, PAH
SB9	0.1	**Area 3** Lot 1 TP886442	Screen metals
SB10	0.1	**Area 3** Lot 1 TP886442	EPA IWRG 621 Screen*
SB11	0.1	**Area 4** Lot 2 TP886442	TRH, BTEX, PAH
SB12	0.1	**Area 4** Lot 2 TP886442	Screen metals
SB13	0.1	**Area 4** Lot 2 TP886442	TRH, BTEX, PAH
SB14	0.1	**Area 4** Lot 2 TP886442	Screen metals
SB15	0.1	**Area 4** Lot 2 TP886442	TRH, BTEX, PAH
SB16	0.1	**Area 8** Lot 2 TP862922	Screen metals
SB17	0.1	**Area 4** Lot 2 TP886442	TRH, BTEX, PAH
SB18	0.1	**Area 5** Lot 1 TP872395	Screen metals
SB19	0.1	**Area 5** Lot 1 TP872395	TRH, BTEX, PAH
SB20	0.1	**Area 5** Lot 1 TP872395	Screen metals
SB21	0.1	**Area 5** Lot 1 TP872395	EPA IWRG 621 Screen*

*IWRG 621 screen comprises metals (arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium and zinc), cyanide, fluoride, halogenated and non-halogenated phenols, monoaromatic hydrocarbons (MAH), polyaromatic hydrocarbons (PAH), total recoverable hydrocarbons (TRH), organochlorine pesticides (OC), volatile chlorinated hydrocarbons, chlorinated hydrocarbons and polychlorinated biphenyls (PCB).
**Screen metals (8) comprises arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc.

8.4 Results of soil investigation

Tabulated laboratory analysis results for soil are provided in Attachment 4. The NATA-endorsed laboratory reports are included in Attachment 5.

8.4.1 Soil results compared to human health criteria

Tabulated laboratory analysis results for human health are provided in Table 1, Attachment 4. The laboratory analysis results for soil showed:

- Non-detectable to low concentrations of all relevant analytes, below the adopted human health criteria for vapour intrusion and direct contact in a low-density residential land use setting (NEPM HSL/HIL A).

8.4.2 Soil results compared to ecological criteria

Tabulated laboratory analysis results compared to maintenance of ecosystems criteria are provided in Table 2, Attachment 4. The laboratory analysis results for soil showed:

- Non-detectable to low concentrations of all relevant analytes, below the adopted ecological investigation and screening levels (NEPM EIL/ESL).

8.4.3 Soil results compared to petroleum hydrocarbon management limits

Tabulated laboratory analysis results for petroleum hydrocarbon management limits are provided in Table 3, Attachment 4. The laboratory analysis results for soil showed:

- Non-detectable to low concentrations of all relevant analytes, below the adopted petroleum hydrocarbon management limits criteria.

8.4.4 Soil analytical results compared to waste classification criteria

Soil results were compared with the relevant Victorian waste classification criteria outlined in EPA publication 1828.2 (EPA 2021a). Comparison of results to the relevant assessment criteria for waste classification is provided in Table 4, Attachment 4. Laboratory analysis results of soil samples showed:

- Non-detectable to low concentrations of all relevant analytes including ASLP metals and PAH, below the adopted EPA Fill material upper limits.

8.5 QA/QC review

A summary of results of the quality assurance program for soil samples submitted to the primary and secondary laboratories is provided in Table 7.4 below.

Table 7.4 Summary of quality assurance results

QC sample	Number of results meeting data quality objectives	Total number of results	Percentage meeting data quality objectives
Field splits	6	8	75.0%
Field duplicates	9	9	100%
Internal duplicates	164	164	100%
Internal spikes	101	111	91.0%
Internal blanks	173	175	98.9%
Overall completeness	**453**	**467**	**97.0%**

The overall data quality for soil samples was assessed as 97.0% satisfying the 95% completeness objective. Laboratory results were considered to be suitable for the assessment of soil conditions at the site.

9 Comments on the Ballan-Strategic Directions (Mesh 2018)

The Ballan Strategic Directions (Mesh 2018) presents the framework to guide decision-making by Moorabool Shire Council and other stakeholders about future use and development of land within the town. The document was implemented in the Moorabool Planning Scheme (DTP 2022) as a reference document in Clause 21.11.

According to the current Ballan Framework Plan presented in Clause 21.08 of the Moorabool Planning Scheme (DTP 2022) the Wel.Co site and the adjoining Lots comprise the following growth types and significant features:

- Greenfield growth
- Greenfield growth (proposed lower densities)
- Greenfield growth (proposed larger residential allotments)
- Proposed open space
- Retarding basins and dams (within the proposed open space layer)

Our soil investigation comprised collection of representative samples across the eight Lots owned by Wel.Co as detailed in Section 8 above. The sampling locations included each of the growth types and significant features presented in the Ballan Framework Plan that applied to the site.

An extract of the Ballan Framework Plan marked up with the sampling locations is provided in Attachment 1, Figure 3.

10 Ministerial Direction No. 1 and PPN30 (2021)

Ministerial Direction No.1 – Potentially Contaminated Land (Direction No. 1) requires that planning authorities when preparing a planning scheme amendment, satisfy themselves that the environmental conditions of the land proposed to be used for a sensitive use (defined as residential, child-care centre, pre-school, centre or primary school), agricultural or public open space are, or will be, suitable for that use.

Planning Practice Note 30 (PPN30) provides guidance on implementing the requirements of Ministerial Direction No. 1.

PPN30 provides the following definitions and requirements:

"Potentially contaminated land is defined in Ministerial Direction No.1- Potentially Contaminated Land and Clause 73.01 General Terms of the Victoria Planning Provisions (VPP) as land:

(a) used or known to have been used for industry or mining;

(b) used or known to have been used for the storage of chemicals, gas, waste or liquid fuel (other than minor above-ground storage that is ancillary to another use of the land); or

(c) where a known past or present activity or event (occurring on or off the land) may have caused contamination on the land".

PPN30 requires that *"If land is determined to be potentially contaminated, the planning or responsible authority must require appropriate assessment as part of a planning scheme amendment or permit application".*

PPN30 also states that *"If the review of the current and historical use of the land and surrounds shows a history of non-contaminating activities and there is no other evidence or suspicion for contamination, further investigation is not required".*

Our review of PPN30 included a comparison of the identified former site uses with land uses with potential to contaminate land as set out in Table 2.

11 Conclusions

Based on the findings of our Phase 1 Contamination Assessment & soil investigation, we concluded the following for the Wel.Co site:

- Our site history review showed that since at least 1961 the Wel.Co site had been agricultural land.

- At the time of our inspection the Wel.Co site had been used for cropping and/or grazing.
- Our site inspection did not find any evidence of stockpiled soil, storage of chemicals or any other activity or event occurring at the Wel.Co site which may have caused contamination on the land.
- All soil samples collected from the Wel.Co site met human health and ecological criteria for sensitive use (including low density residential use). The sampling locations included each of the growth types and significant features presented in the Ballan Framework Plan.
- As the work for this report showed a history of non-contaminating activities and as there was no other evidence or suspicion for contamination, the Wel.Co site was not potentially contaminated as defined by the General Practice Note and PPN30, and further investigation is therefore not required.

Based on the findings of our Phase 1 Contamination Assessment, we concluded the following for the adjoining Lots:

- Our site history review showed that since at least 1961 the adjoining Lots had been agricultural land with rural residential properties.
- With the exception of 5580 Geelong-Ballan Rd, as the work for this report showed a history of non-contaminating activities and as there was no other evidence or suspicion for contamination on the adjoining lots, the adjoining lots were not potentially contaminated as defined by the General Practice Note and PPN30, and further investigation is therefore not required.
- With respect to 5580 Geelong-Ballan Rd, our client made multiple unsuccessful attempts to gain access approval to the property. We were therefore unable to inspect or sample the material stockpiled on that property. As the origin or content details of these waste stockpiles were unknown, we considered that they represented a medium potential for contamination as set out in Table 2 of PPN30.

12 Recommendations

- As the Wel.Co site and the adjoining lots with the exception of 5580 Geelong-Ballan Rd, met the General Practice Note and PPN30 criteria for land that is not potentially contaminated we have made no recommendations for further assessment or remediation of these areas.
- With respect to 5580 Geelong-Ballan Rd, as this land is potentially contaminated. As set out in PPN30, we recommend that Council take whatever measure necessary to impose a mechanism on that property at 5580 Geelong for further reporting to be completed prior to any development of that property, and we would support the application of an Environmental Audit Overlay to this lot.

Regards,

Mark Connolly

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Attachments

Attachment 1 Figures

Attachment 2 Aerial photographs

Attachment 3 Site history documentation

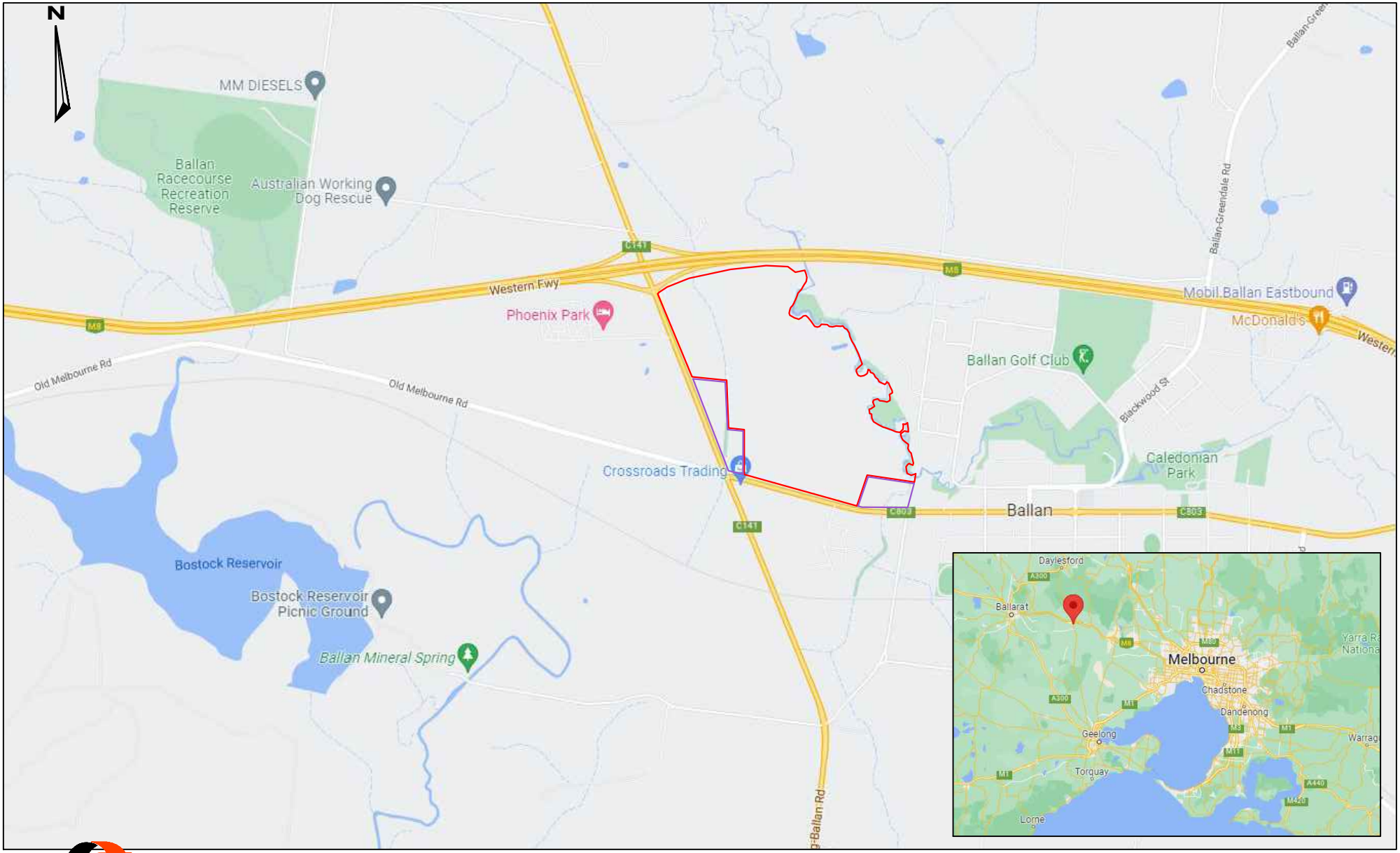
Attachment 4 Tabulated soil results

Attachment 5 NATA-accredited lab reports

Attachment 6 Lotsearch report

Attachment 7 Field protocols

Attachment 1 Figures



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Legend:
- Wel.Co landholdings boundary
- Adjoining properties boundary

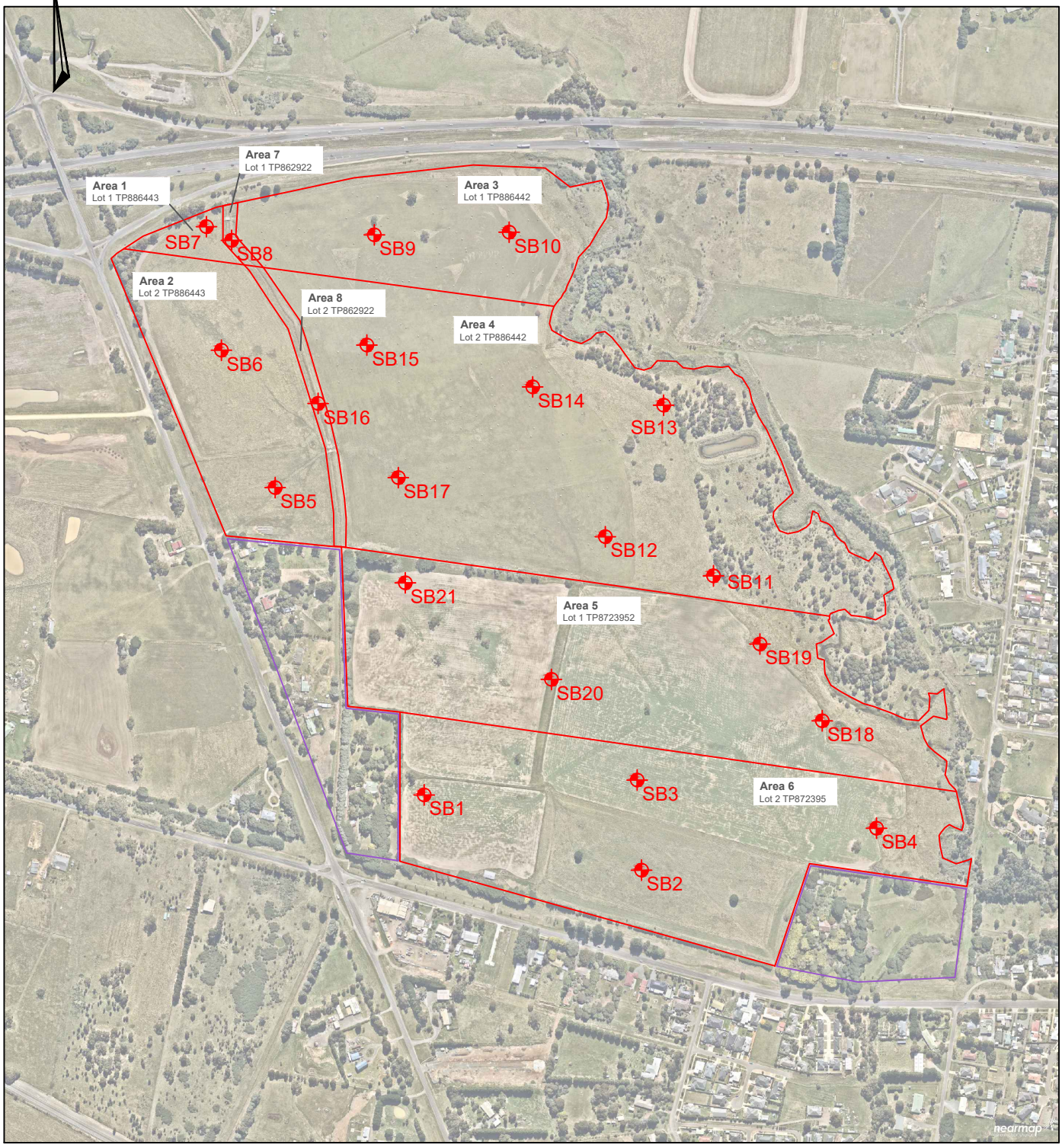
Job Number:	Figure Number:	Revision:	Date:
22028b	1	-	14/04/22
Drawn By:	Checked By:	Scale:	
MV	-	0 600 m	

Client: Wel.Co Group

Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic

Subject: Site locality

G:\01.Jobs\2022\22028 Wel.Co Ballan\3. maps, plans, images etc\autocad\rev1 Figure 1 - Site locality.dwg



Legend:

- Wel.Co landholdings boundary
- Adjoining properties boundary
- SB Bore location

Job Number:	Figure Number:	Revision:	Date:
22028b	2	1	31/08/22
Drawn By:	Checked By:	Scale: 0 200 m	
MV	-		

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Client: Wel.Co Group

Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic

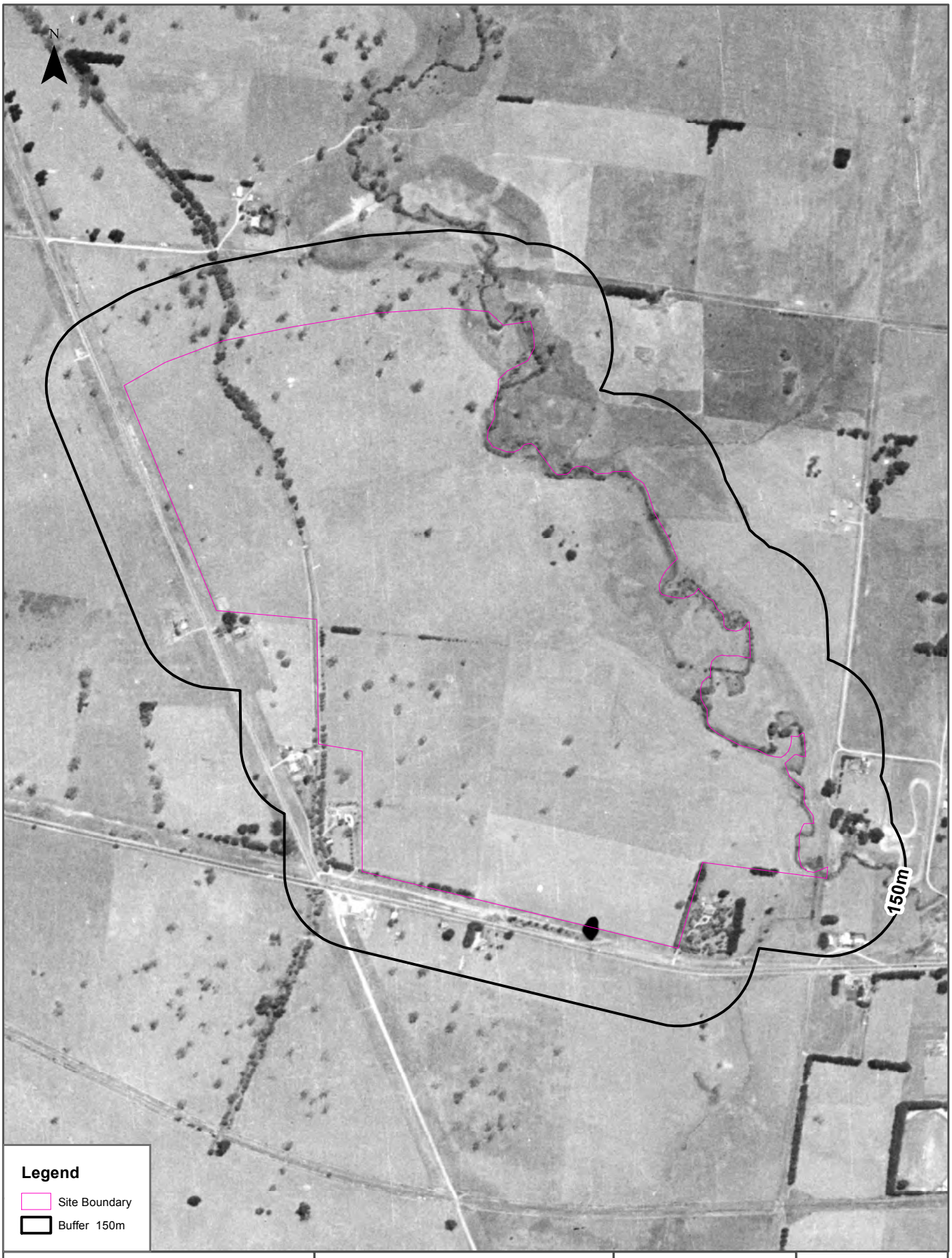
Subject: Soil sampling locations

G:\01.Jobs\2022\22028 Wel.Co Ballan\3. Maps, Plans, Images Etc\autocad\rev1 Figure 2 - Sampling Locations.dwg

Attachment 2 Aerial photographs

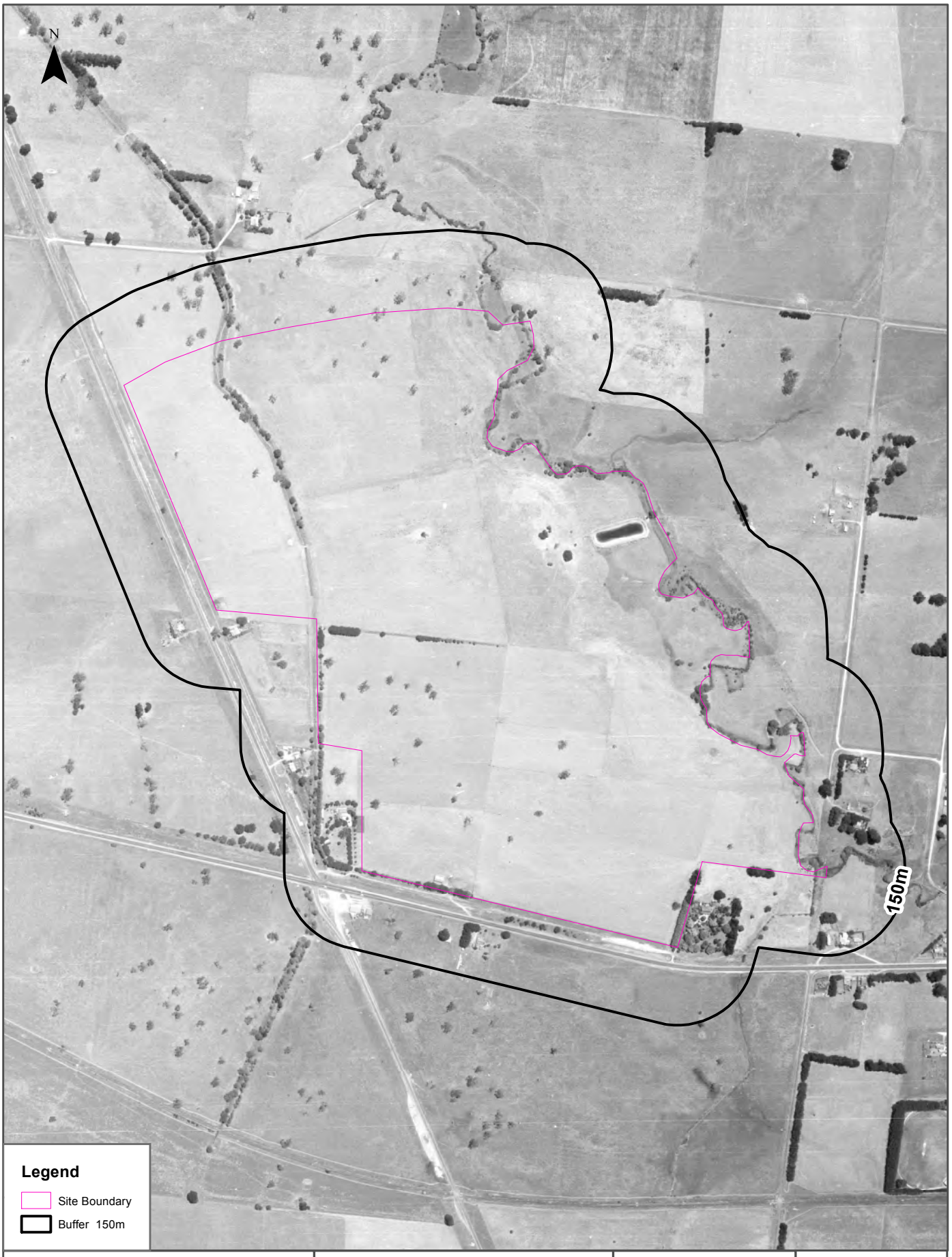
Aerial Imagery 1961

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Aerial Imagery 1970

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Aerial Imagery 1984

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Scale: 0 110 220 330 440 Meters	Data Source Aerial Imagery: © Department of Environment, Land, Water and Planning (Vicmap Topographic Mapping Program)	Coordinate System: GDA 1994 MGA Zone 55	Date: 14 April 2022

Aerial Imagery 1990

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Aerial Imagery 2012

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Scale:	Data Source Aerial Imagery: © 2022 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 55	Date: 14 April 2022

0 110 220 330 440 Meters

Aerial Imagery 2016

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Scale:	Data Source Aerial Imagery: © 2022 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 55	Date: 14 April 2022

0 110 220 330 440 Meters

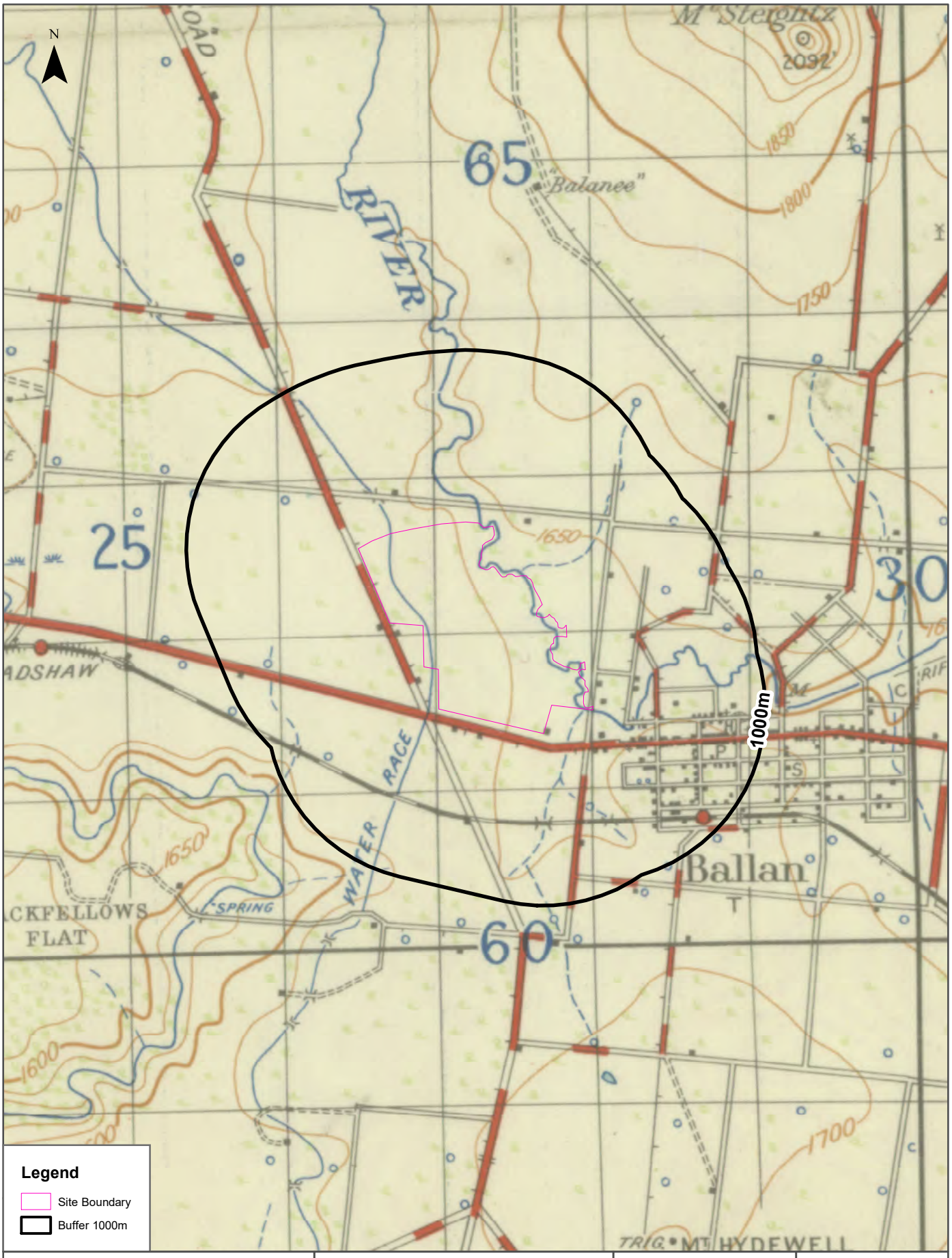
Aerial Imagery 2022

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Attachment 3 Site history documentation

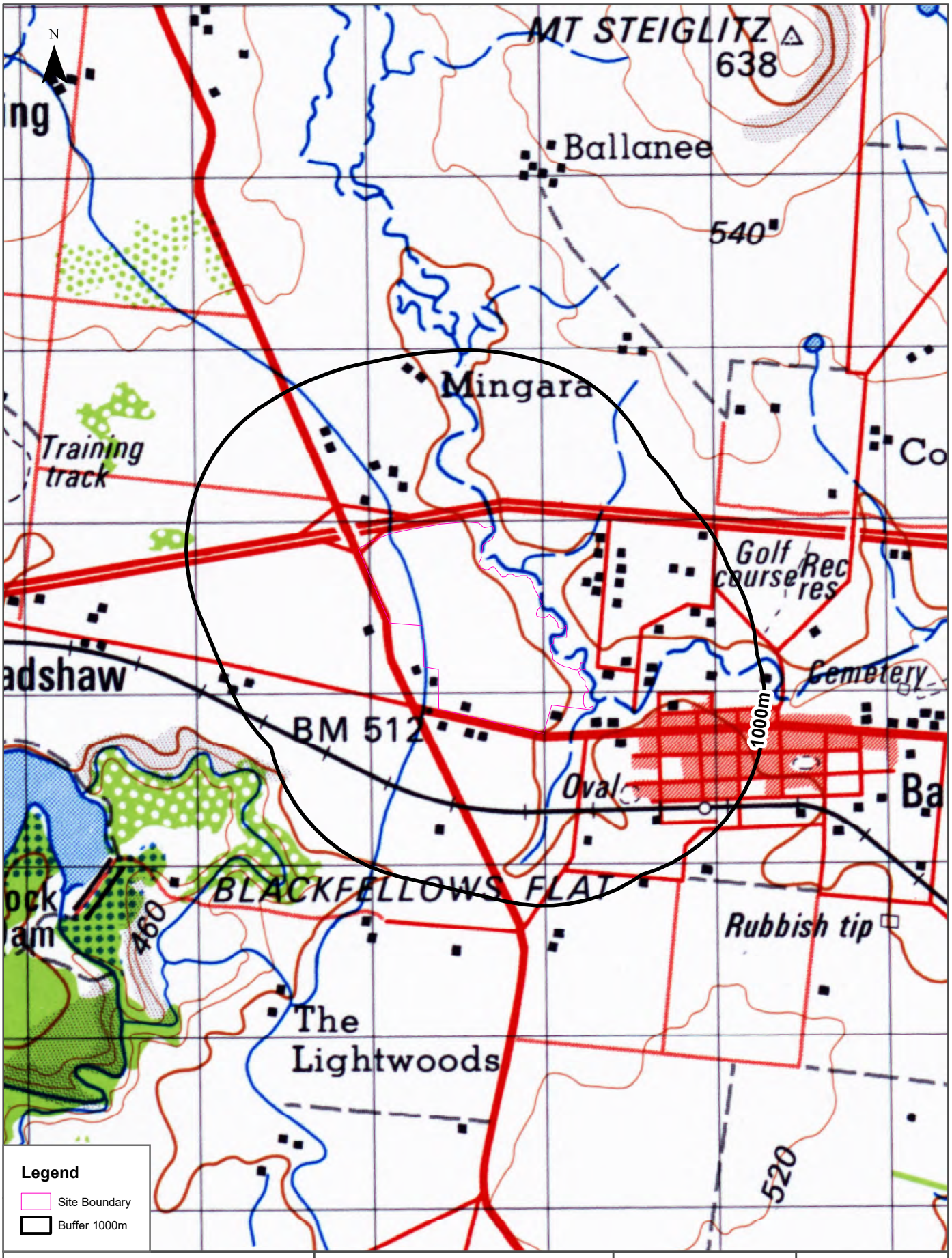
Historical Map c.1936

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Historical Map 1981

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Attachment 4 Tabulated soil results

Table 1: Soil results - human health criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic
Job No: 22028b

				TRH							CHC																			HV																
Connolly Job No.	**Connolly Sample ID**	**Date Sampled**	**Laboratory Report No.**	**TRH >C10-C16**	**TRH >C10-C40 (Sum of Total)**	**TRH >C16-C34**	**TRH >C34-C40**	**TRH C6-C10**	**TRH >C10-C16 minus Napthalene**	**TRH C6-C10 minus BTEX**	**CHC (IWRG-621)**	**Other CHC (IWRG-621)**	**1,2,3,4-tetrachlorobenzene**	**1,2,3,5-Tetrachlorobenzene**	**1,2,3-trichlorobenzene**	**1,2,4,5-tetrachlorobenzene**	**1,2,4-trichlorobenzene**	**1,2-dichlorobenzene**	**1,3,5-Trichlorobenzene**	**1,3-dichlorobenzene**	**1,4-dichlorobenzene**	**2-chloronaphthalene**	**Benzal Chloride**	**Benzotrichloride**	**Benzyl chloride**	**Hexachlorobutadiene**	**Hexachlorocyclopentadiene**	**Hexachloroethane**	**Pentachlorobenzene**	**1,1,1,2-tetrachloroethane**	**1,1,1-trichloroethane**	**1,1,2,2-tetrachloroethane**	**1,1,2-trichloroethane**	**1,1-dichloroethane**	**1,1-dichloroethene**	**1,1-dichloropropene**	**1,2,3-trichloropropane**	**1,2-dibromo-3-chloropropane**	**1,2-dibromoethane**	**1,2-dichloroethane**	**1,2-Dichloroethene [cis]**	**1,2-Dichloroethene [trans]**	**1,2-dichloropropane**	**1,3-dichloropropane**	**2,2-dichloropropane**	**2-chlorotoluene**
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CRC Care (2011) HSL-A Residential (Low Density) - Direct contact				-	-	4500	6300	-	3300	4400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 HIL A (low density residential)				**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
NEPM 2013 HSL-A/B, 0 to <1m, Clay - Vapour intrusion				-	-	-	-	-	280	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB1	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB2	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB3	19/04/2022	22-19166	<20	57	57	<50	<20	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB4	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20	<7.9	<6.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
22028b	SB5	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB6	19/04/2022	22-19166	<20	130	130	<50	<20	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB7	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB8	19/04/2022	22-19166	<20	87	87	<50	<20	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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22028b	SB10	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20	<7.9	<6.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
22028b	SB11	19/04/2022	22-19166	<20	110	110	<50	<20	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB12	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB13	19/04/2022	22-19166	<20	62	62	<50	<20	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB14	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB15	19/04/2022	22-19166	<20	65	65	<50	<20	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB16	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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22028b	SB20	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB21	19/04/2022	22-19166	<20	56	56	<50	<20	<20	<20	<7.9	<6.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1: Soil results - human health criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road an
Job No: 22028b

				OL																		Inorganics					MAH									Metals											
Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	4-chlorotoluene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroform	cis-1,3-dichloropropene	Dibromomethane	Dichloromethane	Trichloroethene	Tetrachloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride	Cation Exchange Capacity	Cyanide Total	Fluoride	Moisture	pH (Lab)	Total MAH (IWRG-621)	Benzene	BTEX (Sum)	Ethylbenzene	Styrene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	meq/100g	mg/kg	mg/kg	%	pH_Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CRC Care (2011) HSL-A Residential (Low Density) - Direct contact				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	4500	-	14000	-	-	12000	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 HIL A (low density residential)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	250	-	-	-	-	-	-	-	-	-	-	-	**100**	**20**	**100**	-	**6000**	**300**	**40**	-	**400**	**200**	-	-
NEPM 2013 HSL-A/B, 0 to <1m, Clay - Vapour intrusion				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	480	-	-	110	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB1	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB2	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	5.9	-	-	-	-	-	-	-	-	-	<5	<0.2	-	61	5	17	<0.05	-	11	<3	-	-
22028b	SB3	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB4	19/04/2022	22-19166	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2	<1	-	<5	<100	20	5.1	<3	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<1	<5	<0.2	<1	-	<5	11	<0.05	<5	12	<3	<5	<5
22028b	SB5	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	34	<5	11	<0.05	-	5	<3	-	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*<5*	*0.3*	-	*32*	*<5*	*12*	*<0.05*	-	*5*	*<3*	-	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*15*	-	-	-	-	-	-	-	-	-	-	*<4*	*<0.4*	-	*29*	*2*	*9*	*<0.1*	-	*3*	-	-	-
22028b	SB6	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB7	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	40	<5	12	<0.05	-	5	<3	-	-
22028b	SB8	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB9	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	26	<5	12	<0.05	-	11	<3	-	-
22028b	SB10	19/04/2022	22-19166	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2	<1	-	<5	<100	20	6.2	<3	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<1	<5	<0.2	<1	-	<5	13	<0.05	<5	12	<3	<5	<5
22028b	SB11	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB12	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	54	<5	14	<0.05	-	13	<3	-	-
22028b	SB13	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB14	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	36	<5	14	<0.05	-	10	<3	-	-
22028b	SB15	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB16	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	<0.2	-	190	<5	37	<0.05	-	15	<3	-	-
22028b	SB17	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB18	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	53	<5	12	<0.05	-	11	<3	-	-
22028b	SB19	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB20	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	2.1	-	50	7	15	<0.05	-	11	<3	-	-
22028b	SB21	19/04/2022	22-19166	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2	<1	-	<5	<100	18	4.9	<3	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<1	8	0.7	<1	-	6	20	0.11	<5	14	<3	<5	<5

Table 1: Soil results - human health criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road an
Job No: 22028b

					OCP																														PAH															
Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	Zinc	Other OCP (IWRG-621)	Total OCP (IWRG-621)	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Oxychlordane	BAP TEQ (half LOR)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ (zero)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CRC Care (2011) HSL-A Residential (Low Density) - Direct contact				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 HIL A (low density residential)				**7400**	**-**	**-**	**-**	**-**	**-**	**6**	**-**	**50**	**-**	**-**	**-**	**-**	**-**	**240**	**-**	**270**	**-**	**-**	**-**	**10**	**-**	**-**	**-**	**6**	**-**	**10**	**300**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
NEPM 2013 HSL-A/B, 0 to <1m, Clay - Vapour intrusion				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB1	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB2	19/04/2022	22-19166	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB3	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB4	19/04/2022	22-19166	10	<0.7	<0.95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB5	19/04/2022	22-19166	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	*7*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	*4*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB6	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB7	19/04/2022	22-19166	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB8	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB9	19/04/2022	22-19166	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB10	19/04/2022	22-19166	12	<0.7	<0.95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB11	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB12	19/04/2022	22-19166	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB13	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB14	19/04/2022	22-19166	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB15	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB16	19/04/2022	22-19166	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB17	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB18	19/04/2022	22-19166	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB19	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB20	19/04/2022	22-19166	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB21	19/04/2022	22-19166	13	<0.7	<0.95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Table 1: Soil results - human health criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road an
Job No: 22028b

										PCBs								Phenols (Halogenated)										Phenols (Non-Halogenated)											TPH				
Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Total PAH	Phenanthrene	Pyrene	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Halogenated Phenols (IWRG-621)	2,3,4,5-tetrachlorophenol	2,3,4,6-tetrachlorophenol	2,3,5,6-Tetrachlorophenol	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,6-dichlorophenol	2-chlorophenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenols (Total Halogenated)	Non halogenated Phenols (IWRG-621)	2,4-dimethylphenol	2,4-dinitrophenol	2-nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-nitrophenol	Cresol Total	Dinoseb	Phenol	Phenols (Total Non Halogenated)	C6 - C9	C10 - C14	C 15- C28	C29 - C36	+C10 - 36 (Total)
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CRC Care (2011) HSL-A Residential (Low Density) - Direct contact				-	-	1400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 HIL A (low density residential)				-	-	-	300	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	400	-	3000	-	-	-	-	-
NEPM 2013 HSL-A/B, 0 to <1m, Clay - Vapour intrusion				-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB1	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	<50	<50
22028b	SB2	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB3	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	63	63
22028b	SB4	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<83	<0.5	<30	<0.5	<10	<30	<0.5	<1	<10	<0.5	<30	<20	<20	<50	55	55
22028b	SB5	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB6	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	140	140
22028b	SB7	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB8	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	120	120
22028b	SB9	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB10	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<83	<0.5	<30	<0.5	<10	<30	<0.5	<1	<10	<0.5	<30	<20	<20	<50	51	51
22028b	SB11	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	120	120
22028b	SB12	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB13	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	67	67
22028b	SB14	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB15	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	72	72
22028b	SB16	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB17	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	90	90
22028b	SB18	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB19	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	69	69
22028b	SB20	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB21	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<83	<0.5	<30	<0.5	<10	<30	<0.5	<1	<10	<0.5	<30	<20	<20	<50	63	63

Table 2: Soil results - ecological health criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic
Job No: 22028b

Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	TRH: TRH >C10-C16	TRH >C10-C40 (Sum of Total)	TRH >C16-C34	TRH >C34-C40	TRH C6-C10	TRH >C10-C16 minus Napthalene	TRH C6-C10 minus BTEX
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM (2013) fine grain ESL (urban residential and public open space)				120	-	1300	5600	-	-	180
NEPM EIL (urban residential and open space)				-	-	-	-	-	-	-
22028b	SB1	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20
22028b	SB2	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB3	19/04/2022	22-19166	<20	57	57	<50	<20	<20	<20
22028b	SB4	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20
22028b	SB5	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	-	-	-	-	-	-	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	-	-	-	-	-	-	-
22028b	SB6	19/04/2022	22-19166	<20	130	130	<50	<20	<20	<20
22028b	SB7	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB8	19/04/2022	22-19166	<20	87	87	<50	<20	<20	<20
22028b	SB9	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB10	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20
22028b	SB11	19/04/2022	22-19166	<20	110	110	<50	<20	<20	<20
22028b	SB12	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB13	19/04/2022	22-19166	<20	62	62	<50	<20	<20	<20
22028b	SB14	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB15	19/04/2022	22-19166	<20	65	65	<50	<20	<20	<20
22028b	SB16	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB17	19/04/2022	22-19166	<20	81	81	<50	<20	<20	<20
22028b	SB18	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB19	19/04/2022	22-19166	<20	62	62	<50	<20	<20	<20
22028b	SB20	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB21	19/04/2022	22-19166	<20	56	56	<50	<20	<20	<20

Connolly Sample ID	CHC: CHC (IWRG-621)	Other CHC (IWRG-621)	1,2,3,4-tetrachlorobenzene	1,2,3,5-Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4,5-tetrachlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3,5-Trichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chloronaphthalene	Benzal Chloride	Benzotrichloride	Benzyl chloride	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Pentachlorobenzene
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM (2013) fine grain ESL (urban residential and public open space)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM EIL (urban residential and open space)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB4	<7.9	<6.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SB5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB505 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB605 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB10	<7.9	<6.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SB11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB21	<7.9	<6.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Connolly Sample ID	HV: 1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dibromoethane	1,2-dichloroethane	1,2-Dichloroethene [cis]	1,2-Dichloroethene [trans]	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	2-chlorotoluene
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM (2013) fine grain ESL (urban residential and public open space)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM EIL (urban residential and open space)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB505 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB605 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB21	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 2: Soil results - ecological health criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and
Job No: 22028b

				OL																	Inorganics					MAH									Metals								
Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	4-chlorotoluene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroform	cis-1,3-dichloropropene	Dibromomethane	Dichloromethane	Trichloroethene	Tetrachloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride	Cation Exchange Capacity	Cyanide Total	Fluoride	Moisture	pH (Lab)	Total MAH (IWRG-621)	Benzene	BTEX (Sum)	Ethylbenzene	Styrene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	meq/100g	mg/kg	mg/kg	%	pH_Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM (2013) fine grain ESL (urban residential and public open space)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65	-	125	-	105	-	-	45	-	-	-	-	-	-	-	-	-	-
NEPM EIL (urban residential and open space)				**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**100**	**13**	**-**	**410**	**190**	**1100**	**4**	**-**	**220**	**-**	**-**
22028b	SB1	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-
22028b	SB2	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	5.9	-	-	-	-	-	-	-	-	-	<5	<0.2	-	61	5	17	<0.05	-	11	<3	-
22028b	SB3	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-
22028b	SB4	19/04/2022	22-19166	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2	<1	-	<5	<100	20	5.1	<3	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<1	<5	<0.2	<1	-	<5	11	<0.05	<5	12	<3	<5
22028b	SB5	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	34	<5	11	<0.05	-	5	<3	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	*0.3*	-	*32*	<5	*12*	*<0.05*	-	*5*	*<3*	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*15*	-	-	-	-	-	-	-	-	-	-	*<4*	*<0.4*	-	*29*	*2*	*9*	*<0.1*	-	*3*	-	-
22028b	SB6	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-
22028b	SB7	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	40	<5	12	<0.05	-	5	<3	-
22028b	SB8	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-
22028b	SB9	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	26	<5	12	<0.05	-	11	<3	-
22028b	SB10	19/04/2022	22-19166	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2	<1	-	<5	<100	20	6.2	<3	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<1	<5	<0.2	<1	-	<5	13	<0.05	<5	12	<3	<5
22028b	SB11	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-
22028b	SB12	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	54	<5	14	<0.05	-	13	<3	-
22028b	SB13	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-
22028b	SB14	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	36	<5	14	<0.05	-	10	<3	-
22028b	SB15	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-
22028b	SB16	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	<0.2	-	190	<5	37	<0.05	-	15	<3	-
22028b	SB17	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-
22028b	SB18	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	53	<5	12	<0.05	-	11	<3	-
22028b	SB19	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-
22028b	SB20	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	2.1	-	50	7	15	<0.05	-	11	<3	-
22028b	SB21	19/04/2022	22-19166	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2	<1	-	<5	<100	18	4.9	<3	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<1	8	0.7	<1	-	6	20	0.11	<5	14	<3	<5

Table 2: Soil results - ecological health criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and
Job No: 22028b

						OCP																												PAH													
Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	Tin	Zinc	Other OCP (IWRG-621)	Total OCP (IWRG-621)	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Oxychlordane	BAP TEQ (half LOR)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ (zero)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM (2013) fine grain ESL (urban residential and public open space)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	-	-
NEPM EIL (urban residential and open space)				**-**	**410**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**180**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
22028b	SB1	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB2	19/04/2022	22-19166	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB3	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB4	19/04/2022	22-19166	<5	10	<0.7	<0.95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB5	19/04/2022	22-19166	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	-	*4*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB6	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB7	19/04/2022	22-19166	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB8	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB9	19/04/2022	22-19166	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB10	19/04/2022	22-19166	<5	12	<0.7	<0.95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB11	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB12	19/04/2022	22-19166	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB13	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB14	19/04/2022	22-19166	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB15	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB16	19/04/2022	22-19166	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB17	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB18	19/04/2022	22-19166	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB19	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB20	19/04/2022	22-19166	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB21	19/04/2022	22-19166	<5	13	<0.7	<0.95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Table 2: Soil results - ecological health criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and
Job No: 22028b

											PCBs							
Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Total PAH	Phenanthrene	Pyrene	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM (2013) fine grain ESL (urban residential and public open space)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM EIL (urban residential and open space)				**-**	**-**	**-**	**170**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
22028b	SB1	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
22028b	SB2	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB3	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
22028b	SB4	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB5	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB6	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
22028b	SB7	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB8	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
22028b	SB9	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB10	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB11	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
22028b	SB12	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB13	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
22028b	SB14	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB15	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
22028b	SB16	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB17	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
22028b	SB18	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB19	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
22028b	SB20	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB21	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

	Phenols (Halogenated)											
Connolly Sample ID	Halogenated Phenols (IWRG-621)	2,3,4,5-tetrachlorophenol	2,3,4,6-tetrachlorophenol	2,3,5,6-Tetrachlorophenol	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,6-dichlorophenol	2-chlorophenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenols (Total Halogenated)
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM (2013) fine grain ESL (urban residential and public open space)	-	-	-	-	-	-	-	-	-	-	-	-
NEPM EIL (urban residential and open space)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
SB1	-	-	-	-	-	-	-	-	-	-	-	-
SB2	-	-	-	-	-	-	-	-	-	-	-	-
SB3	-	-	-	-	-	-	-	-	-	-	-	-
SB4	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB5	-	-	-	-	-	-	-	-	-	-	-	-
SB505 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-
SB605 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-
SB6	-	-	-	-	-	-	-	-	-	-	-	-
SB7	-	-	-	-	-	-	-	-	-	-	-	-
SB8	-	-	-	-	-	-	-	-	-	-	-	-
SB9	-	-	-	-	-	-	-	-	-	-	-	-
SB10	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB11	-	-	-	-	-	-	-	-	-	-	-	-
SB12	-	-	-	-	-	-	-	-	-	-	-	-
SB13	-	-	-	-	-	-	-	-	-	-	-	-
SB14	-	-	-	-	-	-	-	-	-	-	-	-
SB15	-	-	-	-	-	-	-	-	-	-	-	-
SB16	-	-	-	-	-	-	-	-	-	-	-	-
SB17	-	-	-	-	-	-	-	-	-	-	-	-
SB18	-	-	-	-	-	-	-	-	-	-	-	-
SB19	-	-	-	-	-	-	-	-	-	-	-	-
SB20	-	-	-	-	-	-	-	-	-	-	-	-
SB21	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

	Phenols (Non-Halogenated)											TPH				
Connolly Sample ID	Non halogenated Phenols (IWRG-621)	2,4-dimethylphenol	2,4-dinitrophenol	2-nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-nitrophenol	Cresol Total	Dinoseb	Phenol	Phenols (Total Non Halogenated)	C6 - C9	C10 - C14	C 15- C28	C29 - C36	+C10 - 36 (Total)
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM (2013) fine grain ESL (urban residential and public open space)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM EIL (urban residential and open space)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
SB1	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	<50	<50
SB2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB3	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	63	63
SB4	<83	<0.5	<30	<0.5	<10	<30	<0.5	<1	<10	<0.5	<30	<20	<20	<50	55	55
SB5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB505 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB605 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB6	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	140	140
SB7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB8	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	120	120
SB9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB10	<83	<0.5	<30	<0.5	<10	<30	<0.5	<1	<10	<0.5	<30	<20	<20	<50	51	51
SB11	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	120	120
SB12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB13	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	67	67
SB14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB15	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	72	72
SB16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB17	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	90	90
SB18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB19	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	69	69
SB20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB21	<83	<0.5	<30	<0.5	<10	<30	<0.5	<1	<10	<0.5	<30	<20	<20	<50	63	63

Table 3: Soil results - TPH management limits (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic
Job No: 22028b

				TRH						
Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	TRH >C10-C16	TRH >C10-C40 (Sum of Total)	TRH >C16-C34	TRH >C34-C40	TRH C6-C10	TRH >C10-C16 minus Napthalene	TRH C6-C10 minus BTEX
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM (2013)fine grain TPH management limits (residential and open space)				1000	-	3500	10000	800	-	-
22028b	SB1	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20
22028b	SB2	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB3	19/04/2022	22-19166	<20	57	57	<50	<20	<20	<20
22028b	SB4	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20
22028b	SB5	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB505 (QA/QC)	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB605 (QA/QC)	19/04/2022	31005	-	-	-	-	-	-	-
22028b	SB6	19/04/2022	22-19166	<20	130	130	<50	<20	<20	<20
22028b	SB7	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB8	19/04/2022	22-19166	<20	87	87	<50	<20	<20	<20
22028b	SB9	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB10	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20
22028b	SB11	19/04/2022	22-19166	<20	110	110	<50	<20	<20	<20
22028b	SB12	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB13	19/04/2022	22-19166	<20	62	62	<50	<20	<20	<20
22028b	SB14	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB15	19/04/2022	22-19166	<20	65	65	<50	<20	<20	<20
22028b	SB16	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB17	19/04/2022	22-19166	<20	81	81	<50	<20	<20	<20
22028b	SB18	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB19	19/04/2022	22-19166	<20	62	62	<50	<20	<20	<20
22028b	SB20	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB21	19/04/2022	22-19166	<20	56	56	<50	<20	<20	<20

Table 4: Soil results - Offsite disposal criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic
Job No: 22028b

Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	TRH >C10-C16	TRH >C10-C40 (Sum of Total)	TRH >C16-C34	TRH >C34-C40	TRH C6-C10	TRH >C10-C16 minus Napthalene	TRH C6-C10 minus BTEX
				TRH						
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPA Pub. 1828 Category B upper limits				-	-	-	-	-	-	-
EPA Pub. 1828 Category C upper limits				-	-	-	-	-	-	-
EPA Pub. 1828 Category D upper limits				-	-	-	-	-	-	-
EPA Pub. 1828 Fill Material upper limits				-	-	-	-	-	-	-
22028b	SB1	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20
22028b	SB2	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB3	19/04/2022	22-19166	<20	57	57	<50	<20	<20	<20
22028b	SB4	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20
22028b	SB5	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	-	-	-	-	-	-	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	-	-	-	-	-	-	-
22028b	SB6	19/04/2022	22-19166	<20	130	130	<50	<20	<20	<20
22028b	SB7	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB8	19/04/2022	22-19166	<20	87	87	<50	<20	<20	<20
22028b	SB9	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB10	19/04/2022	22-19166	<20	<50	<50	<50	<20	<20	<20
22028b	SB11	19/04/2022	22-19166	<20	110	110	<50	<20	<20	<20
22028b	SB12	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB13	19/04/2022	22-19166	<20	62	62	<50	<20	<20	<20
22028b	SB14	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB15	19/04/2022	22-19166	<20	65	65	<50	<20	<20	<20
22028b	SB16	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB17	19/04/2022	22-19166	<20	81	81	<50	<20	<20	<20
22028b	SB18	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB19	19/04/2022	22-19166	<20	62	62	<50	<20	<20	<20
22028b	SB20	19/04/2022	22-19166	-	-	-	-	-	-	-
22028b	SB21	19/04/2022	22-19166	<20	56	56	<50	<20	<20	<20

Connolly Sample ID	CHC (IWRG-621)	Other CHC (IWRG-621)	1,2,3,4-tetrachlorobenzene	1,2,3,5-Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4,5-tetrachlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3,5-Trichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chloronaphthalene	Benzal Chloride	Benzotrichloride	Benzyl chloride	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Pentachlorobenzene
	CHC																		
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPA Pub. 1828 Category B upper limits	-	-	-	-	-	-	-	24000	-	-	640	-	-	-	-	11	-	-	-
EPA Pub. 1828 Category C upper limits	-	-	-	-	-	-	-	6000	-	-	160	-	-	-	-	2.8	-	-	-
EPA Pub. 1828 Category D upper limits	-	-	-	-	-	-	-	6000	-	-	160	-	-	-	-	2.8	-	-	-
EPA Pub. 1828 Fill Material upper limits	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB4	<7.9	<6.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SB5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB505 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB605 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB10	<7.9	<6.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SB11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB21	<7.9	<6.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Connolly Sample ID	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dibromoethane	1,2-dichloroethane	1,2-Dichloroethene [cis]	1,2-Dichloroethene [trans]	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	2-chlorotoluene
																	HV
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPA Pub. 1828 Category B upper limits	1600	4800	210	190	-	480	-	-	-	-	48	-	-	-	-	-	-
EPA Pub. 1828 Category C upper limits	400	1200	52	48	-	120	-	-	-	-	12	-	-	-	-	-	-
EPA Pub. 1828 Category D upper limits	400	1200	52	48	-	120	-	-	-	-	12	-	-	-	-	-	-
EPA Pub. 1828 Fill Material upper limits	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB505 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB605 (QA/QC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB21	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 4: Soil results - Offsite disposal criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Ol
Job No: 22028b

				OL																	Inorganics					MAH									Metals								
Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	4-chlorotoluene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroform	cis-1,3-dichloropropene	Dibromomethane	Dichloromethane	Trichloroethene	Tetrachloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride	Cation Exchange Capacity	Cyanide Total	Fluoride	Moisture	pH (Lab)	Total MAH (IWRG-621)	Benzene	BTEX (Sum)	Ethylbenzene	Styrene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	meq/100g	mg/kg	mg/kg	%	pH Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPA Pub. 1828 Category B upper limits				-	-	-	-	-	48	4800	-	960	-	-	64	80	800	-	-	4.8	-	10000	40000	-	-	-	16	-	4800	480	12800	-	-	9600	2000	400	2000	-	20000	6000	300	4000	12000	40000	720
EPA Pub. 1828 Category C upper limits				-	-	-	-	-	12	1200	-	240	-	-	16	20	200	-	-	1.2	-	2500	10000	-	-	-	4	-	1200	120	3200	-	-	2400	500	100	500	-	5000	1500	75	1000	3000	10000	180
EPA Pub. 1828 Category D upper limits				-	-	-	-	-	12	1200	-	240	-	-	16	20	200	-	-	1.2	-	2500	10000	-	-	-	4	-	1200	120	3200	-	-	2400	500	100	500	-	5000	1500	75	1000	3000	10000	180
EPA Pub. 1828 Fill Material upper limits				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	450	-	-	7	1	-	-	-	-	-	-	20	3	1	-	100	300	1	40	60	10	10
22028b	SB1	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-
22028b	SB2	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	5.9	-	-	-	-	-	-	-	-	-	<5	<0.2	-	61	5	17	<0.05	-	11	<3	-
22028b	SB3	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-
22028b	SB4	19/04/2022	22-19166	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2	<1	-	<5	<100	20	5.1	<3	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<1	<5	<0.2	<1	-	<5	11	<0.05	<5	12	<3	<5
22028b	SB5	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	34	<5	11	<0.05	-	5	<3	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*<5*	*0.3*	-	*32*	*<5*	*12*	*<0.05*	-	*5*	<3	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*15*	-	-	-	-	-	-	-	-	-	*<4*	*<0.4*	-	*29*	*2*	*9*	*<0.1*	-	*3*	-	-
22028b	SB6	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-
22028b	SB7	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	40	<5	12	<0.05	-	5	<3	-
22028b	SB8	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-
22028b	SB9	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	26	<5	12	<0.05	-	11	<3	-
22028b	SB10	19/04/2022	22-19166	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2	<1	-	<5	<100	20	6.2	<3	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<1	<5	<0.2	<1	-	<5	13	<0.05	<5	12	<3	<5
22028b	SB11	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-
22028b	SB12	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	54	<5	14	<0.05	-	13	<3	-
22028b	SB13	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-
22028b	SB14	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	36	<5	14	<0.05	-	10	<3	-
22028b	SB15	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-
22028b	SB16	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	<0.2	-	190	<5	37	<0.05	-	15	<3	-
22028b	SB17	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-
22028b	SB18	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<0.2	-	53	<5	12	<0.05	-	11	<3	-
22028b	SB19	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.5	<0.5	<1	<0.5	-	<0.5	<1	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-
22028b	SB20	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	2.1	-	50	7	15	<0.05	-	11	<3	-
22028b	SB21	19/04/2022	22-19166	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2	<1	-	<5	<100	18	4.9	<3	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<1	8	0.7	<1	-	6	20	0.11	<5	14	<3	<5

Table 4: Soil results - Offsite disposal criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Ol
Job No: 22028b

						OCP																										PAH													
Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	Tin	Zinc	Other OCP (WRG-621)	Total OCP (WRG-621)	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Oxychlordane	BAP TEQ (half LOR)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ (zero)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPA Pub. 1828 Category B upper limits				-	140000	50	-	-	-	-	4.8	-	16	-	-	-	-	-	50	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	-	-	160	-	-	-	-	-
EPA Pub. 1828 Category C upper limits				-	35000	10	-	-	-	-	1.2	-	4	-	-	-	-	-	50	-	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-
EPA Pub. 1828 Category D upper limits				-	35000	10	-	-	-	-	1.2	-	4	-	-	-	-	-	50	-	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-
EPA Pub. 1828 Fill Material upper limits				50	200	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
22028b	SB1	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB2	19/04/2022	22-19166	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB3	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB4	19/04/2022	22-19166	<5	10	<0.7	<0.95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB5	19/04/2022	22-19166	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	-	*7*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	-	*4*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB6	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB7	19/04/2022	22-19166	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB8	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB9	19/04/2022	22-19166	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB10	19/04/2022	22-19166	<5	12	<0.7	<0.95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB11	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB12	19/04/2022	22-19166	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB13	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB14	19/04/2022	22-19166	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB15	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB16	19/04/2022	22-19166	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB17	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB18	19/04/2022	22-19166	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB19	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22028b	SB20	19/04/2022	22-19166	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB21	19/04/2022	22-19166	<5	13	<0.7	<0.95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Table 4: Soil results - Offsite disposal criteria (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Ol
Job No: 22028b

											PCBs								Phenols (Halogenated)												Phenols (Non-Halogenated)											TPH				
Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Total PAH	Phenanthrene	Pyrene	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Halogenated Phenols (IWRG-621)	2,3,4,5-tetrachlorophenol	2,3,4,6-tetrachlorophenol	2,3,5,6-Tetrachlorophenol	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,6-dichlorophenol	2-chlorophenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenols (Total Halogenated)	Non halogenated Phenols (IWRG-621)	2,4-dimethylphenol	2,4-dinitrophenol	2-nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-nitrophenol	Cresol Total	Dinoseb	Phenol	Phenols (Total Non Halogenated)	C6 - C9	C10 - C14	C 15- C28	C29 - C36	+C10 - 36 (Total)
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPA Pub. 1828 Category B upper limits				-	-	-	-	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64000	320	3200	-	4800	-	-	-	-	-	-	-	-	-	-	32000	-	-	2200	2600	-	-	-	40000
EPA Pub. 1828 Category C upper limits				-	-	-	-	100	-	-	-	-	-	-	-	-	-	50	-	-	-	-	16000	80	800	-	1200	-	-	-	-	-	-	-	-	-	-	8000	-	-	560	650	-	-	-	10000
EPA Pub. 1828 Category D upper limits				-	-	-	-	50	-	-	-	-	-	-	-	-	-	2	-	-	-	-	16000	80	800	-	1200	-	-	-	-	-	-	-	-	-	-	8000	-	-	560	325	-	-	-	5000
EPA Pub. 1828 Fill Material upper limits				-	-	-	-	20	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	60	100	-	-	-	1000
22028b	SB1	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	<50	<50
22028b	SB2	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB3	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	63	63
22028b	SB4	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<83	<0.5	<30	<0.5	<10	<30	<0.5	<1	<10	<0.5	<30	<20	<20	<50	55	55
22028b	SB5	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB505 (QA/QC)*	*19/04/2022*	*22-19166*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	*SB605 (QA/QC)*	*19/04/2022*	*31005*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB6	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	140	140
22028b	SB7	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB8	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	120	120
22028b	SB9	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB10	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<83	<0.5	<30	<0.5	<10	<30	<0.5	<1	<10	<0.5	<30	<20	<20	<50	51	51
22028b	SB11	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	120	120
22028b	SB12	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB13	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	67	67
22028b	SB14	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB15	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	72	72
22028b	SB16	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB17	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	90	90
22028b	SB18	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB19	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<50	69	69
22028b	SB20	19/04/2022	22-19166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22028b	SB21	19/04/2022	22-19166	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<83	<0.5	<30	<0.5	<10	<30	<0.5	<1	<10	<0.5	<30	<20	<20	<50	63	63

Table 5: ASLP results - Offsite disposal criteria (mg/L)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic
Job No: 22028b

				Metals							
Connolly Job No.	Connolly Sample ID	Date Sampled	Laboratory Report No.	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
Units				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EPA Pub. 1828 Category B upper limits (leached)				4	0.8		800	4	0.4	8	1200
EPA Pub. 1828 Category C upper limits (leached)				1	0.2		200	1	0.1	2	300
EPA Pub. 1828 Category D upper limits (leached)				0.5	0.1		100	0.5	0.05	1	150
22028b	SB2	19/04/2022	22-19166	<0.01	<0.002	<0.01	<0.01	<0.01	<0.001	<0.01	0.01

Table 6. Soil results - Primary and duplicate results (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic
Job No: 22028b

Laboratory report no.		**Units**	22-19166	22-19166	**RPD**
Connolly Sample ID			SB5	SB505	
Date Sampled			19/04/2022	19/04/2022	
Metals	Arsenic	mg/kg	<5.0	<5.0	0
	Cadmium	mg/kg	<0.2	0.3	40
	Chromium (III+VI)	mg/kg	34.0	32.0	6
	Copper	mg/kg	<5.0	<5.0	0
	Lead	mg/kg	11.0	12.0	9
	Mercury	mg/kg	<0.05	<0.05	0
	Nickel	mg/kg	5.0	5.0	0
	Selenium	mg/kg	<3.0	<3.0	0
	Zinc	mg/kg	7.0	7.0	0

*RPDs have only been considered where a concentration is greater than 5 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (5-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table 7. Soil results - Primary and split results (mg/kg)

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic
Job No: 22028b

Laboratory report no.		**Units**	22-19166	31005	**RPD**
Connolly Sample ID			SB5	SB605	
Date Sampled			19/04/2022	19/04/2022	
Metals	Arsenic	mg/kg	<5.0	<4.0	0
	Cadmium	mg/kg	<0.2	<0.4	0
	Chromium (III+VI)	mg/kg	34.0	29.0	16
	Copper	mg/kg	<5.0	2.0	0
	Lead	mg/kg	11.0	9.0	20
	Mercury	mg/kg	<0.05	<0.1	0
	Nickel	mg/kg	**5.0**	**3.0**	**50**
	Selenium	mg/kg	<3.0	-	-
	Zinc	mg/kg	**7.0**	**4.0**	**55**

*RPDs have only been considered where a concentration is greater than 5 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (5-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table 8: Laboratorty QA/QC results

Client: Wel.Co Group
Location: Precinct 5, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan Vic
Job No: 22028b

Report Number	Duplicates			Spikes			Blanks	
	No.	RPD range %	No. within recommended range	No.	Recovery range %	No. within recommended range	No.	No. within recommended range
22-19166	164	0	164	111	62-127	101	175	173
Total	**164**	**0**	**164**	**111**	**62-127**	**101**	**175**	**173**

Attachment 5 NATA accredited lab reports

ALS

CONNOLLY
CONNOLLY 22-19166
MEL-C-04 Due Date: 28/04/2022

22-19166

analysis request

Tel. +61 3 9372 5688

Connolly Environmental

	2011-165b TN		Page ____ of ____
Site: Ballan	Collected MV	Result	5 days
Job no: 22028b	Collected 19/04/2022	Contact email: mariana@connolly.com.au	
		lab@connolly.com.au	

Relinquished by	Date	Time	Received by	Date	Time
1 Marian avB	20/4/22	930	Driver 2426	20/4/22	930
2	/ /			20/4/22	12:30
3	/ /			/ /	

Sample ID	SB1	SB2	SB3	SB4	SB5	SB6	SB7	SB8	SB9	SB10	SB11	SB12	SB13	SB14	SB15	SB16	SB17	SB18	SB19	SB20	SB21	SB505
Soil or Water [s or w]																						
Lab ID / Analyte																						
A-S1 / A-W1 [total metals (As, Cd, Cu, Pb, Hg, Mo, Ni, Sn, Se, Ag, Zn), total Cr VI, total cyanide, total flouride, speciated phenols (halogenated plus non- halogenated), MAH, PAH, TPH, PCB, chlorinated hydrocarbons, OCP]				X						X											X	
(A-S6-R) TRH, BTEXN, PAH	X		X			X		X			X		X		X		X		X			
Screen metals		X			X		X		X			X		X		X		X		X		X
pH		X																				
CEC		X																				
ASLP metals (screen)		X																				

Reporting Limits:	**Low reporting limits required for groundwaters as specified by CE**
TPH:	TPH by GC; C6-C9, C10-C14, C15-C28, >C28
SM:	Screen metals: Pb, Ni, Cd, Cr, Cu, Zn, As, Hg
Composites:	Please do not analyse TPH, MAH or volatiles on composite samples but on the first individual sample of the requested composite (unless otherwise indicated).
PAH:	Total and individual PAH
HVOL1:	HVOL including vinyl chloride
HVOL2:	HVOL including vinyl chloride to 0.002mg/litre - water
VOC:	HVOL, MAH & solvents

Comments:				
	X	PDF	X	Result Format
	X	ESDA	X	Connolly

CERTIFICATE OF ANALYSIS

Batch No:	**22-19166**	*Page*	Page 1 of 38
Final Report	955941	*Laboratory*	Scoresby Laboratory
		Address	Caribbean Business Park, 22 Dalmore Drive, Scoresby, VIC 3179
Client:	**Connolly Environmental**	*Phone*	03 8756 8000
		Fax	03 9763 1862
Contact:	**Mariana Vasquez-Bermudez**	Contact:	Tuyen Nguyen Client Manager Tuyen.Nguyen@alsglobal.com
Address:	142 Dynon Road WEST MELBOURNE VIC 3003 AUSTRALIA		
Client Program Ref:	**22028b Ballan**	Date Sampled:	19-Apr-2022
ALS Program Ref:	**CONNOLLY**	Date Samples Received:	20-Apr-2022
PO No:	**Not Available**	*Date Issued:*	**29-Apr-2022**

The hash (#) below indicates methods not covered by NATA accreditation in the performance of this service .

Analysis	*Method*	*Laboratory*	*Analysis*	*Method*	*Laboratory*	*Analysis*	*Method*	*Laboratory*
ASLP(Acetate) Prep	WN33SC	Scoresby	**BTEXN**	WP074	Scoresby	**CEC**	WD003	Scoresby
CHC	WP084	Scoresby	**Cyanide**	WK026SF	Scoresby	**Total Fluoride**	QWI-EN.WK040T	Scoresby
HVOL	WP074	Scoresby	**MAH**	WP125 & WP074	Scoresby	**Moisture**	WA055	Scoresby
MS ASLP(Acet) Metals	WG020A; WN33SC	Scoresby	**MS Total Metals**	WG020B	Scoresby	**OCP**	WP068A	Scoresby
PAH	WP075B	Scoresby	**PCB**	WP066	Scoresby	**pH**	EA002	Scoresby
Phenols(Halo)	WP075A	Scoresby	**Phenols(NonHalo)**	WP075A	Scoresby	**Total Cr 6+ DA**	EG048G	Scoresby
TRH F2 #	WP071	Scoresby	**TRH & TPH (>C10)**	WP071	Scoresby	**TRH (C6-C10) & F1**	WP074 (F1 not NATA)	Scoresby

100 grams of sample was taken for ASLP determinations unless a lesser amount was submitted to this laboratory .

Signatories

Legionella species refers to Legionella species other than Legionella pneumophila

Measurement Uncertainties values for your compliance results are available at this link

Name	*Title*	*Name*	*Title*
Hao Zhang	**Team Leader Organics**	**Joseph De Alwis**	**Analyst**
John Levvey	**Principal Trace Metals Chemist**	**Kosta Christopoulos**	**Deputy Team Leader Organics**
Melani Wijayasiri	**Analyst**		

Batch No: **22-19166**
Report Number: **955941**
Client: **Connolly Environmental**
Client Program Ref: **22028b Ballan**

LOR = Limit of reporting. When a reported LOR is higher than the standard LOR, this may be due to high moisture content, insufficient sample or matrix interference.
CAS Number = Chemistry Abstract Services Number. The analytical procedures in this report (including in house methods) are developed from internationally recognised procedures such as those published by USEPA, APHA and NEPM.

				Sample No.	7425110	7425111	7425112	7425113	7425114	7425115
				Client Sample ID	SB1	SB2	SB3	SB4	SB5	SB6
				Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Analysis	**Analyte**	**CAS #**	**LOR**							
BTEXN	Benzene	71-43-2	<0.5	mg/kg	<0.5		<0.5	<0.5		<0.5
BTEXN	Toluene	108-88-3	<0.5	mg/kg	<0.5		<0.5	<0.5		<0.5
BTEXN	Ethyl Benzene	100-41-4	<0.5	mg/kg	<0.5		<0.5	<0.5		<0.5
BTEXN	Xylene - m&p	108-38-3 /	<1	mg/kg	<1		<1	<1		<1
BTEXN	Xylene - O	95-47-6	<0.5	mg/kg	<0.5		<0.5	<0.5		<0.5
BTEXN	Naphthalene	91-20-3_VOC	<0.5	mg/kg	<0.5		<0.5	<0.5		<0.5
BTEXN	Total Xylenes	1330-20-7	<1	mg/kg	<1		<1	<1		<1
BTEXN	BTEX (Sum)	BTEX	<1	mg/kg	<1		<1	<1		<1
Analysis	**Analyte**	**CAS #**	**LOR**							
CHC	1,2,3,4-Tetrachlorobenzene	634-66-2	<0.1	mg/kg				<0.1		
CHC	1,2,3,5-Tetrachlorbenzene	634-90-2	<0.1	mg/kg				<0.1		
CHC	1,2,3-Trichlorobenzene	87-61-6	<0.1	mg/kg				<0.1		
CHC	1,2,4,5-Tetrachlorobenzene	95-94-3	<0.1	mg/kg				<0.1		
CHC	1,2,4-Trichlorobenzene	120-82-1	<0.1	mg/kg				<0.1		
CHC	1,2-Dichlorobenzene	95-50-1	<0.1	mg/kg				<0.1		
CHC	1,3,5-Trichlorobenzene	108-70-3	<0.1	mg/kg				<0.1		
CHC	1,3-Dichlorobenzene	541-73-1	<0.1	mg/kg				<0.1		
CHC	1,4-Dichlorobenzene	106-46-7	<0.1	mg/kg				<0.1		
CHC	2-Chloronaphthalene	91-58-7	<0.1	mg/kg				<0.1		
CHC	Benzal Chloride	98-87-3	<0.1	mg/kg				<0.1		
CHC	Benzotrichloride	98-07-7	<0.1	mg/kg				<0.1		
CHC	Benzylchloride	100-44-7	<0.1	mg/kg				<0.1		
CHC	Hexachloroethane	67-72-1	<0.1	mg/kg				<0.1		
CHC	Hexachlorobutadiene	87-68-3	<0.1	mg/kg				<0.1		
CHC	Hexachlorocyclopentadiene	77-47-4	<0.1	mg/kg				<0.1		
CHC	Pentachlorobenzene	608-93-5	<0.1	mg/kg				<0.1		
Analysis	**Analyte**	**CAS #**	**LOR**							

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Samples are tested within holding time unless otherwise

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Water microbiological testing was commenced on the day received and within 24 hours of sampling unless otherwise stated.
MM524: Plate count results <10 per mL and >300 per mL are deemed as approximate.
MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

					Sample No.	7425110	7425111	7425112	7425113	7425114	7425115
					Client Sample ID	SB1	SB2	SB3	SB4	SB5	SB6
					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
HVOL	1,1,1,2-Tetrachloroethane	630-20-6	<0.5	mg/kg					<0.5		
HVOL	1,1,2,2-Tetrachloroethane	79-34-5	<0.5	mg/kg					<0.5		
HVOL	1,1- Dichloroethane	75-34-3	<0.5	mg/kg					<0.5		
HVOL	1,1-Dichloroethene	75-35-4	<0.5	mg/kg					<0.5		
HVOL	1,1-Dichloropropene	563-58-6	<0.5	mg/kg					<0.5		
HVOL	1,2,3-Trichloropropane	96-18-4	<0.5	mg/kg					<0.5		
HVOL	1,2-Dibromo-3-Chloropropane	96-12-8	<0.5	mg/kg					<0.5		
HVOL	1,2-Dichloroethene [cis]	540-59-0(cis)	<0.5	mg/kg					<0.5		
HVOL	1,2-Dichloroethene [trans]	540-59-0(trans)	<0.5	mg/kg					<0.5		
HVOL	1,2-Dichloroethane	107-06-2	<0.5	mg/kg					<0.5		
HVOL	1,2-Dichloropropane	78-87-5	<0.5	mg/kg					<0.5		
HVOL	1,3-Dichloropropane	142-28-9	<0.5	mg/kg					<0.5		
HVOL	1,3-Dichloropropene [cis]	10061-01-5	<0.5	mg/kg					<0.5		
HVOL	1,3-Dichloropropene [trans]	10061-02-6	<0.5	mg/kg					<0.5		
HVOL	2,2-Dichloropropane	594-20-7	<0.5	mg/kg					<0.5		
HVOL	2-Chlorotoluene	95-49-8	<0.5	mg/kg					<0.5		
HVOL	4-Chlorotoluene	106-43-4	<0.5	mg/kg					<0.5		
HVOL	Bromochloromethane	74-97-5	<0.5	mg/kg					<0.5		
HVOL	Bromodichloromethane	75-27-4	<0.5	mg/kg					<0.5		
HVOL	Bromobenzene	108-86-1	<0.5	mg/kg					<0.5		
HVOL	Bromoform (Tribromomethane)	75-25-2	<0.5	mg/kg					<0.5		
HVOL	Carbon Tetrachloride	56-23-5	<0.5	mg/kg					<0.5		
HVOL	Chloroform (Trichloromethane)	67-66-3	<0.5	mg/kg					<0.5		
HVOL	Chlorobenzene	108-90-7	<0.5	mg/kg					<0.5		
HVOL	Dibromochloromethane	124-48-1	<0.5	mg/kg					<0.5		
HVOL	Dibromomethane	74-95-3	<0.5	mg/kg					<0.5		
HVOL	1,2-Dibromoethane	106-93-4	<0.5	mg/kg					<0.5		
HVOL	Dichloromethane	75-09-2	<1	mg/kg					<1		
HVOL	Trichlorofluoromethane (CFC11)	75-69-4	<2	mg/kg					<2		
HVOL	Tetrachloroethene	127-18-4	<0.5	mg/kg					<0.5		
HVOL	Vinyl Chloride (Monomer)	75-01-4	<1	mg/kg					<1		

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				Sample No.	7425110	7425111	7425112	7425113	7425114	7425115
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				Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
HVOL	1,1,1-Trichloroethane	71-55-6	<0.5	mg/kg				<0.5		
HVOL	1,1,2-Trichloroethane	79-00-5	<0.5	mg/kg				<0.5		
HVOL	Trichloroethene	79-01-6	<0.5	mg/kg				<0.5		
Analysis	**Analyte**	**CAS #**	**LOR**							
ASLP(Acetate)	Initial pH	pH_Lab		pH units		>5.0				
ASLP(Acetate)	Leach Fluid pH	pH_aq_extract		pH units		5.0				
ASLP(Acetate)	After HCL pH	After_HCL_pH		pH units		<5.0				
ASLP(Acetate)	Solids Leachate pH (post rolling)	pH_post_rolling		pH units		4.7				
Analysis	**Analyte**	**CAS #**	**LOR**							
MAH	Styrene	100-42-5	<0.5	mg/kg				<0.5		
Analysis	**Analyte**	**CAS #**	**LOR**							
MS ASLP(Acet)	ASLP-Arsenic	7440-38-2	<0.01	mg/L		<0.01				
MS ASLP(Acet)	ASLP-Cadmium	7440-43-9	<0.002	mg/L		<0.002				
MS ASLP(Acet)	ASLP-Chromium	7440-47-3	<0.01	mg/L		<0.01				
MS ASLP(Acet)	ASLP-Copper	7440-50-8	<0.01	mg/L		<0.01				
MS ASLP(Acet)	ASLP-Lead	7439-92-1	<0.01	mg/L		<0.01				
MS ASLP(Acet)	ASLP-Mercury	7439-97-6	<0.001	mg/L		<0.001				
MS ASLP(Acet)	ASLP-Nickel	7440-02-0	<0.01	mg/L		<0.01				
MS ASLP(Acet)	ASLP-Zinc	7440-66-6	<0.01	mg/L		0.01				
Analysis	**Analyte**	**CAS #**	**LOR**							
OCP	BHC (alpha isomer)	319-84-6	<0.05	mg/kg				<0.05		
OCP	a-Endosulphan	959-98-8	<0.05	mg/kg				<0.05		
OCP	Aldrin	309-00-2	<0.05	mg/kg				<0.05		
OCP	BHC (beta isomer)	319-85-7	<0.05	mg/kg				<0.05		
OCP	b-Endosulphan	33213-65-9	<0.05	mg/kg				<0.05		
OCP	Chlordane	57-74-9	<0.05	mg/kg				<0.05		
OCP	cis-Chlordane	5103-71-9	<0.05	mg/kg				<0.05		
OCP	trans-Chlordane	5103-74-2	<0.05	mg/kg				<0.05		
OCP	BHC (delta isomer)	319-86-8	<0.05	mg/kg				<0.05		
OCP	DDD	72-54-8	<0.05	mg/kg				<0.05		
OCP	DDE	72-55-9	<0.05	mg/kg				<0.05		

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					Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
OCP	DDT	50-29-3	<0.05	mg/kg					<0.05		
OCP	Dieldrin	60-57-1	<0.05	mg/kg					<0.05		
OCP	Sum of alpha-, beta- and Endosulphan	115-29-7	<0.05	mg/kg					<0.05		
OCP	Endosulfan Sulfate	1031-07-8	<0.05	mg/kg					<0.05		
OCP	Endrin	72-20-8	<0.05	mg/kg					<0.05		
OCP	Endrin Aldehyde	7421-93-4	<0.05	mg/kg					<0.05		
OCP	Endrin Ketone	53494-70-5	<0.05	mg/kg					<0.05		
OCP	Hexachlorobenzene	118-74-1	<0.05	mg/kg					<0.05		
OCP	Heptachlor Epoxide	1024-57-3	<0.05	mg/kg					<0.05		
OCP	Heptachlor	76-44-8	<0.05	mg/kg					<0.05		
OCP	BHC (gamma isomer) [Lindane]	58-89-9	<0.05	mg/kg					<0.05		
OCP	Methoxychlor	72-43-5	<0.05	mg/kg					<0.05		
OCP	Oxychlordane	27304-13-8	<0.05	mg/kg					<0.05		
OCP	Sum of DDD, DDE and DDT	DDT+DDE+DD	<0.05	mg/kg					<0.05		
OCP	Sum of Aldrin and Dieldrin	309-00-2 +	<0.05	mg/kg					<0.05		
Analysis	**Analyte**	**CAS #**	**LOR**								
PAH	Acenaphthene	83-32-9	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Acenaphthylene	208-96-8	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Anthracene	120-12-7	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Benz(a)anthracene	56-55-3	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Benzo(a)pyrene	50-32-8	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Benzo(b)fluoranthene	205-99-2	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Benzo(g,h,i)perylene	191-24-2	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Benzo(k)fluoranthene	207-08-9	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Chrysene	218-01-9	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Dibenz(a,h)anthracene	53-70-3	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Fluoranthene	206-44-0	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Fluorene	86-73-7	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Naphthalene	91-20-3	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1
PAH	Phenanthrene	85-01-8	<0.1	mg/kg	<0.1		<0.1	<0.1		<0.1

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					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PAH	Pyrene	129-00-0	<0.1	mg/kg		<0.1		<0.1	<0.1		<0.1
PAH	Total PAH	TOTALPAH	<0.1	mg/kg		<0.1		<0.1	<0.1		<0.1
PAH	BaP TEQ (zero)	BaP_TEQ_0xE	<0.1	mg/kg		<0.1		<0.1	<0.1		<0.1
PAH	BaP TEQ (half LOR)	BaP_TEQ_0.5x	<0.1	mg/kg		0.1		0.1	0.1		0.1
PAH	BaP TEQ (LOR)	BaP_TEQ_1.0x	0.2	mg/kg		0.2		0.2	0.2		0.2
Analysis	**Analyte**	**CAS #**	**LOR**								
PCB	Aroclor 1016	12674-11-2	<0.1	mg/kg					<0.1		
PCB	Aroclor 1221	11104-28-2	<0.1	mg/kg					<0.1		
PCB	Aroclor 1232	11141-16-5	<0.1	mg/kg					<0.1		
PCB	Aroclor 1242	53469-21-9	<0.1	mg/kg					<0.1		
PCB	Aroclor 1248	12672-29-6	<0.1	mg/kg					<0.1		
PCB	Aroclor 1254	11097-69-1	<0.1	mg/kg					<0.1		
PCB	Aroclor 1260	11096-82-5	<0.1	mg/kg					<0.1		
PCB	Total PCBs	1336-36-3	<0.1	mg/kg					<0.1		
Analysis	**Analyte**	**CAS #**	**LOR**								
Phenols(Halo)	4-Chloro-3-Methylphenol	59-50-7	<0.5	mg/kg					<0.5		
Phenols(Halo)	2-Chlorophenol	95-57-8	<0.5	mg/kg					<0.5		
Phenols(Halo)	2,4-Dichlorophenol	120-83-2	<0.5	mg/kg					<0.5		
Phenols(Halo)	2,6-Dichlorophenol	87-65-0	<0.5	mg/kg					<0.5		
Phenols(Halo)	Pentachlorophenol	87-86-5	<0.5	mg/kg					<0.5		
Phenols(Halo)	2,3,4,5-Tetrachlorophenol	4901-51-3	<0.5	mg/kg					<0.5		
Phenols(Halo)	2,3,4,6-Tetrachlorophenol	58-90-2	<0.5	mg/kg					<0.5		
Phenols(Halo)	2,3,5,6-Tetrachlorophenol	935-95-5	<0.5	mg/kg					<0.5		
Phenols(Halo)	2,4,5-Trichlorophenol	95-95-4	<0.5	mg/kg					<0.5		
Phenols(Halo)	2,4,6-Trichlorophenol	88-06-2	<0.5	mg/kg					<0.5		
Phenols(Halo)	Total Phenols (Halogenated)	64743-03-9(Hal	<0.5	mg/kg					<0.5		
Analysis	**Analyte**	**CAS #**	**LOR**								
Phenols(NonHalo)	Phenol	108-95-2	<0.5	mg/kg					<0.5		
Phenols(NonHalo)	Total Cresols	1319-77-3	<1	mg/kg					<1		
Phenols(NonHalo)	2,4-Dimethylphenol	105-67-9	<0.5	mg/kg					<0.5		
Phenols(NonHalo)	2,4-Dinitrophenol	51-28-5	<30	mg/kg					<30		

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				Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Phenols(NonHalo)	2-Methyl-4,6-Dinitrophenol	534-52-1	<10	mg/kg				<10		
Phenols(NonHalo)	2-Nitrophenol	88-75-5	<0.5	mg/kg				<0.5		
Phenols(NonHalo)	4-Nitrophenol	100-02-7	<0.5	mg/kg				<0.5		
Phenols(NonHalo)	2-Cyclohexyl-4,6-Dinitrophenol	131-89-5	<30	mg/kg				<30		
Phenols(NonHalo)	Dinoseb	88-85-7	<10	mg/kg				<10		
Phenols(NonHalo)	Total Phenols (non Halogenated)	64743-03-9(Non	<30	mg/kg				<30		
Analysis	**Analyte**	**CAS #**	**LOR**							
Moisture	Moisture %	MOISTCONTE	<2	% w/wet w				20		
pH	pH, units	pH_Lab	<0.1	Units		5.9		5.1		
Total Fluoride	Total Fluoride, as F	16984-48-8	<100	mg/kg				<100		
Cyanide	Cyanide, as CN	57-12-5	<5	mg/kg				<5		
CEC	Cation exchange capacity	CEC		meq/100g		15				
Total Cr 6+ DA	Hexavalent Chromium (Total) Soil DA	18540-29-9	<1	mg/kg				<1		
Analysis	**Analyte**	**CAS #**	**LOR**							
MS Total Metals	Arsenic	7440-38-2	<5	mg/kg		<5		<5	<5	
MS Total Metals	Cadmium	7440-43-9	<0.2	mg/kg		<0.2		<0.2	<0.2	
MS Total Metals	Chromium	7440-47-3	<5	mg/kg		61			34	
MS Total Metals	Copper	7440-50-8	<5	mg/kg		5		<5	<5	
MS Total Metals	Lead	7439-92-1	<5	mg/kg		17		11	11	
MS Total Metals	Mercury	7439-97-6	<0.05	mg/kg		<0.05		<0.05	<0.05	
MS Total Metals	Molybdenum	7439-98-7	<5	mg/kg				<5		
MS Total Metals	Nickel	7440-02-0	<5	mg/kg		11		12	5	
MS Total Metals	Selenium	7782-49-2	<3	mg/kg		<3		<3	<3	
MS Total Metals	Silver	7440-22-4	<5	mg/kg				<5		
MS Total Metals	Tin	7440-31-5	<5	mg/kg				<5		
MS Total Metals	Zinc	7440-66-6	<5	mg/kg		13		10	7	
Analysis	**Analyte**	**CAS #**	**LOR**							
TRH (C6-C10) &	TPHC6-C9	C6-C9	<20	mg/kg	<20		<20	<20		<20
TRH (C6-C10) &	TRHC6-C10	C6-C10	<20	mg/kg	<20		<20	<20		<20
TRH (C6-C10) &	TRHC6-C10 minus BTEX	F1-BTEX	<20	mg/kg	<20		<20	<20		<20
Analysis	**Analyte**	**CAS #**	**LOR**							

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Calculated results are based on raw data.

Batch No: **22-19166**
Report Number: **955941**
Client: **Connolly Environmental**
Client Program Ref: **22028b Ballan**

					Sample No.	7425110	7425111	7425112	7425113	7425114	7425115
					Client Sample ID	SB1	SB2	SB3	SB4	SB5	SB6
					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
TRH F2	TRH>C10-C16 minus Naphthalene	F2-NAPHTHAL	<20	mg/kg		<20		<20	<20		<20
TRH & TPH	TPH C10-C14	C10-C14	<20	mg/kg		<20		<20	<20		<20
TRH & TPH	TPH C15-C28	C15-C28	<50	mg/kg		<50		<50	<50		<50
TRH & TPH	TPH C29-C36	C29-C36	<50	mg/kg		<50		63	55		140
TRH & TPH	Sum of TPH C10-C36	C10-C36	<50	mg/kg		<50		63	55		140
TRH & TPH	TRH>C10-C16	C10-C16	<20	mg/kg		<20		<20	<20		<20
TRH & TPH	TRH>C16-C34	C16-C34	<50	mg/kg		<50		57	<50		130
TRH & TPH	TRH>C34-C40	C34-C40	<50	mg/kg		<50		<50	<50		<50
TRH & TPH	Sum of TRH>C10-C40	C10-C40	<50	mg/kg		<50		57	<50		130

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Calculated results are based on raw data.

Batch No: **22-19166**
Report Number: **955941**
Client: **Connolly Environmental**
Client Program Ref: **22028b Ballan**

LOR = Limit of reporting. When a reported LOR is higher than the standard LOR, this may be due to high moisture content, insufficient sample or matrix interference.
CAS Number = Chemistry Abstract Services Number. The analytical procedures in this report (including in house methods) are developed from internationally recognised procedures such as those published by USEPA, APHA and NEPM.

				Sample No.	7425116	7425117	7425118	7425119	7425120	7425121
				Client Sample ID	SB7	SB8	SB9	SB10	SB11	SB12
				Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Analysis	**Analyte**	**CAS #**	**LOR**							
BTEXN	Benzene	71-43-2	<0.5	mg/kg		<0.5		<0.5	<0.5	
BTEXN	Toluene	108-88-3	<0.5	mg/kg		<0.5		<0.5	<0.5	
BTEXN	Ethyl Benzene	100-41-4	<0.5	mg/kg		<0.5		<0.5	<0.5	
BTEXN	Xylene - m&p	108-38-3 /	<1	mg/kg		<1		<1	<1	
BTEXN	Xylene - O	95-47-6	<0.5	mg/kg		<0.5		<0.5	<0.5	
BTEXN	Naphthalene	91-20-3_VOC	<0.5	mg/kg		<0.5		<0.5	<0.5	
BTEXN	Total Xylenes	1330-20-7	<1	mg/kg		<1		<1	<1	
BTEXN	BTEX (Sum)	BTEX	<1	mg/kg		<1		<1	<1	
Analysis	**Analyte**	**CAS #**	**LOR**							
CHC	1,2,3,4-Tetrachlorobenzene	634-66-2	<0.1	mg/kg				<0.1		
CHC	1,2,3,5-Tetrachlorbenzene	634-90-2	<0.1	mg/kg				<0.1		
CHC	1,2,3-Trichlorobenzene	87-61-6	<0.1	mg/kg				<0.1		
CHC	1,2,4,5-Tetrachlorobenzene	95-94-3	<0.1	mg/kg				<0.1		
CHC	1,2,4-Trichlorobenzene	120-82-1	<0.1	mg/kg				<0.1		
CHC	1,2-Dichlorobenzene	95-50-1	<0.1	mg/kg				<0.1		
CHC	1,3,5-Trichlorobenzene	108-70-3	<0.1	mg/kg				<0.1		
CHC	1,3-Dichlorobenzene	541-73-1	<0.1	mg/kg				<0.1		
CHC	1,4-Dichlorobenzene	106-46-7	<0.1	mg/kg				<0.1		
CHC	2-Chloronaphthalene	91-58-7	<0.1	mg/kg				<0.1		
CHC	Benzal Chloride	98-87-3	<0.1	mg/kg				<0.1		
CHC	Benzotrichloride	98-07-7	<0.1	mg/kg				<0.1		
CHC	Benzylchloride	100-44-7	<0.1	mg/kg				<0.1		
CHC	Hexachloroethane	67-72-1	<0.1	mg/kg				<0.1		
CHC	Hexachlorobutadiene	87-68-3	<0.1	mg/kg				<0.1		
CHC	Hexachlorocyclopentadiene	77-47-4	<0.1	mg/kg				<0.1		
CHC	Pentachlorobenzene	608-93-5	<0.1	mg/kg				<0.1		
Analysis	**Analyte**	**CAS #**	**LOR**							

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					Sample No.	7425116	7425117	7425118	7425119	7425120	7425121
					Client Sample ID	SB7	SB8	SB9	SB10	SB11	SB12
					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
HVOL	1,1,1,2-Tetrachloroethane	630-20-6	<0.5	mg/kg					<0.5		
HVOL	1,1,2,2-Tetrachloroethane	79-34-5	<0.5	mg/kg					<0.5		
HVOL	1,1- Dichloroethane	75-34-3	<0.5	mg/kg					<0.5		
HVOL	1,1-Dichloroethene	75-35-4	<0.5	mg/kg					<0.5		
HVOL	1,1-Dichloropropene	563-58-6	<0.5	mg/kg					<0.5		
HVOL	1,2,3-Trichloropropane	96-18-4	<0.5	mg/kg					<0.5		
HVOL	1,2-Dibromo-3-Chloropropane	96-12-8	<0.5	mg/kg					<0.5		
HVOL	1,2-Dichloroethene [cis]	540-59-0(cis)	<0.5	mg/kg					<0.5		
HVOL	1,2-Dichloroethene [trans]	540-59-0(trans)	<0.5	mg/kg					<0.5		
HVOL	1,2-Dichloroethane	107-06-2	<0.5	mg/kg					<0.5		
HVOL	1,2-Dichloropropane	78-87-5	<0.5	mg/kg					<0.5		
HVOL	1,3-Dichloropropane	142-28-9	<0.5	mg/kg					<0.5		
HVOL	1,3-Dichloropropene [cis]	10061-01-5	<0.5	mg/kg					<0.5		
HVOL	1,3-Dichloropropene [trans]	10061-02-6	<0.5	mg/kg					<0.5		
HVOL	2,2-Dichloropropane	594-20-7	<0.5	mg/kg					<0.5		
HVOL	2-Chlorotoluene	95-49-8	<0.5	mg/kg					<0.5		
HVOL	4-Chlorotoluene	106-43-4	<0.5	mg/kg					<0.5		
HVOL	Bromochloromethane	74-97-5	<0.5	mg/kg					<0.5		
HVOL	Bromodichloromethane	75-27-4	<0.5	mg/kg					<0.5		
HVOL	Bromobenzene	108-86-1	<0.5	mg/kg					<0.5		
HVOL	Bromoform (Tribromomethane)	75-25-2	<0.5	mg/kg					<0.5		
HVOL	Carbon Tetrachloride	56-23-5	<0.5	mg/kg					<0.5		
HVOL	Chloroform (Trichloromethane)	67-66-3	<0.5	mg/kg					<0.5		
HVOL	Chlorobenzene	108-90-7	<0.5	mg/kg					<0.5		
HVOL	Dibromochloromethane	124-48-1	<0.5	mg/kg					<0.5		
HVOL	Dibromomethane	74-95-3	<0.5	mg/kg					<0.5		
HVOL	1,2-Dibromoethane	106-93-4	<0.5	mg/kg					<0.5		
HVOL	Dichloromethane	75-09-2	<1	mg/kg					<1		
HVOL	Trichlorofluoromethane (CFC11)	75-69-4	<2	mg/kg					<2		
HVOL	Tetrachloroethene	127-18-4	<0.5	mg/kg					<0.5		
HVOL	Vinyl Chloride (Monomer)	75-01-4	<1	mg/kg					<1		

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				Sample No.	7425116	7425117	7425118	7425119	7425120	7425121
				Client Sample ID	SB7	SB8	SB9	SB10	SB11	SB12
				Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
HVOL	1,1,1-Trichloroethane	71-55-6	<0.5	mg/kg				<0.5		
HVOL	1,1,2-Trichloroethane	79-00-5	<0.5	mg/kg				<0.5		
HVOL	Trichloroethene	79-01-6	<0.5	mg/kg				<0.5		
Analysis	**Analyte**	**CAS #**	**LOR**							
MAH	Styrene	100-42-5	<0.5	mg/kg				<0.5		
Analysis	**Analyte**	**CAS #**	**LOR**							
OCP	BHC (alpha isomer)	319-84-6	<0.05	mg/kg				<0.05		
OCP	a-Endosulphan	959-98-8	<0.05	mg/kg				<0.05		
OCP	Aldrin	309-00-2	<0.05	mg/kg				<0.05		
OCP	BHC (beta isomer)	319-85-7	<0.05	mg/kg				<0.05		
OCP	b-Endosulphan	33213-65-9	<0.05	mg/kg				<0.05		
OCP	Chlordane	57-74-9	<0.05	mg/kg				<0.05		
OCP	cis-Chlordane	5103-71-9	<0.05	mg/kg				<0.05		
OCP	trans-Chlordane	5103-74-2	<0.05	mg/kg				<0.05		
OCP	BHC (delta isomer)	319-86-8	<0.05	mg/kg				<0.05		
OCP	DDD	72-54-8	<0.05	mg/kg				<0.05		
OCP	DDE	72-55-9	<0.05	mg/kg				<0.05		
OCP	DDT	50-29-3	<0.05	mg/kg				<0.05		
OCP	Dieldrin	60-57-1	<0.05	mg/kg				<0.05		
OCP	Sum of alpha-, beta- and Endosulphan	115-29-7	<0.05	mg/kg				<0.05		
OCP	Endosulfan Sulfate	1031-07-8	<0.05	mg/kg				<0.05		
OCP	Endrin	72-20-8	<0.05	mg/kg				<0.05		
OCP	Endrin Aldehyde	7421-93-4	<0.05	mg/kg				<0.05		
OCP	Endrin Ketone	53494-70-5	<0.05	mg/kg				<0.05		
OCP	Hexachlorobenzene	118-74-1	<0.05	mg/kg				<0.05		
OCP	Heptachlor Epoxide	1024-57-3	<0.05	mg/kg				<0.05		
OCP	Heptachlor	76-44-8	<0.05	mg/kg				<0.05		
OCP	BHC (gamma isomer) [Lindane]	58-89-9	<0.05	mg/kg				<0.05		
OCP	Methoxychlor	72-43-5	<0.05	mg/kg				<0.05		
OCP	Oxychlordane	27304-13-8	<0.05	mg/kg				<0.05		
OCP	Sum of DDD, DDE and DDT	DDT+DDE+DD	<0.05	mg/kg				<0.05		

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					Client Sample ID	SB7	SB8	SB9	SB10	SB11	SB12
					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
OCP	Sum of Aldrin and Dieldrin	309-00-2 +	<0.05	mg/kg					<0.05		
Analysis	**Analyte**	**CAS #**	**LOR**								
PAH	Acenaphthene	83-32-9	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Acenaphthylene	208-96-8	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Anthracene	120-12-7	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Benz(a)anthracene	56-55-3	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Benzo(a)pyrene	50-32-8	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Benzo(b)fluoranthene	205-99-2	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Benzo(g,h,i)perylene	191-24-2	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Benzo(k)fluoranthene	207-08-9	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Chrysene	218-01-9	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Dibenz(a,h)anthracene	53-70-3	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Fluoranthene	206-44-0	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Fluorene	86-73-7	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Naphthalene	91-20-3	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Phenanthrene	85-01-8	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Pyrene	129-00-0	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	Total PAH	TOTALPAH	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	BaP TEQ (zero)	BaP_TEQ_0xE	<0.1	mg/kg			<0.1		<0.1	<0.1	
PAH	BaP TEQ (half LOR)	BaP_TEQ_0.5x	<0.1	mg/kg			0.1		0.1	0.1	
PAH	BaP TEQ (LOR)	BaP_TEQ_1.0x	0.2	mg/kg			0.2		0.2	0.2	
Analysis	**Analyte**	**CAS #**	**LOR**								
PCB	Aroclor 1016	12674-11-2	<0.1	mg/kg					<0.1		
PCB	Aroclor 1221	11104-28-2	<0.1	mg/kg					<0.1		
PCB	Aroclor 1232	11141-16-5	<0.1	mg/kg					<0.1		
PCB	Aroclor 1242	53469-21-9	<0.1	mg/kg					<0.1		
PCB	Aroclor 1248	12672-29-6	<0.1	mg/kg					<0.1		
PCB	Aroclor 1254	11097-69-1	<0.1	mg/kg					<0.1		
PCB	Aroclor 1260	11096-82-5	<0.1	mg/kg					<0.1		
PCB	Total PCBs	1336-36-3	<0.1	mg/kg					<0.1		

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				Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Analysis	**Analyte**	**CAS #**	**LOR**							
Phenols(Halo)	4-Chloro-3-Methylphenol	59-50-7	<0.5	mg/kg				<0.5		
Phenols(Halo)	2-Chlorophenol	95-57-8	<0.5	mg/kg				<0.5		
Phenols(Halo)	2,4-Dichlorophenol	120-83-2	<0.5	mg/kg				<0.5		
Phenols(Halo)	2,6-Dichlorophenol	87-65-0	<0.5	mg/kg				<0.5		
Phenols(Halo)	Pentachlorophenol	87-86-5	<0.5	mg/kg				<0.5		
Phenols(Halo)	2,3,4,5-Tetrachlorophenol	4901-51-3	<0.5	mg/kg				<0.5		
Phenols(Halo)	2,3,4,6-Tetrachlorophenol	58-90-2	<0.5	mg/kg				<0.5		
Phenols(Halo)	2,3,5,6-Tetrachlorophenol	935-95-5	<0.5	mg/kg				<0.5		
Phenols(Halo)	2,4,5-Trichlorophenol	95-95-4	<0.5	mg/kg				<0.5		
Phenols(Halo)	2,4,6-Trichlorophenol	88-06-2	<0.5	mg/kg				<0.5		
Phenols(Halo)	Total Phenols (Halogenated)	64743-03-9(Hal	<0.5	mg/kg				<0.5		
Analysis	**Analyte**	**CAS #**	**LOR**							
Phenols(NonHalo)	Phenol	108-95-2	<0.5	mg/kg				<0.5		
Phenols(NonHalo)	Total Cresols	1319-77-3	<1	mg/kg				<1		
Phenols(NonHalo)	2,4-Dimethylphenol	105-67-9	<0.5	mg/kg				<0.5		
Phenols(NonHalo)	2,4-Dinitrophenol	51-28-5	<30	mg/kg				<30		
Phenols(NonHalo)	2-Methyl-4,6-Dinitrophenol	534-52-1	<10	mg/kg				<10		
Phenols(NonHalo)	2-Nitrophenol	88-75-5	<0.5	mg/kg				<0.5		
Phenols(NonHalo)	4-Nitrophenol	100-02-7	<0.5	mg/kg				<0.5		
Phenols(NonHalo)	2-Cyclohexyl-4,6-Dinitrophenol	131-89-5	<30	mg/kg				<30		
Phenols(NonHalo)	Dinoseb	88-85-7	<10	mg/kg				<10		
Phenols(NonHalo)	Total Phenols (non Halogenated)	64743-03-9(Non	<30	mg/kg				<30		
Analysis	**Analyte**	**CAS #**	**LOR**							
Moisture	Moisture %	MOISTCONTE	<2	% w/wet w				20		
pH	pH, units	pH_Lab	<0.1	Units				6.2		
Total Fluoride	Total Fluoride, as F	16984-48-8	<100	mg/kg				<100		
Cyanide	Cyanide, as CN	57-12-5	<5	mg/kg				<5		
Total Cr 6+ DA	Hexavalent Chromium (Total) Soil DA	18540-29-9	<1	mg/kg				<1		
Analysis	**Analyte**	**CAS #**	**LOR**							
MS Total Metals	Arsenic	7440-38-2	<5	mg/kg	<5		<5	<5		<5

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Water microbiological testing was commenced on the day received and within 24 hours of sampling unless otherwise stated.
MM524: Plate count results <10 per mL and >300 per mL are deemed as approximate.
MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

					Sample No.	7425116	7425117	7425118	7425119	7425120	7425121
					Client Sample ID	SB7	SB8	SB9	SB10	SB11	SB12
					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
MS Total Metals	Cadmium	7440-43-9	<0.2	mg/kg		<0.2		<0.2	<0.2		<0.2
MS Total Metals	Chromium	7440-47-3	<5	mg/kg		40		26			54
MS Total Metals	Copper	7440-50-8	<5	mg/kg		<5		<5	<5		<5
MS Total Metals	Lead	7439-92-1	<5	mg/kg		12		12	13		14
MS Total Metals	Mercury	7439-97-6	<0.05	mg/kg		<0.05		<0.05	<0.05		<0.05
MS Total Metals	Molybdenum	7439-98-7	<5	mg/kg					<5		
MS Total Metals	Nickel	7440-02-0	<5	mg/kg		5		11	12		13
MS Total Metals	Selenium	7782-49-2	<3	mg/kg		<3		<3	<3		<3
MS Total Metals	Silver	7440-22-4	<5	mg/kg					<5		
MS Total Metals	Tin	7440-31-5	<5	mg/kg					<5		
MS Total Metals	Zinc	7440-66-6	<5	mg/kg		7		10	12		15
Analysis	**Analyte**	**CAS #**	**LOR**								
TRH (C6-C10) &	TPHC6-C9	C6-C9	<20	mg/kg			<20		<20	<20	
TRH (C6-C10) &	TRHC6-C10	C6-C10	<20	mg/kg			<20		<20	<20	
TRH (C6-C10) &	TRHC6-C10 minus BTEX	F1-BTEX	<20	mg/kg			<20		<20	<20	
Analysis	**Analyte**	**CAS #**	**LOR**								
TRH F2	TRH>C10-C16 minus Naphthalene	F2-NAPHTHAL	<20	mg/kg			<20		<20	<20	
TRH & TPH	TPH C10-C14	C10-C14	<20	mg/kg			<20		<20	<20	
TRH & TPH	TPH C15-C28	C15-C28	<50	mg/kg			<50		<50	<50	
TRH & TPH	TPH C29-C36	C29-C36	<50	mg/kg			120		51	120	
TRH & TPH	Sum of TPH C10-C36	C10-C36	<50	mg/kg			120		51	120	
TRH & TPH	TRH>C10-C16	C10-C16	<20	mg/kg			<20		<20	<20	
TRH & TPH	TRH>C16-C34	C16-C34	<50	mg/kg			87		<50	110	
TRH & TPH	TRH>C34-C40	C34-C40	<50	mg/kg			<50		<50	<50	
TRH & TPH	Sum of TRH>C10-C40	C10-C40	<50	mg/kg			87		<50	110	

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Water microbiological testing was commenced on the day received and within 24 hours of sampling unless otherwise stated.
MM524: Plate count results <10 per mL and >300 per mL are deemed as approximate.
MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

Batch No: 22-19166
Report Number: 955941
Client: Connolly Environmental
Client Program Ref: 22028b Ballan

LOR = Limit of reporting. When a reported LOR is higher than the standard LOR, this may be due to high moisture content, insufficient sample or matrix interference.
CAS Number = Chemistry Abstract Services Number. The analytical procedures in this report (including in house methods) are developed from internationally recognised procedures such as those published by USEPA, APHA and NEPM.

				Sample No.	7425122	7425123	7425124	7425125	7425126	7425127
				Client Sample ID	SB13	SB14	SB15	SB16	SB17	SB18
				Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Analysis	**Analyte**	**CAS #**	**LOR**							
BTEXN	Benzene	71-43-2	<0.5	mg/kg	<0.5		<0.5		<0.5	
BTEXN	Toluene	108-88-3	<0.5	mg/kg	<0.5		<0.5		<0.5	
BTEXN	Ethyl Benzene	100-41-4	<0.5	mg/kg	<0.5		<0.5		<0.5	
BTEXN	Xylene - m&p	108-38-3 /	<1	mg/kg	<1		<1		<1	
BTEXN	Xylene - O	95-47-6	<0.5	mg/kg	<0.5		<0.5		<0.5	
BTEXN	Naphthalene	91-20-3_VOC	<0.5	mg/kg	<0.5		<0.5		<0.5	
BTEXN	Total Xylenes	1330-20-7	<1	mg/kg	<1		<1		<1	
BTEXN	BTEX (Sum)	BTEX	<1	mg/kg	<1		<1		<1	
Analysis	**Analyte**	**CAS #**	**LOR**							
PAH	Acenaphthene	83-32-9	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Acenaphthylene	208-96-8	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Anthracene	120-12-7	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Benz(a)anthracene	56-55-3	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Benzo(a)pyrene	50-32-8	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Benzo(b)fluoranthene	205-99-2	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Benzo(g,h,i)perylene	191-24-2	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Benzo(k)fluoranthene	207-08-9	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Chrysene	218-01-9	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Dibenz(a,h)anthracene	53-70-3	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Fluoranthene	206-44-0	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Fluorene	86-73-7	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Naphthalene	91-20-3	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Phenanthrene	85-01-8	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Pyrene	129-00-0	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	Total PAH	TOTALPAH	<0.1	mg/kg	<0.1		<0.1		<0.1	
PAH	BaP TEQ (zero)	BaP_TEQ_0xE	<0.1	mg/kg	<0.1		<0.1		<0.1	

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Water microbiological testing was commenced on the day received and within 24 hours of sampling unless otherwise stated.
MM524: Plate count results <10 per mL and >300 per mL are deemed as approximate.
MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

					Sample No.	7425122	7425123	7425124	7425125	7425126	7425127
					Client Sample ID	SB13	SB14	SB15	SB16	SB17	SB18
					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PAH	BaP TEQ (half LOR)	BaP_TEQ_0.5x	<0.1	mg/kg		0.1		0.1		0.1	
PAH	BaP TEQ (LOR)	BaP_TEQ_1.0x	0.2	mg/kg		0.2		0.2		0.2	
Analysis	**Analyte**	**CAS #**	**LOR**								
MS Total Metals	Arsenic	7440-38-2	<5	mg/kg			<5		14		<5
MS Total Metals	Cadmium	7440-43-9	<0.2	mg/kg			<0.2		<0.2		<0.2
MS Total Metals	Chromium	7440-47-3	<5	mg/kg			36		190		53
MS Total Metals	Copper	7440-50-8	<5	mg/kg			<5		<5		<5
MS Total Metals	Lead	7439-92-1	<5	mg/kg			14		37		12
MS Total Metals	Mercury	7439-97-6	<0.05	mg/kg			<0.05		<0.05		<0.05
MS Total Metals	Nickel	7440-02-0	<5	mg/kg			10		15		11
MS Total Metals	Selenium	7782-49-2	<3	mg/kg			<3		<3		<3
MS Total Metals	Zinc	7440-66-6	<5	mg/kg			11		12		10
Analysis	**Analyte**	**CAS #**	**LOR**								
TRH (C6-C10) &	TPHC6-C9	C6-C9	<20	mg/kg		<20		<20		<20	
TRH (C6-C10) &	TRHC6-C10	C6-C10	<20	mg/kg		<20		<20		<20	
TRH (C6-C10) &	TRHC6-C10 minus BTEX	F1-BTEX	<20	mg/kg		<20		<20		<20	
Analysis	**Analyte**	**CAS #**	**LOR**								
TRH F2	TRH>C10-C16 minus Naphthalene	F2-NAPHTHAL	<20	mg/kg		<20		<20		<20	
TRH & TPH	TPH C10-C14	C10-C14	<20	mg/kg		<20		<20		<20	
TRH & TPH	TPH C15-C28	C15-C28	<50	mg/kg		<50		<50		<50	
TRH & TPH	TPH C29-C36	C29-C36	<50	mg/kg		67		72		90	
TRH & TPH	Sum of TPH C10-C36	C10-C36	<50	mg/kg		67		72		90	
TRH & TPH	TRH>C10-C16	C10-C16	<20	mg/kg		<20		<20		<20	
TRH & TPH	TRH>C16-C34	C16-C34	<50	mg/kg		62		65		81	
TRH & TPH	TRH>C34-C40	C34-C40	<50	mg/kg		<50		<50		<50	
TRH & TPH	Sum of TRH>C10-C40	C10-C40	<50	mg/kg		62		65		81	

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CAS Number = Chemistry Abstract Services Number. The analytical procedures in this report (including in house methods) are developed from internationally recognised procedures such as those published by USEPA, APHA and NEPM.

				Sample No.	7425128	7425129	7425130	7425131
				Client Sample ID	SB19	SB20	SB21	SB505
				Sample Date	19/04/22	19/04/22	19/04/22	19/04/22
				Sample Type	SOIL	SOIL	SOIL	SOIL
Analysis	**Analyte**	**CAS #**	**LOR**					
BTEXN	Benzene	71-43-2	<0.5	mg/kg	<0.5		<0.5	
BTEXN	Toluene	108-88-3	<0.5	mg/kg	<0.5		<0.5	
BTEXN	Ethyl Benzene	100-41-4	<0.5	mg/kg	<0.5		<0.5	
BTEXN	Xylene - m&p	108-38-3 /	<1	mg/kg	<1		<1	
BTEXN	Xylene - O	95-47-6	<0.5	mg/kg	<0.5		<0.5	
BTEXN	Naphthalene	91-20-3_VOC	<0.5	mg/kg	<0.5		<0.5	
BTEXN	Total Xylenes	1330-20-7	<1	mg/kg	<1		<1	
BTEXN	BTEX (Sum)	BTEX	<1	mg/kg	<1		<1	
Analysis	**Analyte**	**CAS #**	**LOR**					
CHC	1,2,3,4-Tetrachlorobenzene	634-66-2	<0.1	mg/kg			<0.1	
CHC	1,2,3,5-Tetrachlorbenzene	634-90-2	<0.1	mg/kg			<0.1	
CHC	1,2,3-Trichlorobenzene	87-61-6	<0.1	mg/kg			<0.1	
CHC	1,2,4,5-Tetrachlorobenzene	95-94-3	<0.1	mg/kg			<0.1	
CHC	1,2,4-Trichlorobenzene	120-82-1	<0.1	mg/kg			<0.1	
CHC	1,2-Dichlorobenzene	95-50-1	<0.1	mg/kg			<0.1	
CHC	1,3,5-Trichlorobenzene	108-70-3	<0.1	mg/kg			<0.1	
CHC	1,3-Dichlorobenzene	541-73-1	<0.1	mg/kg			<0.1	
CHC	1,4-Dichlorobenzene	106-46-7	<0.1	mg/kg			<0.1	
CHC	2-Chloronaphthalene	91-58-7	<0.1	mg/kg			<0.1	
CHC	Benzal Chloride	98-87-3	<0.1	mg/kg			<0.1	
CHC	Benzotrichloride	98-07-7	<0.1	mg/kg			<0.1	
CHC	Benzylchloride	100-44-7	<0.1	mg/kg			<0.1	
CHC	Hexachloroethane	67-72-1	<0.1	mg/kg			<0.1	
CHC	Hexachlorobutadiene	87-68-3	<0.1	mg/kg			<0.1	
CHC	Hexachlorocyclopentadiene	77-47-4	<0.1	mg/kg			<0.1	
CHC	Pentachlorobenzene	608-93-5	<0.1	mg/kg			<0.1	
Analysis	**Analyte**	**CAS #**	**LOR**					

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MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

					Sample No.	7425128	7425129	7425130	7425131
					Client Sample ID	SB19	SB20	SB21	SB505
					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL
HVOL	1,1,1,2-Tetrachloroethane	630-20-6	<0.5	mg/kg				<0.5	
HVOL	1,1,2,2-Tetrachloroethane	79-34-5	<0.5	mg/kg				<0.5	
HVOL	1,1- Dichloroethane	75-34-3	<0.5	mg/kg				<0.5	
HVOL	1,1-Dichloroethene	75-35-4	<0.5	mg/kg				<0.5	
HVOL	1,1-Dichloropropene	563-58-6	<0.5	mg/kg				<0.5	
HVOL	1,2,3-Trichloropropane	96-18-4	<0.5	mg/kg				<0.5	
HVOL	1,2-Dibromo-3-Chloropropane	96-12-8	<0.5	mg/kg				<0.5	
HVOL	1,2-Dichloroethene [cis]	540-59-0(cis)	<0.5	mg/kg				<0.5	
HVOL	1,2-Dichloroethene [trans]	540-59-0(trans)	<0.5	mg/kg				<0.5	
HVOL	1,2-Dichloroethane	107-06-2	<0.5	mg/kg				<0.5	
HVOL	1,2-Dichloropropane	78-87-5	<0.5	mg/kg				<0.5	
HVOL	1,3-Dichloropropane	142-28-9	<0.5	mg/kg				<0.5	
HVOL	1,3-Dichloropropene [cis]	10061-01-5	<0.5	mg/kg				<0.5	
HVOL	1,3-Dichloropropene [trans]	10061-02-6	<0.5	mg/kg				<0.5	
HVOL	2,2-Dichloropropane	594-20-7	<0.5	mg/kg				<0.5	
HVOL	2-Chlorotoluene	95-49-8	<0.5	mg/kg				<0.5	
HVOL	4-Chlorotoluene	106-43-4	<0.5	mg/kg				<0.5	
HVOL	Bromochloromethane	74-97-5	<0.5	mg/kg				<0.5	
HVOL	Bromodichloromethane	75-27-4	<0.5	mg/kg				<0.5	
HVOL	Bromobenzene	108-86-1	<0.5	mg/kg				<0.5	
HVOL	Bromoform (Tribromomethane)	75-25-2	<0.5	mg/kg				<0.5	
HVOL	Carbon Tetrachloride	56-23-5	<0.5	mg/kg				<0.5	
HVOL	Chloroform (Trichloromethane)	67-66-3	<0.5	mg/kg				<0.5	
HVOL	Chlorobenzene	108-90-7	<0.5	mg/kg				<0.5	
HVOL	Dibromochloromethane	124-48-1	<0.5	mg/kg				<0.5	
HVOL	Dibromomethane	74-95-3	<0.5	mg/kg				<0.5	
HVOL	1,2-Dibromoethane	106-93-4	<0.5	mg/kg				<0.5	
HVOL	Dichloromethane	75-09-2	<1	mg/kg				<1	
HVOL	Trichlorofluoromethane (CFC11)	75-69-4	<2	mg/kg				<2	
HVOL	Tetrachloroethene	127-18-4	<0.5	mg/kg				<0.5	
HVOL	Vinyl Chloride (Monomer)	75-01-4	<1	mg/kg				<1	

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Water microbiological testing was commenced on the day received and within 24 hours of sampling unless otherwise stated.
MM524: Plate count results <10 per mL and >300 per mL are deemed as approximate.
MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

					Sample No.	7425128	7425129	7425130	7425131
					Client Sample ID	SB19	SB20	SB21	SB505
					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL
HVOL	1,1,1-Trichloroethane	71-55-6	<0.5	mg/kg				<0.5	
HVOL	1,1,2-Trichloroethane	79-00-5	<0.5	mg/kg				<0.5	
HVOL	Trichloroethene	79-01-6	<0.5	mg/kg				<0.5	
Analysis	**Analyte**	**CAS #**	**LOR**						
MAH	Styrene	100-42-5	<0.5	mg/kg				<0.5	
Analysis	**Analyte**	**CAS #**	**LOR**						
OCP	BHC (alpha isomer)	319-84-6	<0.05	mg/kg				<0.05	
OCP	a-Endosulphan	959-98-8	<0.05	mg/kg				<0.05	
OCP	Aldrin	309-00-2	<0.05	mg/kg				<0.05	
OCP	BHC (beta isomer)	319-85-7	<0.05	mg/kg				<0.05	
OCP	b-Endosulphan	33213-65-9	<0.05	mg/kg				<0.05	
OCP	Chlordane	57-74-9	<0.05	mg/kg				<0.05	
OCP	cis-Chlordane	5103-71-9	<0.05	mg/kg				<0.05	
OCP	trans-Chlordane	5103-74-2	<0.05	mg/kg				<0.05	
OCP	BHC (delta isomer)	319-86-8	<0.05	mg/kg				<0.05	
OCP	DDD	72-54-8	<0.05	mg/kg				<0.05	
OCP	DDE	72-55-9	<0.05	mg/kg				<0.05	
OCP	DDT	50-29-3	<0.05	mg/kg				<0.05	
OCP	Dieldrin	60-57-1	<0.05	mg/kg				<0.05	
OCP	Sum of alpha-, beta- and Endosulphan	115-29-7	<0.05	mg/kg				<0.05	
OCP	Endosulfan Sulfate	1031-07-8	<0.05	mg/kg				<0.05	
OCP	Endrin	72-20-8	<0.05	mg/kg				<0.05	
OCP	Endrin Aldehyde	7421-93-4	<0.05	mg/kg				<0.05	
OCP	Endrin Ketone	53494-70-5	<0.05	mg/kg				<0.05	
OCP	Hexachlorobenzene	118-74-1	<0.05	mg/kg				<0.05	
OCP	Heptachlor Epoxide	1024-57-3	<0.05	mg/kg				<0.05	
OCP	Heptachlor	76-44-8	<0.05	mg/kg				<0.05	
OCP	BHC (gamma isomer) [Lindane]	58-89-9	<0.05	mg/kg				<0.05	
OCP	Methoxychlor	72-43-5	<0.05	mg/kg				<0.05	
OCP	Oxychlordane	27304-13-8	<0.05	mg/kg				<0.05	
OCP	Sum of DDD, DDE and DDT	DDT+DDE+DD	<0.05	mg/kg				<0.05	

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Water microbiological testing was commenced on the day received and within 24 hours of sampling unless otherwise stated.
MM524: Plate count results <10 per mL and >300 per mL are deemed as approximate.
MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

					Sample No.	7425128	7425129	7425130	7425131
					Client Sample ID	SB19	SB20	SB21	SB505
					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL
OCP	Sum of Aldrin and Dieldrin	309-00-2 +	<0.05	mg/kg				<0.05	
Analysis	**Analyte**	**CAS #**	**LOR**						
PAH	Acenaphthene	83-32-9	<0.1	mg/kg	<0.1			<0.1	
PAH	Acenaphthylene	208-96-8	<0.1	mg/kg	<0.1			<0.1	
PAH	Anthracene	120-12-7	<0.1	mg/kg	<0.1			<0.1	
PAH	Benz(a)anthracene	56-55-3	<0.1	mg/kg	<0.1			<0.1	
PAH	Benzo(a)pyrene	50-32-8	<0.1	mg/kg	<0.1			<0.1	
PAH	Benzo(b)fluoranthene	205-99-2	<0.1	mg/kg	<0.1			<0.1	
PAH	Benzo(g,h,i)perylene	191-24-2	<0.1	mg/kg	<0.1			<0.1	
PAH	Benzo(k)fluoranthene	207-08-9	<0.1	mg/kg	<0.1			<0.1	
PAH	Chrysene	218-01-9	<0.1	mg/kg	<0.1			<0.1	
PAH	Dibenz(a,h)anthracene	53-70-3	<0.1	mg/kg	<0.1			<0.1	
PAH	Fluoranthene	206-44-0	<0.1	mg/kg	<0.1			<0.1	
PAH	Fluorene	86-73-7	<0.1	mg/kg	<0.1			<0.1	
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	mg/kg	<0.1			<0.1	
PAH	Naphthalene	91-20-3	<0.1	mg/kg	<0.1			<0.1	
PAH	Phenanthrene	85-01-8	<0.1	mg/kg	<0.1			<0.1	
PAH	Pyrene	129-00-0	<0.1	mg/kg	<0.1			<0.1	
PAH	Total PAH	TOTALPAH	<0.1	mg/kg	<0.1			<0.1	
PAH	BaP TEQ (zero)	BaP_TEQ_0xE	<0.1	mg/kg	<0.1			<0.1	
PAH	BaP TEQ (half LOR)	BaP_TEQ_0.5x	<0.1	mg/kg	0.1			0.1	
PAH	BaP TEQ (LOR)	BaP_TEQ_1.0x	0.2	mg/kg	0.2			0.2	
Analysis	**Analyte**	**CAS #**	**LOR**						
PCB	Aroclor 1016	12674-11-2	<0.1	mg/kg				<0.1	
PCB	Aroclor 1221	11104-28-2	<0.1	mg/kg				<0.1	
PCB	Aroclor 1232	11141-16-5	<0.1	mg/kg				<0.1	
PCB	Aroclor 1242	53469-21-9	<0.1	mg/kg				<0.1	
PCB	Aroclor 1248	12672-29-6	<0.1	mg/kg				<0.1	
PCB	Aroclor 1254	11097-69-1	<0.1	mg/kg				<0.1	
PCB	Aroclor 1260	11096-82-5	<0.1	mg/kg				<0.1	
PCB	Total PCBs	1336-36-3	<0.1	mg/kg				<0.1	

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Calculated results are based on raw data.

					Sample No.	7425128	7425129	7425130	7425131
					Client Sample ID	SB19	SB20	SB21	SB505
					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL
Analysis	**Analyte**	**CAS #**	**LOR**						
Phenols(Halo)	4-Chloro-3-Methylphenol	59-50-7	<0.5	mg/kg				<0.5	
Phenols(Halo)	2-Chlorophenol	95-57-8	<0.5	mg/kg				<0.5	
Phenols(Halo)	2,4-Dichlorophenol	120-83-2	<0.5	mg/kg				<0.5	
Phenols(Halo)	2,6-Dichlorophenol	87-65-0	<0.5	mg/kg				<0.5	
Phenols(Halo)	Pentachlorophenol	87-86-5	<0.5	mg/kg				<0.5	
Phenols(Halo)	2,3,4,5-Tetrachlorophenol	4901-51-3	<0.5	mg/kg				<0.5	
Phenols(Halo)	2,3,4,6-Tetrachlorophenol	58-90-2	<0.5	mg/kg				<0.5	
Phenols(Halo)	2,3,5,6-Tetrachlorophenol	935-95-5	<0.5	mg/kg				<0.5	
Phenols(Halo)	2,4,5-Trichlorophenol	95-95-4	<0.5	mg/kg				<0.5	
Phenols(Halo)	2,4,6-Trichlorophenol	88-06-2	<0.5	mg/kg				<0.5	
Phenols(Halo)	Total Phenols (Halogenated)	64743-03-9(Hal	<0.5	mg/kg				<0.5	
Analysis	**Analyte**	**CAS #**	**LOR**						
Phenols(NonHalo)	Phenol	108-95-2	<0.5	mg/kg				<0.5	
Phenols(NonHalo)	Total Cresols	1319-77-3	<1	mg/kg				<1	
Phenols(NonHalo)	2,4-Dimethylphenol	105-67-9	<0.5	mg/kg				<0.5	
Phenols(NonHalo)	2,4-Dinitrophenol	51-28-5	<30	mg/kg				<30	
Phenols(NonHalo)	2-Methyl-4,6-Dinitrophenol	534-52-1	<10	mg/kg				<10	
Phenols(NonHalo)	2-Nitrophenol	88-75-5	<0.5	mg/kg				<0.5	
Phenols(NonHalo)	4-Nitrophenol	100-02-7	<0.5	mg/kg				<0.5	
Phenols(NonHalo)	2-Cyclohexyl-4,6-Dinitrophenol	131-89-5	<30	mg/kg				<30	
Phenols(NonHalo)	Dinoseb	88-85-7	<10	mg/kg				<10	
Phenols(NonHalo)	Total Phenols (non Halogenated)	64743-03-9(Non	<30	mg/kg				<30	
Analysis	**Analyte**	**CAS #**	**LOR**						
Moisture	Moisture %	MOISTCONTE	<2	% w/wet w				18	
pH	pH, units	pH_Lab	<0.1	Units				4.9	
Total Fluoride	Total Fluoride, as F	16984-48-8	<100	mg/kg				<100	
Cyanide	Cyanide, as CN	57-12-5	<5	mg/kg				<5	
Total Cr 6+ DA	Hexavalent Chromium (Total) Soil DA	18540-29-9	<1	mg/kg				<1	
Analysis	**Analyte**	**CAS #**	**LOR**						
MS Total Metals	Arsenic	7440-38-2	<5	mg/kg			<5	8	<5

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Calculated results are based on raw data.

					Sample No.	7425128	7425129	7425130	7425131
					Client Sample ID	SB19	SB20	SB21	SB505
					Sample Date	19/04/22	19/04/22	19/04/22	19/04/22
					Sample Type	SOIL	SOIL	SOIL	SOIL
MS Total Metals	Cadmium	7440-43-9	<0.2	mg/kg			2.1	0.7	0.3
MS Total Metals	Chromium	7440-47-3	<5	mg/kg			50		32
MS Total Metals	Copper	7440-50-8	<5	mg/kg			7	6	<5
MS Total Metals	Lead	7439-92-1	<5	mg/kg			15	20	12
MS Total Metals	Mercury	7439-97-6	<0.05	mg/kg			<0.05	0.11	<0.05
MS Total Metals	Molybdenum	7439-98-7	<5	mg/kg				<5	
MS Total Metals	Nickel	7440-02-0	<5	mg/kg			11	14	5
MS Total Metals	Selenium	7782-49-2	<3	mg/kg			<3	<3	<3
MS Total Metals	Silver	7440-22-4	<5	mg/kg				<5	
MS Total Metals	Tin	7440-31-5	<5	mg/kg				<5	
MS Total Metals	Zinc	7440-66-6	<5	mg/kg			12	13	7
Analysis	**Analyte**	**CAS #**	**LOR**						
TRH (C6-C10) &	TPHC6-C9	C6-C9	<20	mg/kg		<20		<20	
TRH (C6-C10) &	TRHC6-C10	C6-C10	<20	mg/kg		<20		<20	
TRH (C6-C10) &	TRHC6-C10 minus BTEX	F1-BTEX	<20	mg/kg		<20		<20	
Analysis	**Analyte**	**CAS #**	**LOR**						
TRH F2	TRH>C10-C16 minus Naphthalene	F2-NAPHTHAL	<20	mg/kg		<20		<20	
TRH & TPH	TPH C10-C14	C10-C14	<20	mg/kg		<20		<20	
TRH & TPH	TPH C15-C28	C15-C28	<50	mg/kg		<50		<50	
TRH & TPH	TPH C29-C36	C29-C36	<50	mg/kg		69		63	
TRH & TPH	Sum of TPH C10-C36	C10-C36	<50	mg/kg		69		63	
TRH & TPH	TRH>C10-C16	C10-C16	<20	mg/kg		<20		<20	
TRH & TPH	TRH>C16-C34	C16-C34	<50	mg/kg		62		56	
TRH & TPH	TRH>C34-C40	C34-C40	<50	mg/kg		<50		<50	
TRH & TPH	Sum of TRH>C10-C40	C10-C40	<50	mg/kg		62		56	

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QUALITY CONTROL - BLANKS

QC Blanks are an 'analyte free' matrix in which all applicable reagents have been added in the same proportion as in standard samples and are an internal monitor for laboratory contamination.

					Value
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428576	QC - Blank	Total Fluoride	Total Fluoride, as F	mg/kg	<100
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7432436	QC - Blank	MS Total Metals	Arsenic	mg/kg	<5
7432436	QC - Blank	MS Total Metals	Cadmium	mg/kg	<0.2
7432436	QC - Blank	MS Total Metals	Chromium	mg/kg	<5
7432436	QC - Blank	MS Total Metals	Copper	mg/kg	<5
7432436	QC - Blank	MS Total Metals	Lead	mg/kg	<5
7432436	QC - Blank	MS Total Metals	Mercury	mg/kg	<0.05
7432436	QC - Blank	MS Total Metals	Molybdenum	mg/kg	<5
7432436	QC - Blank	MS Total Metals	Nickel	mg/kg	<5
7432436	QC - Blank	MS Total Metals	Selenium	mg/kg	<3
7432436	QC - Blank	MS Total Metals	Silver	mg/kg	<5
7432436	QC - Blank	MS Total Metals	Tin	mg/kg	<5
7432436	QC - Blank	MS Total Metals	Zinc	mg/kg	<5
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7432421	QC - Blank	MS ASLP(Acet) Metals	ASLP-Arsenic	mg/L	<0.01
7432421	QC - Blank	MS ASLP(Acet) Metals	ASLP-Cadmium	mg/L	<0.002
7432421	QC - Blank	MS ASLP(Acet) Metals	ASLP-Chromium	mg/L	<0.01
7432421	QC - Blank	MS ASLP(Acet) Metals	ASLP-Copper	mg/L	<0.01
7432421	QC - Blank	MS ASLP(Acet) Metals	ASLP-Lead	mg/L	<0.01
7432421	QC - Blank	MS ASLP(Acet) Metals	ASLP-Mercury	mg/L	<0.001
7432421	QC - Blank	MS ASLP(Acet) Metals	ASLP-Nickel	mg/L	<0.01
7432421	QC - Blank	MS ASLP(Acet) Metals	ASLP-Zinc	mg/L	<0.01
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428473	QC - Blank	MAH	Styrene	mg/kg	<0.5
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428093	QC - Blank	BTEXN	Benzene	mg/kg	<0.5

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					Value
7428093	QC - Blank	BTEXN	Toluene	mg/kg	<0.5
7428093	QC - Blank	BTEXN	Ethyl Benzene	mg/kg	<0.5
7428093	QC - Blank	BTEXN	Xylene - m&p	mg/kg	<1
7428093	QC - Blank	BTEXN	Xylene - O	mg/kg	<0.5
7428093	QC - Blank	BTEXN	Naphthalene	mg/kg	<0.5
7428093	QC - Blank	BTEXN	Total Xylenes	mg/kg	<1
7428093	QC - Blank	BTEXN	BTEX (Sum)	mg/kg	<1
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428104	QC - Blank	TRH (C6-C10) & F1	TPHC6-C9	mg/kg	<20
7428104	QC - Blank	TRH (C6-C10) & F1	TRHC6-C10	mg/kg	<20
7428104	QC - Blank	TRH (C6-C10) & F1	TRHC6-C10 minus BTEX	mg/kg	<20
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428264	QC - Blank	TRH & TPH (>C10)	TPH C10-C14	mg/kg	<20
7428264	QC - Blank	TRH & TPH (>C10)	TPH C15-C28	mg/kg	<50
7428264	QC - Blank	TRH & TPH (>C10)	TPH C29-C36	mg/kg	<50
7428264	QC - Blank	TRH & TPH (>C10)	Sum of TPH C10-C36	mg/kg	<50
7428264	QC - Blank	TRH & TPH (>C10)	TRH>C10-C16	mg/kg	<20
7428264	QC - Blank	TRH & TPH (>C10)	TRH>C16-C34	mg/kg	<50
7428264	QC - Blank	TRH & TPH (>C10)	TRH>C34-C40	mg/kg	<50
7428264	QC - Blank	TRH & TPH (>C10)	Sum of TRH>C10-C40	mg/kg	<50
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428057	QC - Blank	PAH	Acenaphthene	mg/kg	<0.1
7428057	QC - Blank	PAH	Acenaphthylene	mg/kg	<0.1
7428057	QC - Blank	PAH	Anthracene	mg/kg	<0.1
7428057	QC - Blank	PAH	Benz(a)anthracene	mg/kg	<0.1
7428057	QC - Blank	PAH	Benzo(a)pyrene	mg/kg	<0.1
7428057	QC - Blank	PAH	Benzo(b)fluoranthene	mg/kg	<0.1
7428057	QC - Blank	PAH	Benzo(g,h,i)perylene	mg/kg	<0.1
7428057	QC - Blank	PAH	Benzo(k)fluoranthene	mg/kg	<0.1
7428057	QC - Blank	PAH	Chrysene	mg/kg	<0.1
7428057	QC - Blank	PAH	Dibenz(a,h)anthracene	mg/kg	<0.1
7428057	QC - Blank	PAH	Fluoranthene	mg/kg	<0.1
7428057	QC - Blank	PAH	Fluorene	mg/kg	<0.1
7428057	QC - Blank	PAH	Indeno(1,2,3-cd)pyrene	mg/kg	<0.1

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					Value
7428057	QC - Blank	PAH	Naphthalene	mg/kg	<0.1
7428057	QC - Blank	PAH	Phenanthrene	mg/kg	<0.1
7428057	QC - Blank	PAH	Pyrene	mg/kg	<0.1
7428057	QC - Blank	PAH	Total PAH	mg/kg	<0.1
7428057	QC - Blank	PAH	BaP TEQ (zero)	mg/kg	<0.1
7428057	QC - Blank	PAH	BaP TEQ (half LOR)	mg/kg	0.1
7428057	QC - Blank	PAH	BaP TEQ (LOR)	mg/kg	0.2
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428060	QC - Blank	OCP	BHC (alpha isomer)	mg/kg	<0.05
7428060	QC - Blank	OCP	a-Endosulphan	mg/kg	<0.05
7428060	QC - Blank	OCP	Aldrin	mg/kg	<0.05
7428060	QC - Blank	OCP	BHC (beta isomer)	mg/kg	<0.05
7428060	QC - Blank	OCP	b-Endosulphan	mg/kg	<0.05
7428060	QC - Blank	OCP	Chlordane	mg/kg	<0.05
7428060	QC - Blank	OCP	cis-Chlordane	mg/kg	<0.05
7428060	QC - Blank	OCP	trans-Chlordane	mg/kg	<0.05
7428060	QC - Blank	OCP	BHC (delta isomer)	mg/kg	<0.05
7428060	QC - Blank	OCP	DDD	mg/kg	<0.05
7428060	QC - Blank	OCP	DDE	mg/kg	<0.05
7428060	QC - Blank	OCP	DDT	mg/kg	<0.05
7428060	QC - Blank	OCP	Dieldrin	mg/kg	<0.05
7428060	QC - Blank	OCP	Sum of alpha-, beta- and Endosulphan	mg/kg	<0.05
7428060	QC - Blank	OCP	Endosulfan Sulfate	mg/kg	<0.05
7428060	QC - Blank	OCP	Endrin	mg/kg	<0.05
7428060	QC - Blank	OCP	Endrin Aldehyde	mg/kg	<0.05
7428060	QC - Blank	OCP	Endrin Ketone	mg/kg	<0.05
7428060	QC - Blank	OCP	Hexachlorobenzene	mg/kg	<0.05
7428060	QC - Blank	OCP	Heptachlor Epoxide	mg/kg	<0.05
7428060	QC - Blank	OCP	Heptachlor	mg/kg	<0.05
7428060	QC - Blank	OCP	BHC (gamma isomer) [Lindane]	mg/kg	<0.05
7428060	QC - Blank	OCP	Methoxychlor	mg/kg	<0.05
7428060	QC - Blank	OCP	Oxychlordane	mg/kg	<0.05
7428060	QC - Blank	OCP	Sum of DDD, DDE and DDT	mg/kg	<0.05
7428060	QC - Blank	OCP	Sum of Aldrin and Dieldrin	mg/kg	<0.05

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					Value
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428063	QC - Blank	PCB	Aroclor 1016	mg/kg	<0.1
7428063	QC - Blank	PCB	Aroclor 1221	mg/kg	<0.1
7428063	QC - Blank	PCB	Aroclor 1232	mg/kg	<0.1
7428063	QC - Blank	PCB	Aroclor 1242	mg/kg	<0.1
7428063	QC - Blank	PCB	Aroclor 1248	mg/kg	<0.1
7428063	QC - Blank	PCB	Aroclor 1254	mg/kg	<0.1
7428063	QC - Blank	PCB	Aroclor 1260	mg/kg	<0.1
7428063	QC - Blank	PCB	Total PCBs	mg/kg	<0.1
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428044	QC - Blank	CHC	1,2,3,4-Tetrachlorobenzene	mg/kg	<0.1
7428044	QC - Blank	CHC	1,2,3,5-Tetrachlorbenzene	mg/kg	<0.1
7428044	QC - Blank	CHC	1,2,3-Trichlorobenzene	mg/kg	<0.1
7428044	QC - Blank	CHC	1,2,4,5-Tetrachlorobenzene	mg/kg	<0.1
7428044	QC - Blank	CHC	1,2,4-Trichlorobenzene	mg/kg	<0.1
7428044	QC - Blank	CHC	1,2-Dichlorobenzene	mg/kg	<0.1
7428044	QC - Blank	CHC	1,3,5-Trichlorobenzene	mg/kg	<0.1
7428044	QC - Blank	CHC	1,3-Dichlorobenzene	mg/kg	<0.1
7428044	QC - Blank	CHC	1,4-Dichlorobenzene	mg/kg	<0.1
7428044	QC - Blank	CHC	2-Chloronaphthalene	mg/kg	<0.1
7428044	QC - Blank	CHC	Benzal Chloride	mg/kg	<0.1
7428044	QC - Blank	CHC	Benzotrichloride	mg/kg	<0.1
7428044	QC - Blank	CHC	Benzylchloride	mg/kg	<0.1
7428044	QC - Blank	CHC	Hexachloroethane	mg/kg	<0.1
7428044	QC - Blank	CHC	Hexachlorobutadiene	mg/kg	<0.1
7428044	QC - Blank	CHC	Hexachlorocyclopentadiene	mg/kg	<0.1
7428044	QC - Blank	CHC	Pentachlorobenzene	mg/kg	<0.1
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428050	QC - Blank	Phenols(Halo)	4-Chloro-3-Methylphenol	mg/kg	<0.5
7428050	QC - Blank	Phenols(Halo)	2-Chlorophenol	mg/kg	<0.5
7428050	QC - Blank	Phenols(Halo)	2,4-Dichlorophenol	mg/kg	<0.5
7428050	QC - Blank	Phenols(Halo)	2,6-Dichlorophenol	mg/kg	<0.5
7428050	QC - Blank	Phenols(Halo)	Pentachlorophenol	mg/kg	<0.5
7428050	QC - Blank	Phenols(Halo)	2,3,4,5-Tetrachlorophenol	mg/kg	<0.5

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					Value
7428050	QC - Blank	Phenols(Halo)	2,3,4,6-Tetrachlorophenol	mg/kg	<0.5
7428050	QC - Blank	Phenols(Halo)	2,3,5,6-Tetrachlorophenol	mg/kg	<0.5
7428050	QC - Blank	Phenols(Halo)	2,4,5-Trichlorophenol	mg/kg	<0.5
7428050	QC - Blank	Phenols(Halo)	2,4,6-Trichlorophenol	mg/kg	<0.5
7428050	QC - Blank	Phenols(Halo)	Total Phenols (Halogenated)	mg/kg	<0.5
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428047	QC - Blank	Phenols(NonHalo)	Phenol	mg/kg	<0.5
7428047	QC - Blank	Phenols(NonHalo)	Total Cresols	mg/kg	<1
7428047	QC - Blank	Phenols(NonHalo)	2,4-Dimethylphenol	mg/kg	<0.5
7428047	QC - Blank	Phenols(NonHalo)	2,4-Dinitrophenol	mg/kg	<30
7428047	QC - Blank	Phenols(NonHalo)	2-Methyl-4,6-Dinitrophenol	mg/kg	<10
7428047	QC - Blank	Phenols(NonHalo)	2-Nitrophenol	mg/kg	<0.5
7428047	QC - Blank	Phenols(NonHalo)	4-Nitrophenol	mg/kg	<0.5
7428047	QC - Blank	Phenols(NonHalo)	2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	<30
7428047	QC - Blank	Phenols(NonHalo)	Dinoseb	mg/kg	<10
7428047	QC - Blank	Phenols(NonHalo)	Total Phenols (non Halogenated)	mg/kg	<30
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**		
7428469	QC - Blank	HVOL	1,1,1,2-Tetrachloroethane	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,1,2,2-Tetrachloroethane	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,1- Dichloroethane	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,1-Dichloroethene	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,1-Dichloropropene	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,2,3-Trichloropropane	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,2-Dibromo-3-Chloropropane	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,2-Dichloroethene [cis]	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,2-Dichloroethene [trans]	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,2-Dichloroethane	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,2-Dichloropropane	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,3-Dichloropropane	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,3-Dichloropropene [cis]	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,3-Dichloropropene [trans]	mg/kg	<0.5
7428469	QC - Blank	HVOL	2,2-Dichloropropane	mg/kg	<0.5
7428469	QC - Blank	HVOL	2-Chlorotoluene	mg/kg	<0.5
7428469	QC - Blank	HVOL	4-Chlorotoluene	mg/kg	<0.5

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					Value
7428469	QC - Blank	HVOL	Bromochloromethane	mg/kg	<0.5
7428469	QC - Blank	HVOL	Bromodichloromethane	mg/kg	<0.5
7428469	QC - Blank	HVOL	Bromobenzene	mg/kg	<0.5
7428469	QC - Blank	HVOL	Bromoform (Tribromomethane)	mg/kg	<0.5
7428469	QC - Blank	HVOL	Carbon Tetrachloride	mg/kg	<0.5
7428469	QC - Blank	HVOL	Chloroform (Trichloromethane)	mg/kg	<0.5
7428469	QC - Blank	HVOL	Chlorobenzene	mg/kg	<0.5
7428469	QC - Blank	HVOL	Dibromochloromethane	mg/kg	<0.5
7428469	QC - Blank	HVOL	Dibromomethane	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,2-Dibromoethane	mg/kg	<0.5
7428469	QC - Blank	HVOL	Dichloromethane	mg/kg	<1
7428469	QC - Blank	HVOL	Trichlorofluoromethane (CFC11)	mg/kg	<2
7428469	QC - Blank	HVOL	Tetrachloroethene	mg/kg	<0.5
7428469	QC - Blank	HVOL	Vinyl Chloride (Monomer)	mg/kg	<1
7428469	QC - Blank	HVOL	1,1,1-Trichloroethane	mg/kg	<0.5
7428469	QC - Blank	HVOL	1,1,2-Trichloroethane	mg/kg	<0.5
7428469	QC - Blank	HVOL	Trichloroethene	mg/kg	<0.5

QUALITY CONTROL - DUPLICATES

QC Data for duplicates is calculated on raw 'unrounded' values. Laboratory duplicates are randomly selected samples tested by the laboratory to maintain method precision and provide information on sample homogeniety.
RPD = Relative Percentage Difference for duplicate determinations. RPD's that fall outside the general acceptance criteria will be attributed to non-homogeneity of samples or results of low magnitudes.

					Sample Value	Duplicate Value	% RPD
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7427635	NCP	pH	pH, units	Units	6.2	6.2	0.5
7428556	NCP	CEC	Cation exchange capacity	meq/100g	11	11	1.4
7428596	SB21	Total Fluoride	Total Fluoride, as F	mg/kg	<100	<100	0
7429270	SB21	Cyanide	Cyanide, as CN	mg/kg	<5	<5	0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7432437	SB18	MS Total Metals	Arsenic	mg/kg	<5	<5	0
7432437	SB18	MS Total Metals	Cadmium	mg/kg	<0.2	<0.2	0
7432437	SB18	MS Total Metals	Copper	mg/kg	<5	<5	0

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					Sample Value	Duplicate Value	% RPD
7432437	SB18	MS Total Metals	Mercury	mg/kg	<0.05	<0.05	0
7432437	SB18	MS Total Metals	Molybdenum	mg/kg	<5	<5	0
7432437	SB18	MS Total Metals	Selenium	mg/kg	<3	<3	0
7432437	SB18	MS Total Metals	Silver	mg/kg	<5	<5	0
7432437	SB18	MS Total Metals	Tin	mg/kg	<5	<5	0
7432437	SB18	MS Total Metals	Zinc	mg/kg	10	9	10.9
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7432422	NCP	MS ASLP(Acet) Metals	ASLP-Arsenic	mg/L	<0.01	<0.01	0
7432422	NCP	MS ASLP(Acet) Metals	ASLP-Cadmium	mg/L	<0.002	<0.002	0
7432422	NCP	MS ASLP(Acet) Metals	ASLP-Chromium	mg/L	<0.01	<0.01	0
7432422	NCP	MS ASLP(Acet) Metals	ASLP-Copper	mg/L	<0.01	<0.01	0
7432422	NCP	MS ASLP(Acet) Metals	ASLP-Lead	mg/L	<0.01	<0.01	0
7432422	NCP	MS ASLP(Acet) Metals	ASLP-Mercury	mg/L	<0.001	<0.001	0
7432422	NCP	MS ASLP(Acet) Metals	ASLP-Nickel	mg/L	0.01	0.01	0.1
7432422	NCP	MS ASLP(Acet) Metals	ASLP-Zinc	mg/L	0.15	0.15	0.8
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428470	NCP	MAH	Styrene	mg/kg	<0.5	<0.5	0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428088	SB10	BTEXN	Benzene	mg/kg	<0.5	<0.5	0
7428088	SB10	BTEXN	Toluene	mg/kg	<0.5	<0.5	0
7428088	SB10	BTEXN	Ethyl Benzene	mg/kg	<0.5	<0.5	0
7428088	SB10	BTEXN	Xylene - m&p	mg/kg	<1	<1	0
7428088	SB10	BTEXN	Xylene - O	mg/kg	<0.5	<0.5	0
7428088	SB10	BTEXN	Naphthalene	mg/kg	<0.5	<0.5	0
7428088	SB10	BTEXN	Total Xylenes	mg/kg	<1	<1	0
7428088	SB10	BTEXN	BTEX (Sum)	mg/kg	<1	<1	0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428099	NCP	TRH (C6-C10) & F1	TPHC6-C9	mg/kg	<20	<20	0
7428099	NCP	TRH (C6-C10) & F1	TRHC6-C10	mg/kg	<20	<20	0
7428099	NCP	TRH (C6-C10) & F1	TRHC6-C10 minus BTEX	mg/kg	<20	<20	0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428260	SB4	TRH & TPH (>C10)	TPH C10-C14	mg/kg	<20	<20	0
7428260	SB4	TRH & TPH (>C10)	TPH C15-C28	mg/kg	<50	<50	0
7428260	SB4	TRH & TPH (>C10)	TPH C29-C36	mg/kg	55	52	4.3

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					Sample Value	Duplicate Value	% RPD
7428260	SB4	TRH & TPH (>C10)	Sum of TPH C10-C36	mg/kg	55	52	5.6
7428260	SB4	TRH & TPH (>C10)	TRH>C10-C16	mg/kg	<20	<20	0
7428260	SB4	TRH & TPH (>C10)	TRH>C16-C34	mg/kg	<50	<50	0
7428260	SB4	TRH & TPH (>C10)	TRH>C34-C40	mg/kg	<50	<50	0
7428260	SB4	TRH & TPH (>C10)	Sum of TRH>C10-C40	mg/kg	<50	<50	0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428053	SB4	PAH	Acenaphthene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Acenaphthylene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Anthracene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Benz(a)anthracene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Benzo(a)pyrene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Benzo(b)fluoranthene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Benzo(k)fluoranthene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Chrysene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Dibenz(a,h)anthracene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Fluoranthene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Fluorene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Indeno(1,2,3-cd)pyrene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Naphthalene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Phenanthrene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Pyrene	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	Total PAH	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	BaP TEQ (zero)	mg/kg	<0.1	<0.1	0
7428053	SB4	PAH	BaP TEQ (half LOR)	mg/kg	0.1	0.1	0.0
7428053	SB4	PAH	BaP TEQ (LOR)	mg/kg	0.2	0.2	0.0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428058	SB4	OCP	BHC (alpha isomer)	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	a-Endosulphan	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Aldrin	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	BHC (beta isomer)	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	b-Endosulphan	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Chlordane	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	cis-Chlordane	mg/kg	<0.05	<0.05	0

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Calculated results are based on raw data.

					Sample Value	Duplicate Value	% RPD
7428058	SB4	OCP	trans-Chlordane	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	BHC (delta isomer)	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	DDD	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	DDE	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	DDT	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Dieldrin	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Sum of alpha-, beta- and Endosulphan	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Endosulfan Sulfate	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Endrin	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Endrin Aldehyde	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Endrin Ketone	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Hexachlorobenzene	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Heptachlor Epoxide	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Heptachlor	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	BHC (gamma isomer) [Lindane]	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Methoxychlor	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Oxychlordane	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Sum of DDD, DDE and DDT	mg/kg	<0.05	<0.05	0
7428058	SB4	OCP	Sum of Aldrin and Dieldrin	mg/kg	<0.05	<0.05	0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428061	SB4	PCB	Aroclor 1016	mg/kg	<0.1	<0.1	0
7428061	SB4	PCB	Aroclor 1221	mg/kg	<0.1	<0.1	0
7428061	SB4	PCB	Aroclor 1232	mg/kg	<0.1	<0.1	0
7428061	SB4	PCB	Aroclor 1242	mg/kg	<0.1	<0.1	0
7428061	SB4	PCB	Aroclor 1248	mg/kg	<0.1	<0.1	0
7428061	SB4	PCB	Aroclor 1254	mg/kg	<0.1	<0.1	0
7428061	SB4	PCB	Aroclor 1260	mg/kg	<0.1	<0.1	0
7428061	SB4	PCB	Total PCBs	mg/kg	<0.1	<0.1	0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428042	SB4	CHC	1,2,3,4-Tetrachlorobenzene	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	1,2,3,5-Tetrachlorbenzene	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	1,2,3-Trichlorobenzene	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	1,2,4,5-Tetrachlorobenzene	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	1,2,4-Trichlorobenzene	mg/kg	<0.1	<0.1	0

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					Sample Value	Duplicate Value	% RPD
7428042	SB4	CHC	1,2-Dichlorobenzene	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	1,3,5-Trichlorobenzene	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	1,3-Dichlorobenzene	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	1,4-Dichlorobenzene	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	2-Chloronaphthalene	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	Benzal Chloride	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	Benzotrichloride	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	Benzylchloride	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	Hexachloroethane	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	Hexachlorobutadiene	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	Hexachlorocyclopentadiene	mg/kg	<0.1	<0.1	0
7428042	SB4	CHC	Pentachlorobenzene	mg/kg	<0.1	<0.1	0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428048	SB4	Phenols(Halo)	4-Chloro-3-Methylphenol	mg/kg	<0.5	<0.5	0
7428048	SB4	Phenols(Halo)	2-Chlorophenol	mg/kg	<0.5	<0.5	0
7428048	SB4	Phenols(Halo)	2,4-Dichlorophenol	mg/kg	<0.5	<0.5	0
7428048	SB4	Phenols(Halo)	2,6-Dichlorophenol	mg/kg	<0.5	<0.5	0
7428048	SB4	Phenols(Halo)	Pentachlorophenol	mg/kg	<0.5	<0.5	0
7428048	SB4	Phenols(Halo)	2,3,4,5-Tetrachlorophenol	mg/kg	<0.5	<0.5	0
7428048	SB4	Phenols(Halo)	2,3,4,6-Tetrachlorophenol	mg/kg	<0.5	<0.5	0
7428048	SB4	Phenols(Halo)	2,3,5,6-Tetrachlorophenol	mg/kg	<0.5	<0.5	0
7428048	SB4	Phenols(Halo)	2,4,5-Trichlorophenol	mg/kg	<0.5	<0.5	0
7428048	SB4	Phenols(Halo)	2,4,6-Trichlorophenol	mg/kg	<0.5	<0.5	0
7428048	SB4	Phenols(Halo)	Total Phenols (Halogenated)	mg/kg	<0.5	<0.5	0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428045	SB4	Phenols(NonHalo)	Phenol	mg/kg	<0.5	<0.5	0
7428045	SB4	Phenols(NonHalo)	Total Cresols	mg/kg	<1	<1	0
7428045	SB4	Phenols(NonHalo)	2,4-Dimethylphenol	mg/kg	<0.5	<0.5	0
7428045	SB4	Phenols(NonHalo)	2,4-Dinitrophenol	mg/kg	<30	<30	0
7428045	SB4	Phenols(NonHalo)	2-Methyl-4,6-Dinitrophenol	mg/kg	<10	<10	0
7428045	SB4	Phenols(NonHalo)	2-Nitrophenol	mg/kg	<0.5	<0.5	0
7428045	SB4	Phenols(NonHalo)	4-Nitrophenol	mg/kg	<0.5	<0.5	0
7428045	SB4	Phenols(NonHalo)	2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	<30	<30	0
7428045	SB4	Phenols(NonHalo)	Dinoseb	mg/kg	<10	<10	0

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					Sample Value	Duplicate Value	% RPD
7428045	SB4	Phenols(NonHalo)	Total Phenols (non Halogenated)	mg/kg	<30	<30	0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428467	SB10	HVOL	1,1,1,2-Tetrachloroethane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,1,2,2-Tetrachloroethane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,1- Dichloroethane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,1-Dichloroethene	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,1-Dichloropropene	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,2,3-Trichloropropane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,2-Dibromo-3-Chloropropane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,2-Dichloroethene [cis]	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,2-Dichloroethene [trans]	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,2-Dichloroethane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,2-Dichloropropane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,3-Dichloropropane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,3-Dichloropropene [cis]	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,3-Dichloropropene [trans]	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	2,2-Dichloropropane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	2-Chlorotoluene	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	4-Chlorotoluene	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Bromochloromethane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Bromodichloromethane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Bromobenzene	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Bromoform (Tribromomethane)	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Carbon Tetrachloride	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Chloroform (Trichloromethane)	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Chlorobenzene	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Dibromochloromethane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Dibromomethane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	1,2-Dibromoethane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Dichloromethane	mg/kg	<1	<1	0
7428467	SB10	HVOL	Trichlorofluoromethane (CFC11)	mg/kg	<2	<2	0
7428467	SB10	HVOL	Tetrachloroethene	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Vinyl Chloride (Monomer)	mg/kg	<1	<1	0
7428467	SB10	HVOL	1,1,1-Trichloroethane	mg/kg	<0.5	<0.5	0

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MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

					Sample Value	Duplicate Value	% RPD
7428467	SB10	HVOL	1,1,2-Trichloroethane	mg/kg	<0.5	<0.5	0
7428467	SB10	HVOL	Trichloroethene	mg/kg	<0.5	<0.5	0

QUALITY CONTROL - SPIKES

QC Data for spikes is calculated on raw 'unrounded' values. Laboratory spikes are randomly selected samples in which the analytes in question have been artificially introduced and recovered via standard analysis and are used to provide information on potential matrix effects on analyte recoveries.
Spike recoveries that fall outside the general acceptance criteria will be attributed to sample matrix interference or results of high magnitudes.
NCP: Non-Customer Parent (sample quality is representative of the analytical batch but the sample that was QC tested belongs to a customer not pertaining to the report.)

					Sample Value	Expected Value	% Recovery
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428594	SB21	Total Fluoride	Total Fluoride, as F	mg/kg	<100	480	84.2
7429266	SB21	Cyanide	Cyanide, as CN	mg/kg	<5	20	99.2
7431660	NCP	Total Cr 6+ DA	Hexavalent Chromium (Total) Soil DA	mg/kg	<1	20	84.0
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7432423	NCP	MS ASLP(Acet) Metals	ASLP-Arsenic	mg/L	<0.01	0.40	108
7432423	NCP	MS ASLP(Acet) Metals	ASLP-Cadmium	mg/L	<0.002	0.40	102
7432423	NCP	MS ASLP(Acet) Metals	ASLP-Chromium	mg/L	<0.01	0.40	99.6
7432423	NCP	MS ASLP(Acet) Metals	ASLP-Copper	mg/L	<0.01	0.40	97.6
7432423	NCP	MS ASLP(Acet) Metals	ASLP-Lead	mg/L	<0.01	0.40	99.1
7432423	NCP	MS ASLP(Acet) Metals	ASLP-Mercury	mg/L	<0.001	0.0020	106
7432423	NCP	MS ASLP(Acet) Metals	ASLP-Nickel	mg/L	0.01	0.41	99.0
7432423	NCP	MS ASLP(Acet) Metals	ASLP-Zinc	mg/L	0.15	0.55	106
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428472	SB21	MAH	Styrene	mg/kg	<0.5	4.8	75.3
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428089	SB21	BTEXN	Toluene	mg/kg	<0.5	4.8	78.1
7428089	SB21	BTEXN	Ethyl Benzene	mg/kg	<0.5	4.8	78.9
7428089	SB21	BTEXN	Xylene - m&p	mg/kg	<1	9.7	89.0
7428089	SB21	BTEXN	Xylene - O	mg/kg	<0.5	4.8	83.4
7428089	SB21	BTEXN	Naphthalene	mg/kg	<0.5	4.8	97.7
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428095	SB6	TRH (C6-C10) & F1	TPHC6-C9	mg/kg	<20	160	71.4
7428095	SB6	TRH (C6-C10) & F1	TRHC6-C10	mg/kg	<20	160	72.5

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MM524: Plate count results <10 per mL and >300 per mL are deemed as approximate.
MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

					Sample Value	Expected Value	% Recovery
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428263	SB21	TRH & TPH (>C10)	TPH C15-C28	mg/kg	<50	1000	98.9
7428263	SB21	TRH & TPH (>C10)	TRH>C16-C34	mg/kg	56	1100	96.4
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428055	SB8	PAH	Acenaphthene	mg/kg	<0.1	1.4	119
7428055	SB8	PAH	Acenaphthylene	mg/kg	<0.1	1.4	110
7428055	SB8	PAH	Anthracene	mg/kg	<0.1	1.4	101
7428055	SB8	PAH	Benz(a)anthracene	mg/kg	<0.1	1.4	106
7428055	SB8	PAH	Benzo(a)pyrene	mg/kg	<0.1	1.4	101
7428055	SB8	PAH	Benzo(b)fluoranthene	mg/kg	<0.1	1.4	91.0
7428055	SB8	PAH	Benzo(g,h,i)perylene	mg/kg	<0.1	1.4	99.6
7428055	SB8	PAH	Benzo(k)fluoranthene	mg/kg	<0.1	1.4	98.2
7428055	SB8	PAH	Chrysene	mg/kg	<0.1	1.4	101
7428055	SB8	PAH	Dibenz(a,h)anthracene	mg/kg	<0.1	1.4	95.8
7428055	SB8	PAH	Fluoranthene	mg/kg	<0.1	1.4	103
7428055	SB8	PAH	Fluorene	mg/kg	<0.1	1.4	113
7428055	SB8	PAH	Indeno(1,2,3-cd)pyrene	mg/kg	<0.1	1.4	127
7428055	SB8	PAH	Naphthalene	mg/kg	<0.1	1.4	95.6
7428055	SB8	PAH	Phenanthrene	mg/kg	<0.1	1.4	100
7428055	SB8	PAH	Pyrene	mg/kg	<0.1	1.4	102
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428059	SB21	OCP	BHC (alpha isomer)	mg/kg	<0.05	3.0	98.4
7428059	SB21	OCP	a-Endosulphan	mg/kg	<0.05	1.5	97.6
7428059	SB21	OCP	Aldrin	mg/kg	<0.05	1.5	96.8
7428059	SB21	OCP	BHC (beta isomer)	mg/kg	<0.05	2.6	95.4
7428059	SB21	OCP	b-Endosulphan	mg/kg	<0.05	1.5	83.2
7428059	SB21	OCP	Chlordane	mg/kg	<0.05	3.0	93.1
7428059	SB21	OCP	cis-Chlordane	mg/kg	<0.05	1.5	84.6
7428059	SB21	OCP	trans-Chlordane	mg/kg	<0.05	1.5	84.0
7428059	SB21	OCP	BHC (delta isomer)	mg/kg	<0.05	3.0	102
7428059	SB21	OCP	DDD	mg/kg	<0.05	1.5	92.2
7428059	SB21	OCP	DDE	mg/kg	<0.05	1.5	83.8
7428059	SB21	OCP	DDT	mg/kg	<0.05	1.5	93.0
7428059	SB21	OCP	Dieldrin	mg/kg	<0.05	1.5	101

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MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

					Sample Value	Expected Value	% Recovery
7428059	SB21	OCP	Endosulfan Sulfate	mg/kg	<0.05	1.5	90.8
7428059	SB21	OCP	Endrin	mg/kg	<0.05	1.5	126
7428059	SB21	OCP	Endrin Aldehyde	mg/kg	<0.05	1.5	77.2
7428059	SB21	OCP	Endrin Ketone	mg/kg	<0.05	1.5	87.6
7428059	SB21	OCP	Hexachlorobenzene	mg/kg	<0.05	2.7	101
7428059	SB21	OCP	Heptachlor Epoxide	mg/kg	<0.05	1.5	82.6
7428059	SB21	OCP	Heptachlor	mg/kg	<0.05	1.5	95.2
7428059	SB21	OCP	BHC (gamma isomer) [Lindane]	mg/kg	<0.05	3.0	100
7428059	SB21	OCP	Methoxychlor	mg/kg	<0.05	1.5	89.2
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428062	SB21	PCB	Aroclor 1016	mg/kg	<0.1	2.7	96.6
7428062	SB21	PCB	Aroclor 1260	mg/kg	<0.1	2.6	87.8
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428043	SB21	CHC	1,2,3,4-Tetrachlorobenzene	mg/kg	<0.1	1.5	102
7428043	SB21	CHC	1,2,3-Trichlorobenzene	mg/kg	<0.1	1.5	100
7428043	SB21	CHC	1,2,4,5-Tetrachlorobenzene	mg/kg	<0.1	3.0	112
7428043	SB21	CHC	1,2,4-Trichlorobenzene	mg/kg	<0.1	1.5	97.0
7428043	SB21	CHC	1,2-Dichlorobenzene	mg/kg	<0.1	1.5	97.8
7428043	SB21	CHC	1,3,5-Trichlorobenzene	mg/kg	<0.1	1.5	95.8
7428043	SB21	CHC	1,3-Dichlorobenzene	mg/kg	<0.1	1.5	85.0
7428043	SB21	CHC	1,4-Dichlorobenzene	mg/kg	<0.1	1.5	99.8
7428043	SB21	CHC	2-Chloronaphthalene	mg/kg	<0.1	1.5	106
7428043	SB21	CHC	Benzal Chloride	mg/kg	<0.1	1.5	104
7428043	SB21	CHC	Benzotrichloride	mg/kg	<0.1	1.5	109
7428043	SB21	CHC	Benzylchloride	mg/kg	<0.1	1.5	106
7428043	SB21	CHC	Hexachloroethane	mg/kg	<0.1	1.5	98.2
7428043	SB21	CHC	Hexachlorobutadiene	mg/kg	<0.1	1.5	104
7428043	SB21	CHC	Hexachlorocyclopentadiene	mg/kg	<0.1	1.5	117
7428043	SB21	CHC	Pentachlorobenzene	mg/kg	<0.1	1.5	106
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428049	SB21	Phenols(Halo)	4-Chloro-3-Methylphenol	mg/kg	<0.5	1.5	94.8
7428049	SB21	Phenols(Halo)	2-Chlorophenol	mg/kg	<0.5	1.5	83.0
7428049	SB21	Phenols(Halo)	2,4-Dichlorophenol	mg/kg	<0.5	1.5	62.0
7428049	SB21	Phenols(Halo)	2,6-Dichlorophenol	mg/kg	<0.5	1.5	80.4

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MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

					Sample Value	Expected Value	% Recovery
7428049	SB21	Phenols(Halo)	2,3,4,6-Tetrachlorophenol	mg/kg	<0.5	3.0	82.6
7428049	SB21	Phenols(Halo)	2,3,5,6-Tetrachlorophenol	mg/kg	<0.5	1.5	88.4
7428049	SB21	Phenols(Halo)	2,4,5-Trichlorophenol	mg/kg	<0.5	1.5	78.0
7428049	SB21	Phenols(Halo)	2,4,6-Trichlorophenol	mg/kg	<0.5	1.5	80.6
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428046	SB21	Phenols(NonHalo)	Phenol	mg/kg	<0.5	1.5	85.0
7428046	SB21	Phenols(NonHalo)	Total Cresols	mg/kg	<1	4.5	81.1
7428046	SB21	Phenols(NonHalo)	2,4-Dimethylphenol	mg/kg	<0.5	1.5	73.4
7428046	SB21	Phenols(NonHalo)	2-Nitrophenol	mg/kg	<0.5	1.5	72.6
Lab Sample ID	**Client Sample ID**	**Analysis**	**Analyte**				
7428468	SB21	HVOL	1,1,2,2-Tetrachloroethane	mg/kg	<0.5	4.8	93.0
7428468	SB21	HVOL	1,1- Dichloroethane	mg/kg	<0.5	4.8	75.3
7428468	SB21	HVOL	1,1-Dichloroethene	mg/kg	<0.5	4.8	69.5
7428468	SB21	HVOL	1,1-Dichloropropene	mg/kg	<0.5	4.8	73.0
7428468	SB21	HVOL	1,2,3-Trichloropropane	mg/kg	<0.5	4.8	92.6
7428468	SB21	HVOL	1,2-Dichloroethene [cis]	mg/kg	<0.5	4.8	76.6
7428468	SB21	HVOL	1,2-Dichloroethene [trans]	mg/kg	<0.5	4.8	73.2
7428468	SB21	HVOL	1,2-Dichloroethane	mg/kg	<0.5	4.8	85.1
7428468	SB21	HVOL	1,2-Dichloropropane	mg/kg	<0.5	4.8	78.9
7428468	SB21	HVOL	1,3-Dichloropropane	mg/kg	<0.5	4.8	92.0
7428468	SB21	HVOL	2-Chlorotoluene	mg/kg	<0.5	4.8	84.7
7428468	SB21	HVOL	4-Chlorotoluene	mg/kg	<0.5	4.8	79.6
7428468	SB21	HVOL	Bromochloromethane	mg/kg	<0.5	4.8	78.9
7428468	SB21	HVOL	Bromobenzene	mg/kg	<0.5	4.8	78.0
7428468	SB21	HVOL	Chloroform (Trichloromethane)	mg/kg	<0.5	4.8	81.5
7428468	SB21	HVOL	Chlorobenzene	mg/kg	<0.5	4.8	82.5
7428468	SB21	HVOL	Dibromomethane	mg/kg	<0.5	4.8	75.3
7428468	SB21	HVOL	1,2-Dibromoethane	mg/kg	<0.5	4.8	77.7
7428468	SB21	HVOL	Dichloromethane	mg/kg	<1	4.8	82.4
7428468	SB21	HVOL	Tetrachloroethene	mg/kg	<0.5	4.8	75.2
7428468	SB21	HVOL	1,1,2-Trichloroethane	mg/kg	<0.5	4.8	83.6
7428468	SB21	HVOL	Trichloroethene	mg/kg	<0.5	4.8	75.9

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Chain of custody analysis request

Tel. +61 3 9372 5688

Connolly Environmental

Laboratory: Envirolab			**Page ____ of ____**
Site: Ballan	**Collected by:** MV		**Result required:** 5 days
Job no: 22028b	**Collected on:**	19/04/2022	**Contact name:** mariana@connolly.com.au
			lab@connolly.com.au

Relinquished by	Date	Time	Received by	Date	Time
1 Mariana V	20/4/22	845	Driver 127	20/4/22	845
2	/ /			/ /	
3	/ /			/ /	

17

Sample ID	SB605																	
Soil or Water [s or w]																		
Lab ID / Analyte	1																	
Screen metals	X																	

ENVIROLAB

Envirolab Services
25 Research Drive
Croydon South VIC 3136
Ph: (03) 9763 2500

Job No: 31605
Date Received: 20/4/22
Time Received: 9:35
Received By: GS
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

9:35
3.0

Reporting Limits:	Low reporting limits required for groundwaters as specified by
TPH:	TPH by GC; C6-C9, C10-C14, C15-C28, >C28
SM:	Screen metals: Pb, Ni, Cd, Cr, Cu, Zn, As, Hg
Composites:	Please do not analyse TPH, MAH or volatiles on composite samples but on the first individual sample of the requested composite (unless otherwise indicated).
PAH:	Total and individual PAH
Individual Phenols:	Phenols 8040
Connolly screen:	EPA screen as per 448 plus phenols & cresols, CHC, HVOL, pH and sulphate

Comments:				
	X	PDF	X	Result Format
	X	ESDAT	X	Connolly Format

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

DATA QUALITY ASSESSMENT SUMMARY

Report Details

Envirolab Report Reference	**31005**
Client ID	Connolly Environmental
Project Reference	22028b Ballan
Date Issued	22/04/2022

QC DATA

All laboratory QC data was within the Envirolab Group's specifications.

HOLDING TIME COMPLIANCE EVALUATION

All preservation / holding times (based on AS/ASPHA/ISO/NEPM/USEPA reference documents and standards) are compliant.

Certain analyses have had their recommended technical holding times elongated by filtering and/or freezing on receipt at the laboratory (e.g. BOD, chlorophyll/Pheophytin, nutrients and acid sulphate soil tests).

COMPLIANCE TO QC FREQUENCY (NEPM)

Internal laboratory QC rate complies with NEPM requirements (LCS/MB/MS 1 in 20, Duplicates 1 in 10 samples). Note, samples are batched together with other sample consignments in order to assign QC sample frequency.

QC Evaluation

Duplicate(s) was performed as per NEPM frequency	✓
Laboratory Control Sample(s) were analysed with the samples received	✓
A Method Blank was performed with the samples received	✓
Matrix spike(s) was performed as per NEPM frequency (Not Applicable for Air samples)	✓

Refer to Certificate of Analysis for all Quality Control data.

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 31005

Client Details

Client	Connolly Environmental
Attention	Mariana Vasquez-Bermudez
Address	142 Dynon Road, West Melbourne, VIC, 3003

Sample Details

Your Reference	**22028b Ballan**
Number of Samples	1 Soil
Date samples received	20/04/2022
Date completed instructions received	20/04/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	28/04/2022
Date of Issue	22/04/2022

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Chris De Luca, Operations Manager

Authorised By

Pamela Adams, Laboratory Manager

Acid Extractable metals in soil		
Our Reference		31005-1
Your Reference	UNITS	SB605
Date Sampled		19/04/2022
Type of sample		Soil
Date digested	-	21/04/2022
Date analysed	-	21/04/2022
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	29
Copper	mg/kg	2
Lead	mg/kg	9
Mercury	mg/kg	<0.1
Nickel	mg/kg	3
Zinc	mg/kg	4

Moisture		
Our Reference		31005-1
Your Reference	UNITS	SB605
Date Sampled		19/04/2022
Type of sample		Soil
Date prepared	-	21/04/2022
Date analysed	-	22/04/2022
Moisture	%	15

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105°C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			21/04/2022	[NT]	[NT]	[NT]	[NT]	21/04/2022	[NT]
Date analysed	-			21/04/2022	[NT]	[NT]	[NT]	[NT]	21/04/2022	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	105	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	[NT]	[NT]	114	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Attachment 6 Lotsearch report

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 19 Apr 2022 13:47:04

Reference: LS031238 EP

Address: Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Dataset Listing

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Topographic and Cadastre data	State Government Victoria - Department of Environment, Land, Water & Planning	28/01/2022	28/01/2022	Monthly	-	-	-	-
Current EPA Priority Sites	Environment Protection Authority (Vic)	16/03/2022	28/02/2022	Monthly	1000m	0	0	0
Former EPA Priority Sites & other Remedial Notices	Environment Protection Authority (Vic)	04/10/2021	01/09/2021	Monthly	1000m	0	0	0
EPA PFAS Site Investigations	Environment Protection Authority (Vic)	28/09/2021	18/09/2020	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	06/04/2022	06/04/2022	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	06/04/2022	06/04/2022	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	06/04/2022	06/04/2022	Monthly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	03/03/2022	03/03/2022	Quarterly	2000m	0	0	0
EPA Environmental Audit Reports	Environment Protection Authority (Vic)	26/04/2022	26/04/2022	Monthly	1000m	0	0	0
EPA Groundwater Zones with Restricted Uses	Environment Protection Authority (Vic)	23/03/2022	23/03/2022	Monthly	1000m	0	0	0
Current EPA Licensed Activities	Environment Protection Authority (Vic)	21/03/2022	22/07/2021	Monthly	1000m	0	0	0
Former EPA Licensed Activities	Environment Protection Authority (Vic)	21/03/2022	26/11/2021	Monthly	1000m	0	0	0
EPA Works Approvals	Environment Protection Authority (Vic)	28/03/2022	28/03/2022	Monthly	1000m	0	0	0
National Waste Management Facilities Database	Geoscience Australia	12/05/2021	07/03/2017	Annually	1000m	0	0	0
Statewide Waste and Resource Recovery Infrastructure Plan Facilities	State Government Victoria - Department of Sustainability	27/11/2014	31/12/2012	None planned	1000m	0	0	0
EPA Prescribed Industrial Waste	Environment Protection Authority (Vic)	12/08/2020	12/08/2020	Quarterly	1000m	0	0	0
EPA Victorian Landfill Register	Environment Protection Authority (Vic)	31/01/2022	25/08/2020	Quarterly	1000m	0	0	0
Former Gasworks	Various historical sources collated by Lotsearch	15/08/2017	15/08/2017	Not required	1000m	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	15/02/2021	15/03/2012	Annually	1000m	0	0	0
Historical Business Directories (Premise & Intersection Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	150m	0	0	0
Historical Business Directories (Road & Area Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	150m	-	1	216
Historical Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	500m	0	0	0
Historical Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	500m	-	0	19
Features of Interest	State Government Victoria - Department of Environment, Land, Water & Planning	29/09/2021	29/09/2021	Quarterly	1000m	1	2	53
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000m	1	1	2
Groundwater Salinity	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	0m	2	-	-
Depth to Watertable	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	0m	3	-	-
Surface Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	0m	1	-	-

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Basement Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	0m	1	-	-
Groundwater Boreholes WMIS	State Government Victoria - Department of Environment, Land, Water & Planning	23/08/2021	23/08/2021	Quarterly	2000m	0	1	24
Groundwater Boreholes Earth Resources Database	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	20/05/2021	17/02/2010	Annually	2000m	0	0	7
Groundwater Boreholes Fed Uni	Federation University Australia	21/12/2017	07/01/2014	As required	2000m	0	1	21
Historical Mining Activity - Shafts	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	11/05/2021	11/05/2021	Annually	1000m	0	0	0
Geological Units 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000m	3	3	7
Geological Structures 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000m	0	0	2
Dykes and Marker Beds 50k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000m	0	0	0
Shear zones 250k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000m	0	0	0
Atlas of Australian Soils	ABARES	19/05/2017	17/02/2011	As required	1000m	1	1	1
Victorian Soil Type Mapping	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	24/08/2017	21/03/2016	Unknown	1000m	3	3	3
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000m	1	1	1
Coastal Acid Sulfate Soils	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	28/03/2017	30/03/2011	None planned	1000m	0	0	0
Planning Scheme Zones	State Government Victoria - Department of Environment, Land, Water & Planning	10/02/2022	02/02/2022	Monthly	1000m	2	10	35
Planning Scheme Overlay	State Government Victoria - Department of Environment, Land, Water & Planning	10/02/2022	02/02/2022	Monthly	1000m	4	9	21
Commonwealth Heritage List	Australian Government Department of Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	0
National Heritage List	Australian Government Department of Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	0
Victorian Heritage Register	State Government Victoria - Department of Environment, Land, Water & Planning	05/08/2021	05/08/2021	Quarterly	1000m	0	0	0
Cultural Heritage Sensitivity	State Government Victoria - Department of Premier and Cabinet	29/09/2021	29/09/2021	Quarterly	1000m	5	5	9
Bushfire Prone Area	State Government Victoria - Department of Transport, Planning and Local Infrastructure	05/08/2021	06/07/2021	Quarterly	1000m	1	1	1
Fire History	State Government Victoria - Department of Environment, Land, Water & Planning	15/11/2021	15/11/2021	Quarterly	1000m	0	0	0
Flood - 1 in 100 Year Modelled Flood Extent	State Government Victoria - Department of Environment, Land, Water & Planning	11/08/2021	05/02/2018	Quarterly	1000m	1	1	1
Victorian Coastal Inundation Sea Level Rise	State Government Victoria - Department of Environment, Land, Water & Planning	10/04/2018	24/10/2017	Unknown	1000m	0	0	0
Native Vegetation (Modelled 2005 Ecological Vegetation Classes)	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	31/12/2005	None planned	1000m	2	2	4
Ramsar Wetland Areas in Victoria	State Government Victoria - Department of Environment, Land, Water & Planning	28/03/2022	13/03/2019	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000m	7	7	8
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000m	8	9	14

Site Diagram

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 900449m²

Total Perimeter: 5.11km

Scale: 0 25 50 100 150 200 250 Meters

Data Source Aerial Imagery:
© Aerometrex Pty Ltd

Disclaimers:

Measurements are approximate only and may have been simplified or smaller lengths removed for readability.

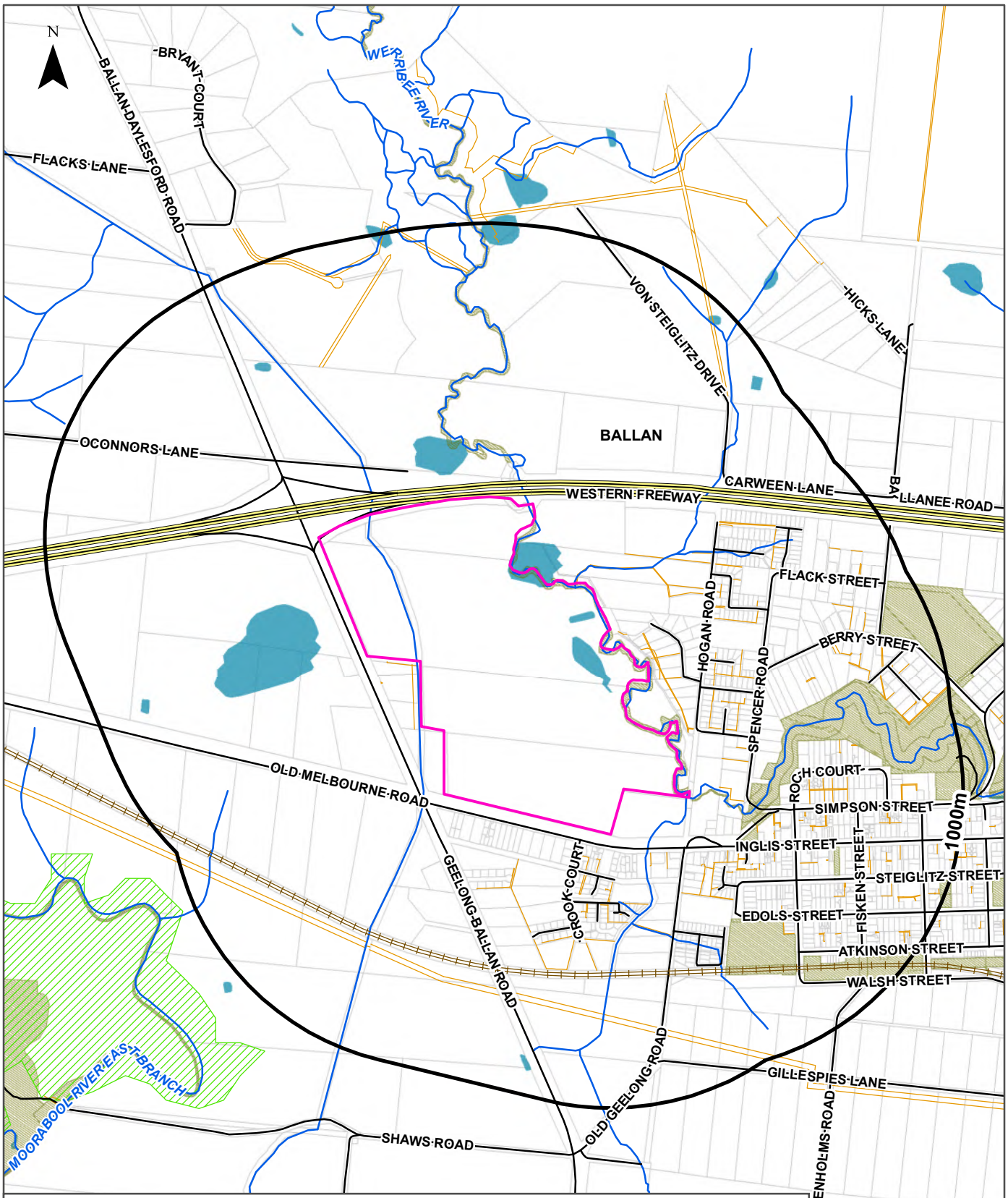
Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

Coordinate System:
GDA 1994 MGA Zone 55

Date: 19 April 2022

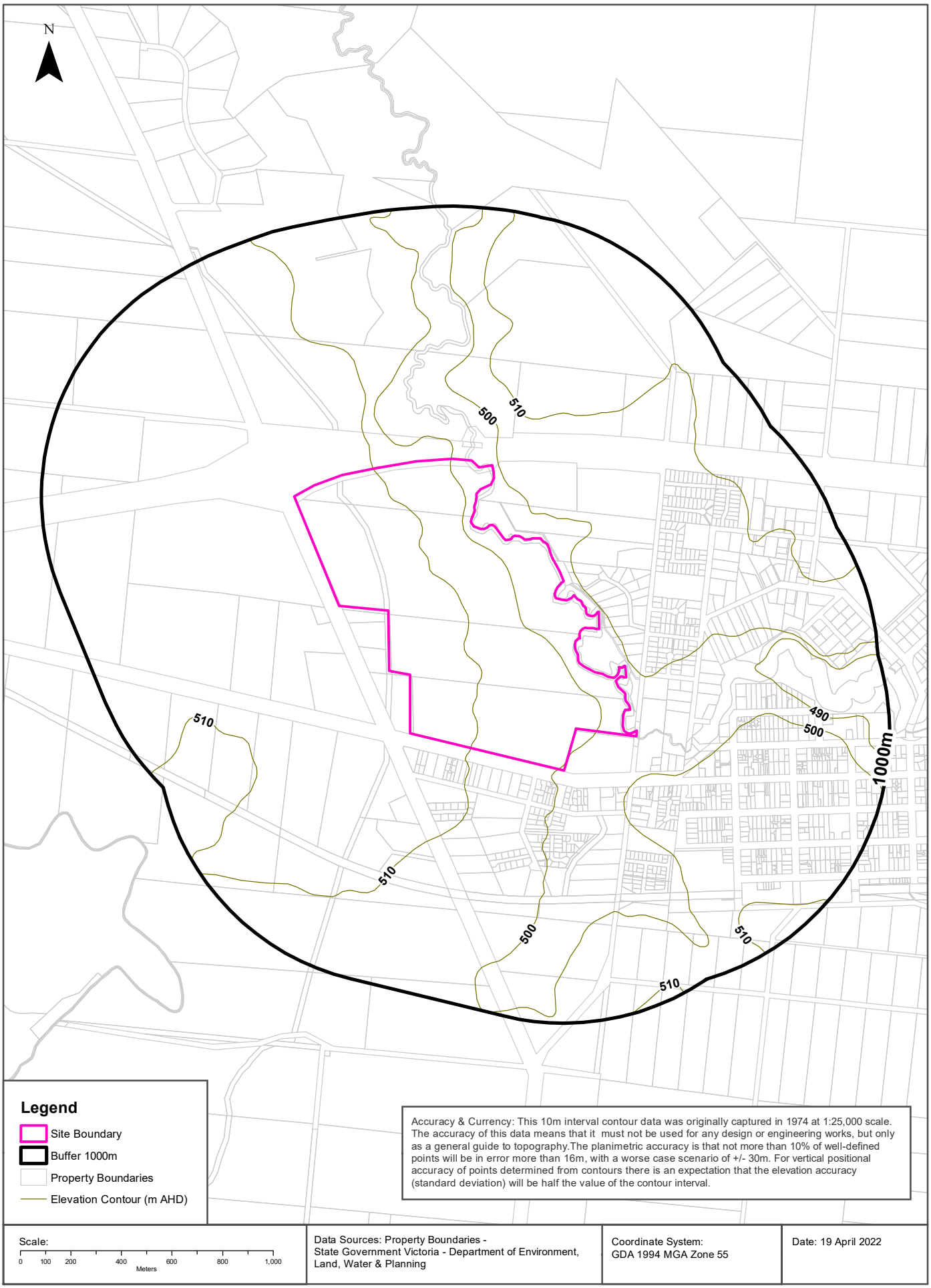
Topographic Data

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Elevation Contours (m AHD)

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



EPA Priority Sites & Pollution Notices

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Current EPA Priority Sites Register

Sites on the current EPA priority sites register that exist within the dataset buffer:

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

Sites within the dataset buffer that have been issued a Pollution Notice:
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

PFAS Investigation & Management Programs

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

EPA PFAS Site Investigations

Sites being investigated by the EPA for PFAS contamination within the dataset buffer:

Map ID	Site Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

EPA PFAS Site Investigations Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

Defence PFAS Investigation & Management Program Investigation Sites

Sites being investigated by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

Defence PFAS Investigation & Management Program Data Custodian: Department of Defence, Australian Government

Defence PFAS Investigation & Management Program Management Sites

Sites being managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

Defence PFAS Investigation & Management Program Data Custodian: Department of Defence, Australian Government

Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Location Confidence	Distance	Direction
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Defence 3 Year Regional Contamination Investigation Program

Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government

EPA Records

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

EPA Environmental Audits

EPA environmental audit records that exist within the dataset buffer:
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Audit Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

Environmental Audit Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

EPA Records

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

EPA Groundwater Zones with Restricted Uses

EPA GQRUZ records that exist within the dataset buffer:
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Status	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental GQRUZ Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

EPA Activities

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

EPA Licensed Activities

EPA licensed activities that exist within the dataset buffer:

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

Former EPA Licensed Activities

Former EPA licensed activities that exist within the dataset buffer:

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

EPA works approvals that exist within the dataset buffer:

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

Waste Management Facilities & Landfills

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

National Waste Management Site Database

Sites on the National Waste Management Site Database within the dataset buffer:

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist (m)	Direction
N/A	No records in buffer											

Waste Management Facilities Data Source: Australian Government Geoscience Australia

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the dataset buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed Industrial Waste treaters, disposers and permitted transporters within the dataset buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Dir
N/A	No records in buffer									

Prescribed Industrial Waste Data Source: State Government Victoria - Environment Protection Authority (EPA)

Waste Management Facilities & Landfills

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

EPA Victorian Landfill Register

EPA Victorian Landfill Register sites within the dataset buffer:

Landfill Register No.	Site	Address	Operating Status	Est. Year Of Closure	Waste type	Loc Conf	Dist (m)	Direction
N/A	No records in buffer							

EPA Victorian Landfill Register Data Source: State Government Victoria - Environment Protection Authority (EPA)

Former Gasworks and Liquid Fuel Facilities

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Former Gasworks

Former Gasworks identified from various historical sources within the dataset buffer:
Note - As this is a dataset collated from various historical sources, it is not an exhaustive list of all former Gasworks

Map Id	Site Name	Date Opened	Year Closed	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Collated from various historical sources

National Liquid Fuel Facilities

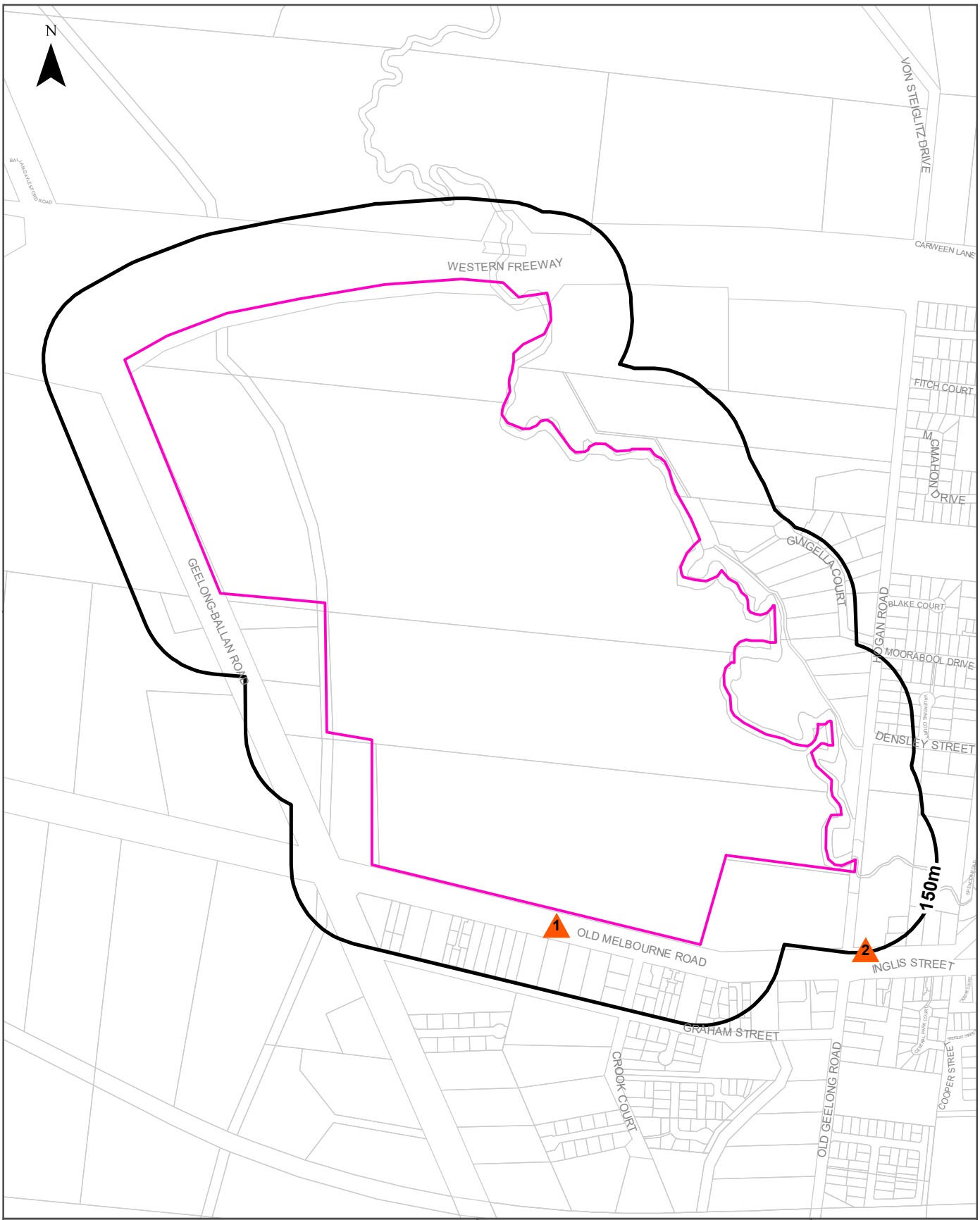
National Liquid Fuel Facilties within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist (m)	Direction
N/A	No records in buffer										

National Liquid Fuel Facilities Data Source: Geoscience Australia

Historical Business Directories

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Legend

- Site Boundary
- Buffer 150m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 130 260 390 520 Meters

Coordinate System: GDA 1994 MGA Zone 55

Date: 19 April 2022

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Sands & McDougall's Directory - Digitised by State Library Victoria
Property Boundaries © State Government Victoria - Dept. of Environment, Land, Water & Planning 2022

Historical Business Directories

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Business Directory Records 1905-1991
Premise or Road Intersection Matches

Universal Business Directory and Sands & McDougall Directory records, from years 1991, 1980, 1970, 1960, 1950, 1945, 1925 & 1905, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
N/A	No records in buffer						

Business Directory Records 1905-1991
Road or Area Matches

Universal Business Directory and Sands & McDougall Directory records, from years 1991, 1980, 1970, 1960, 1950, 1945, 1925 & 1905, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
1	Real Estate Agents	J.D. Panels & Roadhouse., Old Melbourne Rd. Ballan. 3342	74245	1991	Road Match	3m
2	DRAPER S-RETAIL	Allen. A. & D., Inglis St Ballan	10763	1970	Road Match	140m
	BOOT & SHOE RETAILERS	Allen. A. E., Inglis St Ballan	10730	1970	Road Match	140m
	SPORTING GOODS-RETAIL	Allen. A. E., Inglis St Ballan	10809	1970	Road Match	140m
	JUSTICES OF THE PLACE	Andrew. K. D., Inglis St Ballan	10786	1970	Road Match	140m
	MOTOR SERVICE STATIONS	Ballan Auto Port., Inglis St Ballan	10800	1970	Road Match	140m
	MOTOR OIL AND SPIRIT AGENTS	Ballan Hardware Store (Mobil Oil Aust. Pty. Ltd Depot).,Inglis St Ballan	10797	1970	Road Match	140m
	TIMBER MERCHANTS	Ballan Hardware Store., Inglis St Ballan	10814	1970	Road Match	140m
	DOCTORS	Barkley Dr. A. O., Inglis St Ballan	10762	1970	Road Match	140m
	HARDWARE MERCHANTS	Best Hardware Store., Inglis St Ballan Ballan	10782	1970	Road Match	140m
	GAS SUPPLIES	Bests' Hardware Store (Porta).,Inglis St Ballan	10770	1970	Road Match	140m
	TIMBER MERCHANTS	Bests' Hardware Store., Inglis St Ballan	10815	1970	Road Match	140m
	MOTOR SERVICE STATIONS	Bray. E. M Amoco Service Station., Inglis St Ballan	10801	1970	Road Match	140m
	BUTCHERS	Collins K & M., Inglis St Ballan	10731	1970	Road Match	140m
	BANKS	Commercial Bank of Australia Ltd., Inglis St Ballan	10727	1970	Road Match	140m
	FUEL MERCHANTS	Conroy. K. L., Inglis St Ballan	10769	1970	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Corcoran. D & W. E. Haddon., Inglis St Ballan	10794	1970	Road Match	140m
	MOTOR SERVICE STATIONS	Corcoran. D & W. E. Haddon., Inglis St Ballan	10802	1970	Road Match	140m
	MOTOR SERVICE STATIONS	Corcoran. D. & W. E. Haddon., Inglis St BallanAshton's Junction Service Station Ballan	10799	1970	Road Match	140m
	CARRIERS & CARTAGE CONTRACTORS	Cullen Bros., Inglis St Ballan	10737	1970	Road Match	140m
	REAL ESTATE AGENTS	Dalgety & New Zealand Loan Ltd., Inglis St Ballan	10805	1970	Road Match	140m
	STOCK & STATION AGENTS	Dalgety & New Zealand Loan Ltd., Inglis St Ballan	10810	1970	Road Match	140m
	DAIRIES	Erwin. S. T., Inglis St Ballan	10759	1970	Road Match	140m
	AUCTIONEERS	Fairbairn L. A. & Co. (Inc. Younghusband Ltd).,Inglis St Ballan	10723	1970	Road Match	140m
	STOCK & STATION AGENTS	Fairbairn. L. A & Co (Inc. Younghusband Ltd).,Inglis St Ballan	10811	1970	Road Match	140m
	REAL ESTATE AGENTS	Fairbairn. L. A & Co. (Inc. in Younghusband Ltd).,Inglis St Ballan	10806	1970	Road Match	140m
	GROCERS & GENERAL STOREKEEPERS	Flack's Stores., Inglis St Ballan	10774	1970	Road Match	140m
	FRUITERERS & GREEENGROCERS	Haddon. R. F., Inglis St Ballan	10767	1970	Road Match	140m
	GROCERS & GENERAL STOREKEEPERS	Haddon. R. F., Inglis St Ballan	10775	1970	Road Match	140m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	CHEMISTS-RETAIL	Hobbs. N. J. A., Inglis St Ballan	10739	1970	Road Match	140m
	HOTELS-LICENSED	Hudson Hotel., Inglis St Ballan	10785	1970	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Inglis Motor Body & Engineering Service., Inglis St Ballan	10795	1970	Road Match	140m
	MOTOR PAINTERS AND PANEL BEATERS	Inglis Motor Body & Engineering Service., Inglis St Ballan	10798	1970	Road Match	140m
	WELDERS	Inglis Motor Body & Engineering Service., Inglis St Ballan	10817	1970	Road Match	140m
	CLOTHING-FROCK MANUFACTURERS	Latoof & Callil Pty. Ltd., Inglis St Ballan	10743	1970	Road Match	140m
	BUTCHERS	Lay N W & M T., Inglis St Ballan	10732	1970	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Lorenzini. E & M. C., Inglis St Ballan	10796	1970	Road Match	140m
	MOTOR SERVICE STATIONS	Lorenzini. E & M. C., Inglis St Ballan	10803	1970	Road Match	140m
	BAKERS & PASTRYCOOKS	Marshall. D. R & N. L., Inglis St Ballan	10726	1970	Road Match	140m
	HALLS	Mechanics' Institute., Inglis St Ballan	10778	1970	Road Match	140m
	NEWSAGENTS	Pitches. D. W & C., Inglis St Ballan	10804	1970	Road Match	140m
	TAXI PROPRIETORS	Poole. C. R & J. L. Corcoran., Inglis St Ballan	10812	1970	Road Match	140m
	BUTCHERS	Ribbink. B., Inglis St Ballan	10734	1970	Road Match	140m
	FISH SHOPS	Ribbink. B., Inglis St Ballan	10766	1970	Road Match	140m
	AUCTIONEERS	Shanahan. J. T (Agent Dalgety & New Zealand Loan Ltd).,Inglis St Ballan	10724	1970	Road Match	140m
	DRAPER S-RETAIL	Shaw. J. H., Inglis St Ballan	10764	1970	Road Match	140m
	GROCERS & GENERAL STOREKEEPERS	Shaw. J. H., Inglis St Ballan	10777	1970	Road Match	140m
	DRY CLEANERS DYERS & PRESSERS	Spotless Dry Cleaners., Inglis St Ballan	10765	1970	Road Match	140m
	BANKS	State Savings Bank of Victoria., Inglis St Ballan	10728	1970	Road Match	140m
	CONFECTIONERY SHOPS & MILK BARS	Stevens. R. J & J., Inglis St Ballan	10756	1970	Road Match	140m
	FRUITERERS & GREEENGROCERS	Stevens. R. J & J., Inglis St Ballan	10768	1970	Road Match	140m
	GROCERS & GENERAL STOREKEEPERS	Stevens. R. J & J., Inglis St Ballan	10776	1970	Road Match	140m
	BUTCHERS	Sullivan. G., Inglis St Ballan	10735	1970	Road Match	140m
	CONFECTIONERY SHOPS & MILK BARS	Sullivan. G., Inglis St Ballan	10757	1970	Road Match	140m
	BUTCHERS	Tourist Cafe., Inglis St Ballan	10736	1970	Road Match	140m
	CONFECTIONERY SHOPS & MILK BARS	Tourist Cafe., Inglis St Ballan	10758	1970	Road Match	140m
	DELICATESSENS	Tourist Cafe., Inglis St Ballan	10761	1970	Road Match	140m
	BLACKSMITHS & FARRIERS	Wheelahan. D. J., Inglis St Ballan	10729	1970	Road Match	140m
	HARDWARE MERCHANTS	Ballan HardWare Store, Inglis St., Ballan.	143505	1960	Road Match	140m
	MOTOR OIL & SPIRIT MERCHANTS	Ballan Hardware Store, Inglis St., Ballan.	143517	1960	Road Match	140m
	TIMBER MERCHANTS	Ballan Hardware Store, Inglis St., Ballan.	143533	1960	Road Match	140m
	AGRICULTURAL MACHINERY AGENTS	Ballan Motors (Agents, Ferguson Tractors), Inglis St., Ballan.	143459	1960	Road Match	140m
	MOTOR CAR & TRUCK DEALERS	Ballan Motors, Inglis St., Ballan.	143513	1960	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Ballan Motors, Inglis St., Ballan.	143514	1960	Road Match	140m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	MOTOR PRIVATE HIRE SERVICES	Ballan Motors, Inglis St., Ballan.	143519	1960	Road Match	140m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Ballan Motors, Inglis St., Ballan.	143520	1960	Road Match	140m
	DOCTORS	Barkley, Dr. A. O., Inglis St., Ballan.	143485	1960	Road Match	140m
	GROCERS & GENERAL STOREKEEPERS	Baxter, J. E. & J. L., Inglis St., Ballan.	143497	1960	Road Match	140m
	NEWSAGENTS	Black's Sores, Inglis St., Ballan.	143522	1960	Road Match	140m
	PAINTERS, DECORATORS & PAPERHANGERS	Coker, E., Inglis St., Ballan.	143523	1960	Road Match	140m
	BUTCHERS-RETAIL	Cole, N., Inglis St., Ballan.	143470	1960	Road Match	140m
	BANKS	Commercial Bank of Australia Ltd., Inglis St., Ballan.	143465	1960	Road Match	140m
	CARRIERS & CARTAGE CONTRACTORS	Cullins Bros., Inglis St., Ballan.	143474	1960	Road Match	140m
	CHEMISTS-RETAIL	Day, I. W., Inglis St., Ballan.	143475	1960	Road Match	140m
	FRUITERERS & GREENGROCERS	Edward, W. & N., Inglis St., Ballan.	143490	1960	Road Match	140m
	DAIRIES	Erwin, S. T., Inglis St., Ballan.	143482	1960	Road Match	140m
	AUCTIONEERS	Fairbairn, L. A., & Co. (Inc. In Younghusband Ltd.), Inglis St., Ballan.	143462	1960	Road Match	140m
	GRAIN, SEED & PRODUCE MERCHANTS	Flack, A. W., Inglis St., Ballan.	143496	1960	Road Match	140m
	BOOT & SHOE RETAILERS	Gates, R. W., Inglis St., Ballan.	143468	1960	Road Match	140m
	DRAPERS-RETAIL	Gates. R. W., Inglis St., Ballan.	143486	1960	Road Match	140m
	HOTELS-LICENSED	Handson Hotel, Inglis St., Ballan.	143508	1960	Road Match	140m
	SPORTING GOODS--RETAIL	Hemingway, J. C., Inglis St., Ballan.	143530	1960	Road Match	140m
	BAKERS & PASTRY COOKS	Jensen, S. & J., Inglis St., Ballan.	143464	1960	Road Match	140m
	BUTCHERS-RETAIL	Lay, E. T. & S. ltd., Inglis St., Ballan.	143471	1960	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Lorensini, E. & M. C., Inglis St., Ballan.	143515	1960	Road Match	140m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Lorensinl, E. & M. C., Inglis St., Ballan.	143521	1960	Road Match	140m
	HAIRDRESSERS (LADIES') & BEAUTY SALONS.	Matheson, J., Inglis St., Ballan.	143500	1960	Road Match	140m
	CAFES & TEA ROOMS	Mayfair, The, Inglis St., Ballan.	143472	1960	Road Match	140m
	CONFECTIONERY SHOPS	Mayfair, The, Inglis St., Ballan.	143480	1960	Road Match	140m
	HALLS	Mechanics Institute, Inglis St., Ballan.	143502	1960	Road Match	140m
	STOCK & STATION AGENTS	Pairbarin, L. A. & Co., Inglis St., Ballan.	143532	1960	Road Match	140m
	REAL ESTATE AGENTS	Pairbarin, L. A., Inglis St., Ballan.	143528	1960	Road Match	140m
	PICTURE THEATERS	Regal Cinema at Mechanics Institute, Inglis St., Ballan.	143524	1960	Road Match	140m
	RADIO & ELECTRICAL SALES & SERVICE	Schmidt, A. C., Inglis St., Ballan.	143527	1960	Road Match	140m
	SPORTING GOODS--RETAIL	Schmidt, A. C., Inglis St., Ballan.	143531	1960	Road Match	140m
	AGRICULTURAL MACHINERY AGENTS	Sewell, R. P., Inglis St., Ballan.	143461	1960	Road Match	140m
	MOTOR OIL & SPIRIT MERCHANTS	Sewell, R.P., Inglis St., Ballan.	143518	1960	Road Match	140m
	PUMB MANUFACTURES	Sewell, R.P., Inglis St., Ballan.	143525	1960	Road Match	140m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	ENGINEERS-AGRICULTURAL, MERCHANTS & MANUFACTURING	Sewell. R. P., Inglis St., Ballan.	143489	1960	Road Match	140m
	GROCERS & GENERAL STOREKEEPERS	Shaw, J. H., Inglis St., Ballan.	143499	1960	Road Match	140m
	DRAPERS-RETAIL	Shaw. J. H., Inglis St., Ballan.	143487	1960	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Sowell, R. P., Inglis St., Ballan.	143516	1960	Road Match	140m
	BANKS	State Savings Bank of Victoria, Inglis St., Ballan.	143466	1960	Road Match	140m
	HAIRDRESSERS (MEN'S) & TOBACCONISTS	Thaw, Ken., Inglis St, Ballan.	143501	1960	Road Match	140m
	CAFES & TEA ROOMS	Tourist Cafe, Inglis St., Ballan.	143473	1960	Road Match	140m
	CONFECTIONERY SHOPS	Tourist Cafe, Inglis St., Ballan.	143481	1960	Road Match	140m
	DELICATESSENS	Tourist Cafe, Inglis St., Ballan.	143484	1960	Road Match	140m
	BLACKSMITHS & FARRIERS	Wheelahan, O. J., Inglis St., Ballan.	143467	1960	Road Match	140m
	BUTCHERS-RETAIL	Anson. R, D., Inglis St. Ballan	94621	1950	Road Match	140m
	GROCERS & GENERAL STOREKEEPERS	Bailey. P, D., Inglis St. Ballan	94651	1950	Road Match	140m
	DAIRIES	Ballan Dairy., Inglis St. Ballan	94638	1950	Road Match	140m
	AGRICULTURAL MACHINERY AGENTS	Ballan Motors (Agents, Ferguson Tractors)., Inglis St. Ballan	94614	1950	Road Match	140m
	MOTOR CAR & TRUCK DEALERS	Ballan Motors., Inglis St. Ballan	94665	1950	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Ballan Motors., Inglis St. Ballan	94666	1950	Road Match	140m
	MOTOR PRIVATE HIRE SERVICES	Ballan Motors., Inglis St. Ballan	94673	1950	Road Match	140m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Ballan Motors., Inglis St. Ballan	94674	1950	Road Match	140m
	NEWSPAPER PUBLISHERS & GENERAL PRINTERS	Ballan Times., Inglis St. Ballan	94678	1950	Road Match	140m
	CHEMISTS	Barnett, A., Inglis St. Ballan	94628	1950	Road Match	140m
	GROCERS & GENERAL STOREKEEPERS	Bathurst. E, A., Inglis St. Ballan	94652	1950	Road Match	140m
	MOTOR OIL & SPIRIT MERCHANTS	Bathurst. E. H, (Agent, Ampol Products)., Inglis St. Ballan	94669	1950	Road Match	140m
	GROCERS & GENERAL STOREKEEPERS	Calvert, F., Inglis St. Ballan	94653	1950	Road Match	140m
	HARDWARE MERCHANTS	Calvert, F., Inglis St. Ballan	94656	1950	Road Match	140m
	NEWSAGENTS	Calvert, F., Inglis St. Ballan	94677	1950	Road Match	140m
	SHEEP DIP SUPPLIES	Calvert, F., Inglis St. Ballan	94687	1950	Road Match	140m
	PAINTERS, DECORATORS & PAPERHANGERS,	Coker. E., Inglis SL Ballan	94679	1950	Road Match	140m
	BANKS	Commercial Bank of Australia Ltd., Inglis St. Ballan	94617	1950	Road Match	140m
	CARRIERS & CARTAGE CONTRACTORS	CuHins, V., Inglis St. Ballan	94626	1950	Road Match	140m
	CONFECTIONERY SHOPS & MILK BARS	Davis & Banks., Inglis St. Ballan	94633	1950	Road Match	140m
	RABBIT BUYERS	Day. J, J., Inglis St. Ballan	94681	1950	Road Match	140m
	DAIRIES	Erwin. S, T., Inglis St. Ballan	94639	1950	Road Match	140m
	REAL ESTATE AGENTS	Fairbairn. L. A. & Co., Inglis St. Ballan	94684	1950	Road Match	140m
	STOCK & STATION AGENTS	Fairbairn. L. A. & Co., Inglis St. Ballan	94690	1950	Road Match	140m

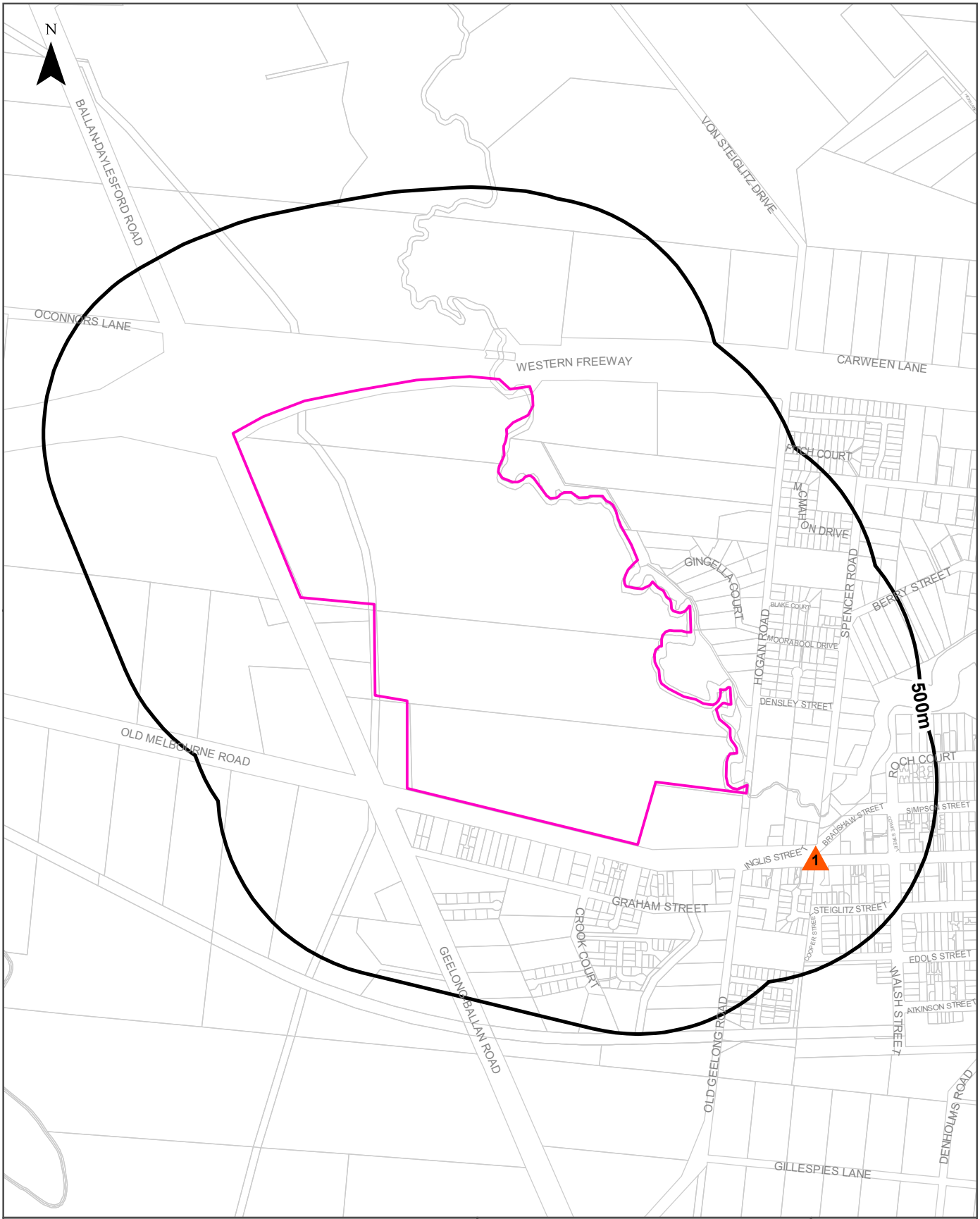
Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	DOCTORS	Fitzpatrick, Dr. L. A., Inglis Ballan	94640	1950	Road Match	140m
	GRAIN, SEED & PRODUCE MERCHANTS	Flack. A, W., Inglis St. Ballan	94650	1950	Road Match	140m
	ELECTRICAL CONTRACTORS & ELECTRICIANS	Fl'sell & Kennedy., Inglis St. Ballan	94642	1950	Road Match	140m
	DRAPERS-RETAIL	Gates. R, W., Inglis St. Ballan	94641	1950	Road Match	140m
	HOTELS-LICENSED	Hahrahah's Hotel., Inglis St. Ballan	94660	1950	Road Match	140m
	HOTELS-LICENSED	Hanrahan's Hotel., Inglis St. Ballan	94663	1950	Road Match	140m
	MOTOR OIL & SPIRIT MERCHANTS	Hemingway. J, C. (Agent, Vacuum Oil Co.)., Inglis St. Ballan	94670	1950	Road Match	140m
	AGRICULTURAL MACHINERY AGENTS	Hemingway. J, C. (Agent. H. V, McKay, Massey Harris)., Inglis St. Ballan	94615	1950	Road Match	140m
	HARDWARE MERCHANTS	Hemingway. J, C., Inglis St. Ballan	94657	1950	Road Match	140m
	CONFECTIONERY SHOPS & MILK BARS	James. F, V., Inglis St. Ballan	94634	1950	Road Match	140m
	FRUITERERS & GREENGROCERS	James. F, V., Inglis St. Ballan	94644	1950	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Joughin Motors., Inglis St. Ballan	94667	1950	Road Match	140m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Joughin Motors., Inglis St. Ballan	94675	1950	Road Match	140m
	BUTCHERS-RETAIL	Lay. E. T & S. R., Inglis St. Ballan	94622	1950	Road Match	140m
	CAFES & TEAROOMS	Mayfair, Ballan., Inglis St. Ballan	94623	1950	Road Match	140m
	CONFECTIONERY SHOPS & MILK BARS	Mayfair, Ballan., Inglis St. Ballan	94635	1950	Road Match	140m
	FRUITERERS & GREENGROCERS	Mayfair, Ballan., Inglis St. Ballan	94645	1950	Road Match	140m
	MOTOR TRIMMERS	McCulloch, T., Inglis St. Ballan	94676	1950	Road Match	140m
	PHOTOGRAPHIC DEVELOPING, ETC.	McCulloch, T., Inglis St. Ballan	94680	1950	Road Match	140m
	SADDLERS	McCulloch, T., Inglis St. Ballan	94685	1950	Road Match	140m
	SPORTING GOODS-RETAIL	McCulloch, T., Inglis St. Ballan	94688	1950	Road Match	140m
	CONFECTIONERY SHOPS & MILK BARS	Mechanics Cafe (Irene Morris, Proprss.)., Inglis St. Ballan	94636	1950	Road Match	140m
	CAFES & TEAROOMS	Mechanics' Cafe (Irene Morris, Proprss.)., Inglis St. Ballan	94624	1950	Road Match	140m
	HALLS	Mechanics' Institute., Inglis St. Ballan	94654	1950	Road Match	140m
	CONFECTIONERY SHOPS & MILK BARS	Morris, Irene., Inglis St. Ballan	94637	1950	Road Match	140m
	BLACKSMITHS & FARRIERS	Schmidt. A, C., Inglis St. Ballan	94618	1950	Road Match	140m
	HARDWARE MERCHANTS	Schmidt. A, C., Inglis St. Ballan	94658	1950	Road Match	140m
	RADIO & ELECTRICAL SALES & SERVICE	Schmidt. A, C., Inglis St. Ballan	94683	1950	Road Match	140m
	SPORTING GOODS-RETAIL	Schmidt. A, C., Inglis St. Ballan	94689	1950	Road Match	140m
	MOTOR OIL & SPIRIT MERCHANTS	Schmidt. A. C, (Agent, Penrite Oil Co.)., Inglis St. Ballan	94671	1950	Road Match	140m
	ENGINEERS-AGRICULTURAL, MECHANICAL & MANUFACTURING	Sewell. R, P., Inglis St. Ballan	94643	1950	Road Match	140m
	MOTOR OIL & SPIRIT MERCHANTS	Sewell. R. P, (Agent, Caltex Oil Pty. Ltd.)., Inglis St. Ballan	94672	1950	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Sewell. R. P, (Agent, Caltex)., Inglis St. Ballan	94668	1950	Road Match	140m
	BAKERS & PASTRYCOOKS	Turner. J. V & R. E., Inglis St. Ballan	94616	1950	Road Match	140m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	HAT MANUFACTURERS	United Felt Hats Pty. Ltd., Inglis St. Ballan	94659	1950	Road Match	140m
	BLACKSMITHS & FARRIERS	Wheelahan. D, J., Inglis St. Ballan	94619	1950	Road Match	140m
	BOOT & SHOE REPAIRERS	Wren, W., Inglis St. Ballan	94620	1950	Road Match	140m
	Hairdressers And Tobacconists	Williams, W., Inglis-st, Ballan	18441	1945	Road Match	140m
	BAKERS AND PASTRY-COOKS	Elliott, Wm., Inglis-st, Batten	400352	1925	Road Match	140m
	HAIRDRESSERS & TOBACCONISTS	McKenzie, D. C., Inglis-st, Ballan	401109	1925	Road Match	140m
	STOREKEEPERS	Shankland, R. S., Inglis-st, Ballan	401634	1925	Road Match	140m
	BLACKSMITHS. FARRIERS, AND WHEELWRIGHTS	Wheelahan, B., Inglis-st, Ballan	399660	1925	Road Match	140m
	HAIRDRESSERS & TOBACCONISTS	Williams, W., Inglis-st, Ballan	401110	1925	Road Match	140m
	HOTELS	Bailan Bromley, Joabph, Inglis St Ballan	173439	1905	Road Match	140m
	STOREKEEPERS	Baker . J., Inglis St : Ballan	173447	1905	Road Match	140m
	MECHANICS INSTITUTES AND FREE LIBRARIES	Ballan M. I.-Venables J. W. Sec, Inglis St	173443	1905	Road Match	140m
	NEWSPAPERS	Ballan Times-Spencer. P., Inglis St Ballan	167981	1905	Road Match	140m
	STOREKEEPERS	Black . Mrs F . A., Inglis St Ballan	173448	1905	Road Match	140m
	DRAPERS AND CLOTHIERS	Blair, Mrs M., Inglis St Ballan	167978	1905	Road Match	140m
	IRON AND STEEL MERCHANTS	Blake. H . & Co., Inglis St Ballan	173442	1905	Road Match	140m
	TIMBER MERCHANTS	Blake; H . & Co., Inglis St Ballan	167983	1905	Road Match	140m
	BANKS	Commercial Bank Of Australia., Ballan Inglis St	173428	1905	Road Match	140m
	HOTELS	Commercial-Mccoppin Mrs M., Inglis St Ballan	173440	1905	Road Match	140m
	BLACKSMITHS , FARRIERS , AND WHEEL- WRIGHTS	Cowell. E, Inglis St Ballan	163215	1905	Road Match	140m
	BOOTMAKERS AND DEALERS	Dalton. T., Inglis St Ballan	167975	1905	Road Match	140m
	SADDLERS AND HARNESS MAKERS	Darcy. J. T., Inglis St Ballan	167982	1905	Road Match	140m
	BAKERS	Dawson. E., Inglis St Ballan	173430	1905	Road Match	140m
	BAKERS	Elliott, Wm., Inglia St Ballan	173427	1905	Road Match	140m
	STOREKEEPERS	Evans & Co., Inglis St Ballan	173449	1905	Road Match	140m
	STOCK AND STATION AGENTS	Fairbairn. & Co., Inglis St Ballan	173446	1905	Road Match	140m
	AUCTIONEERS	Fairbairn. L. A, & Co., Inglis St Ballan	173429	1905	Road Match	140m
	BOOKSELLERS & STATIONERS	Flack. G., Inglis St Ballan	173431	1905	Road Match	140m
	NEWS AGENTS	Flack. G., Inglis St Ballan	173444	1905	Road Match	140m
	FRUITERERS AND GREENGROCERS	Fraser, Mrs A., Inglis St Ballan	173434	1905	Road Match	140m
	BLACKSMITHS , FARRIERS , AND WHEEL- WRIGHTS	Fraser. D. K. & Co., Inglis St Ballan	163216	1905	Road Match	140m
	BOOTMAKERS AND DEALERS	Gillbank H. H., Inglis St Ballan	167976	1905	Road Match	140m
	AERATED WATER AND CORDIAL MANUFACTURERS	Gunsser Bros, Inglis St Ballan	167971	1905	Road Match	140m
	STOREKEEPERS	Hanrahan. D. J., Inglis St Ballan	173450	1905	Road Match	140m
	HOTELS	HanrahanS-Hanrahan. D. J., Inglis St Ballan	173441	1905	Road Match	140m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	BUTCHERS	Lay,Wm., Inglis St Ballan	173432	1905	Road Match	140m
	STOREKEEPERS	Lyle. C. L., Ingles St Ballan	173411	1905	Road Match	140m
	HAIRDRESSERS	Mckenzie . D. C., Inglis St Bollan	173437	1905	Road Match	140m
	TOBACCONISTS	Mckenzie. D. C, Inglis St Ballan	173453	1905	Road Match	140m
	TAILORS	Nankervis. G., Inglis St Ballan	173452	1905	Road Match	140m
	UNDERTAKERS	Oldham. A., Inglis St Ballan	173454	1905	Road Match	140m
	IRONMONGERS	Porter. J. V, Inglis St Ballan	167979	1905	Road Match	140m
	FRUITERERS AND GREENGROCERS	Pung. W. C, Inglis St Ballan	173435	1905	Road Match	140m
	PHYSICIANS & SURGEONS	Salter, George H., Inglis St Ballan	173445	1905	Road Match	140m
	STOREKEEPERS	Shankland . R. S., Inglis St Ballan	173451	1905	Road Match	140m
	BUTCHERS	Walters. W. H, Inglis St Ballan	173433	1905	Road Match	140m
	BLACKSMITHS , FARRIERS , AND WHEEL- WRIGHTS	Wheelahan, E, Inglis St Ballan	163217	1905	Road Match	140m
	HAIRDRESSERS	Williams W., Inglis St Ballan	173438	1905	Road Match	140m
	FRUITERERS AND GREENGROCERS	Wisbey, James, Inglis St Ballan	173436	1905	Road Match	140m
	BOOTMAKERS AND DEALERS	Wood, Alex ., Inglis St Ballan	167977	1905	Road Match	140m

Dry Cleaners, Motor Garages & Service Stations

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Legend

- Site Boundary
- Buffer 500m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 190 380 570 760 Meters

Coordinate System: GDA 1994 MGA Zone 55

Date: 19 April 2022

Historical Business Directories

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from Sands & McDougall's Directories and UBD Business Directories, mapped to a premise or road intersection within the dataset buffer.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
N/A	No records in buffer						

Dry Cleaners, Motor Garages & Service Stations Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories and Sands & McDougall's Directories, mapped to a road or an area within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
1	MOTOR SERVICE STATIONS	Ballan Auto Port., Inglis St Ballan	10800	1970	Road Match	140m
	MOTOR SERVICE STATIONS	Bray. E. M Amoco Service Station., Inglis St Ballan	10801	1970	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Corcoran. D & W. E. Haddon., Inglis St Ballan	10794	1970	Road Match	140m
	MOTOR SERVICE STATIONS	Corcoran. D & W. E. Haddon., Inglis St Ballan	10802	1970	Road Match	140m
	MOTOR SERVICE STATIONS	Corcoran. D. & W. E. Haddon., Inglis St BallanAshton's Junction Service Station Ballan	10799	1970	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Inglis Motor Body & Engineering Service., Inglis St Ballan	10795	1970	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Lorenzini. E & M. C., Inglis St Ballan	10796	1970	Road Match	140m
	MOTOR SERVICE STATIONS	Lorenzini. E & M. C., Inglis St Ballan	10803	1970	Road Match	140m
	DRY CLEANERS DYERS & PRESSERS	Spotless Dry Cleaners., Inglis St Ballan	10765	1970	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Ballan Motors, Inglis St., Ballan.	143514	1960	Road Match	140m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Ballan Motors, Inglis St., Ballan.	143520	1960	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Lorensini, E. & M. C., Inglis St., Ballan.	143515	1960	Road Match	140m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Lorensinl, E. & M. C., Inglis St., Ballan.	143521	1960	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Sowell, R. P., Inglis St., Ballan.	143516	1960	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Ballan Motors., Inglis St. Ballan	94666	1950	Road Match	140m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Ballan Motors., Inglis St. Ballan	94674	1950	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Joughin Motors., Inglis St. Ballan	94667	1950	Road Match	140m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Joughin Motors., Inglis St. Ballan	94675	1950	Road Match	140m
	MOTOR GARAGES & ENGINEERS	Sewell. R. P, (Agent, Caltex)., Inglis St. Ballan	94668	1950	Road Match	140m

Aerial Imagery 2022

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Aerial Imagery 2016

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Scale:	Data Source Aerial Imagery: © 2022 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 55	Date: 14 April 2022

0 110 220 330 440 Meters

Aerial Imagery 2012

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Scale:	Data Source Aerial Imagery: © 2022 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 55	Date: 14 April 2022

0 110 220 330 440 Meters

Aerial Imagery 1990

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

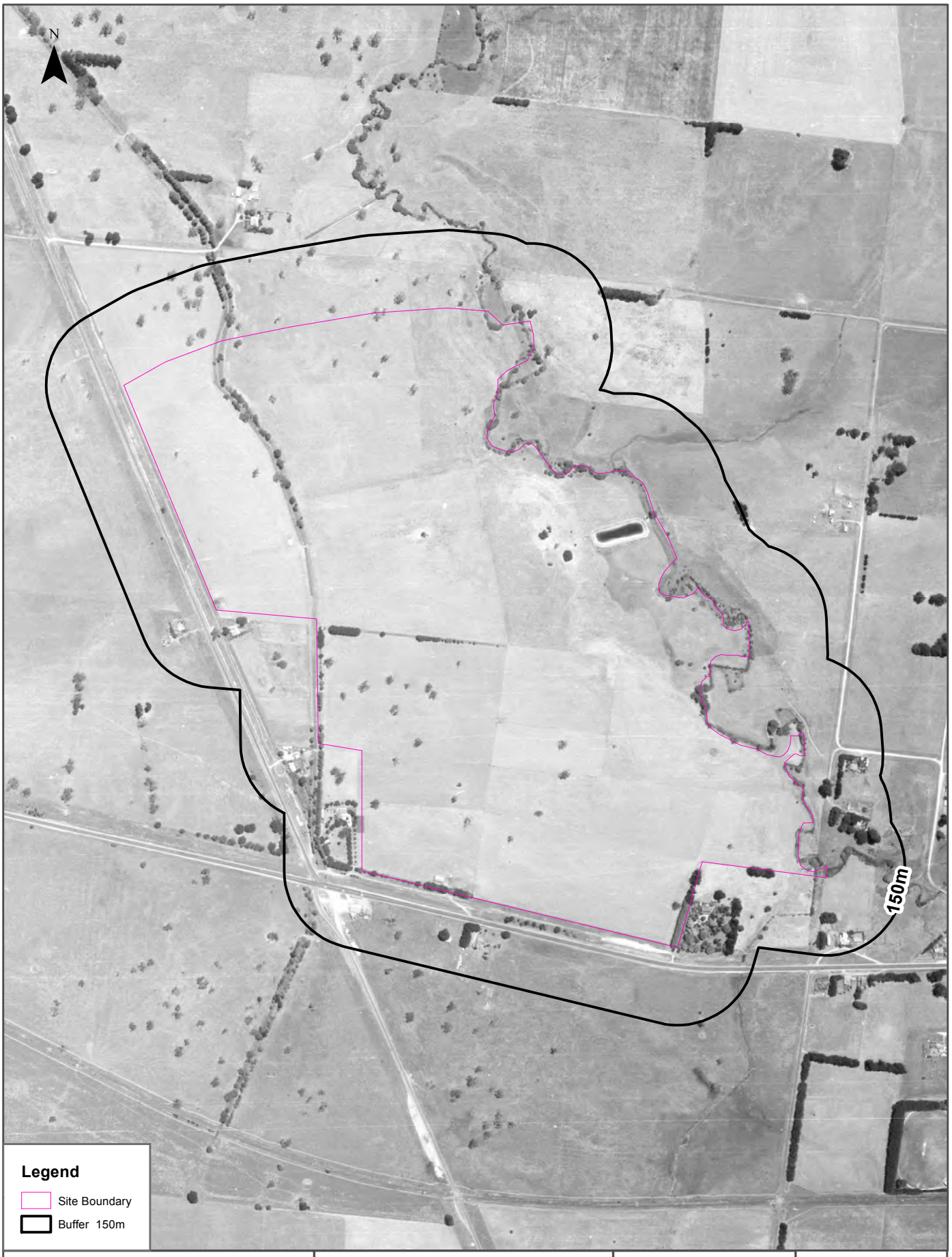
Aerial Imagery 1984

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Scale: 0 110 220 330 440 Meters	Data Source Aerial Imagery: © Department of Environment, Land, Water and Planning (Vicmap Topographic Mapping Program)	Coordinate System: GDA 1994 MGA Zone 55	Date: 14 April 2022

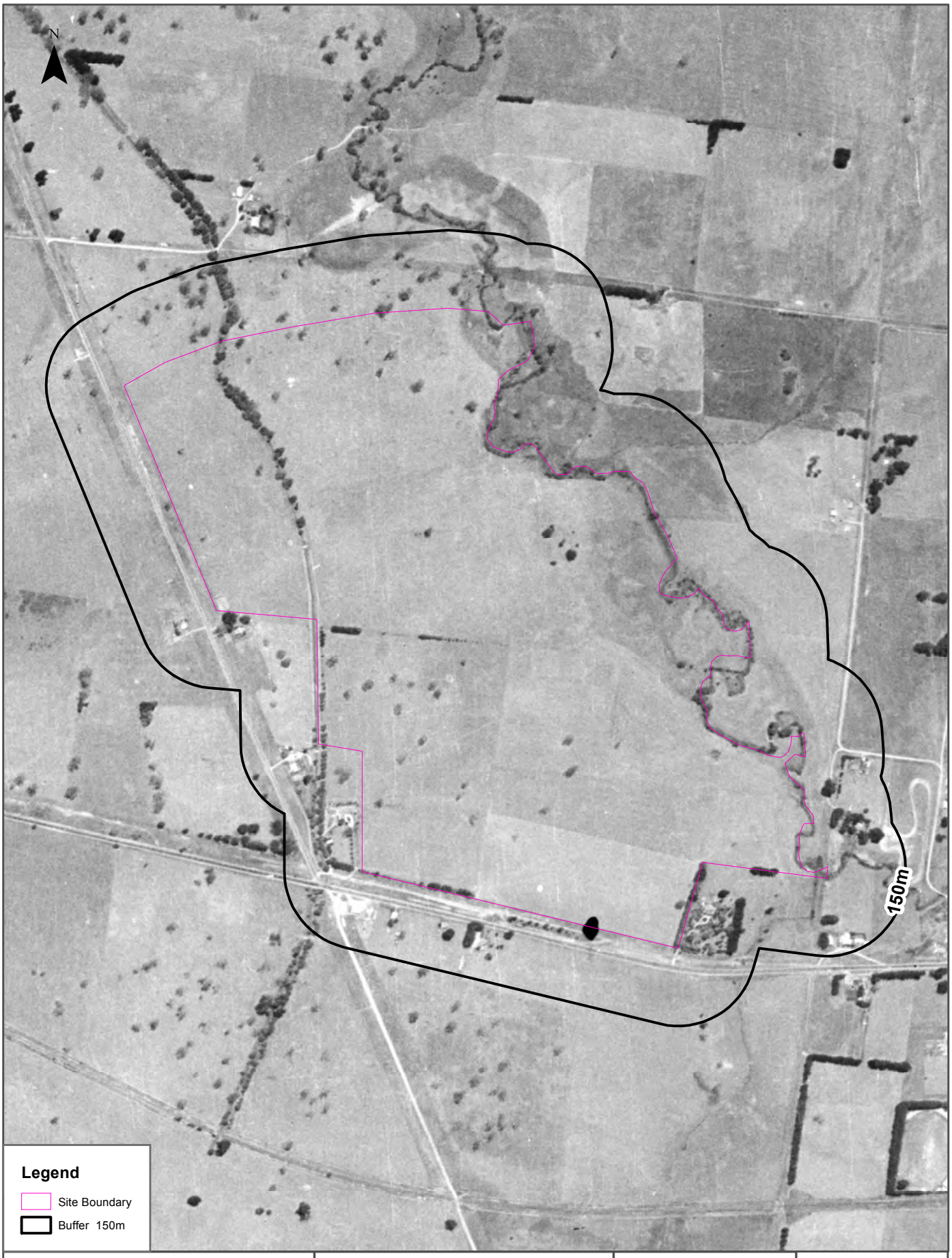
Aerial Imagery 1970

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



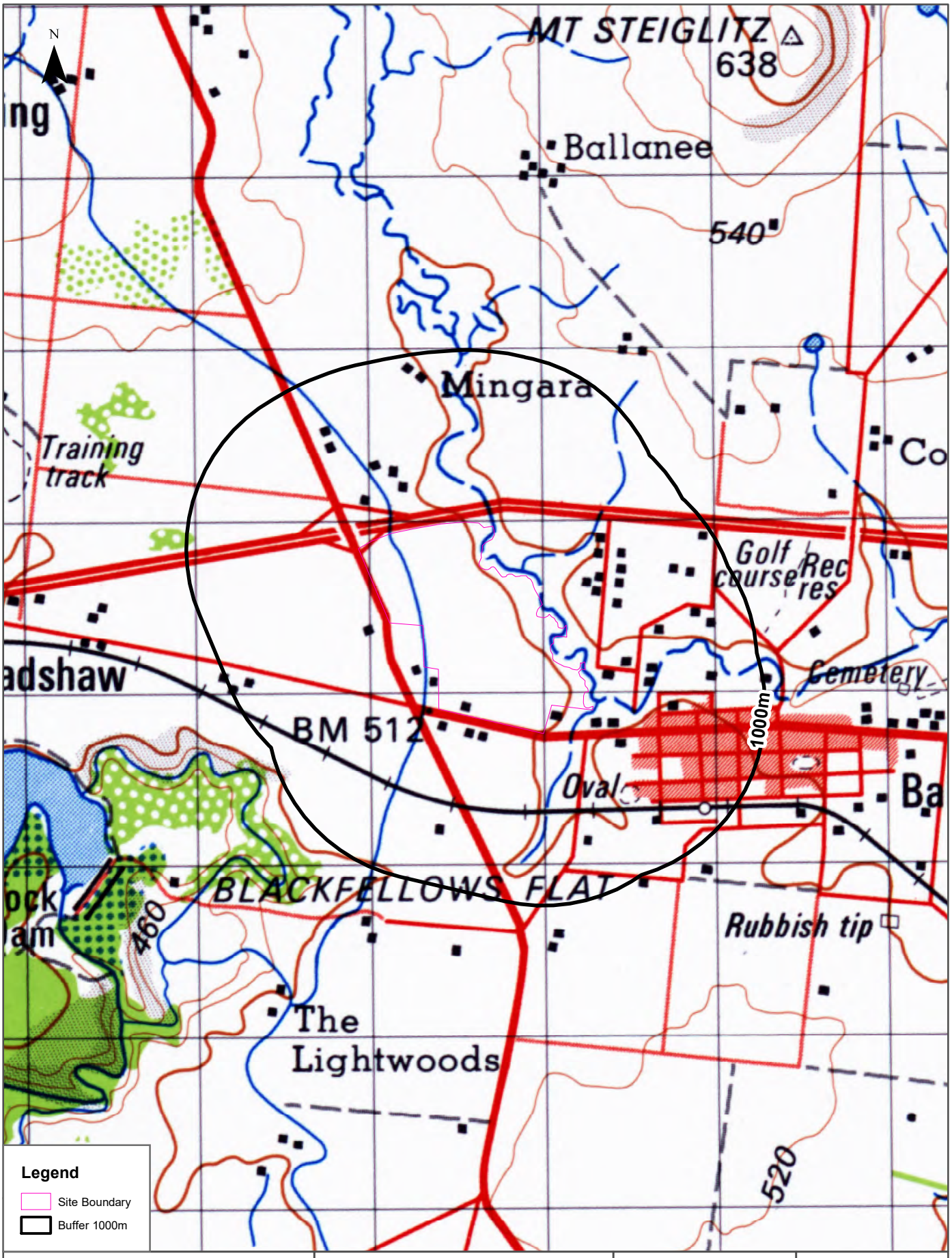
Aerial Imagery 1961

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



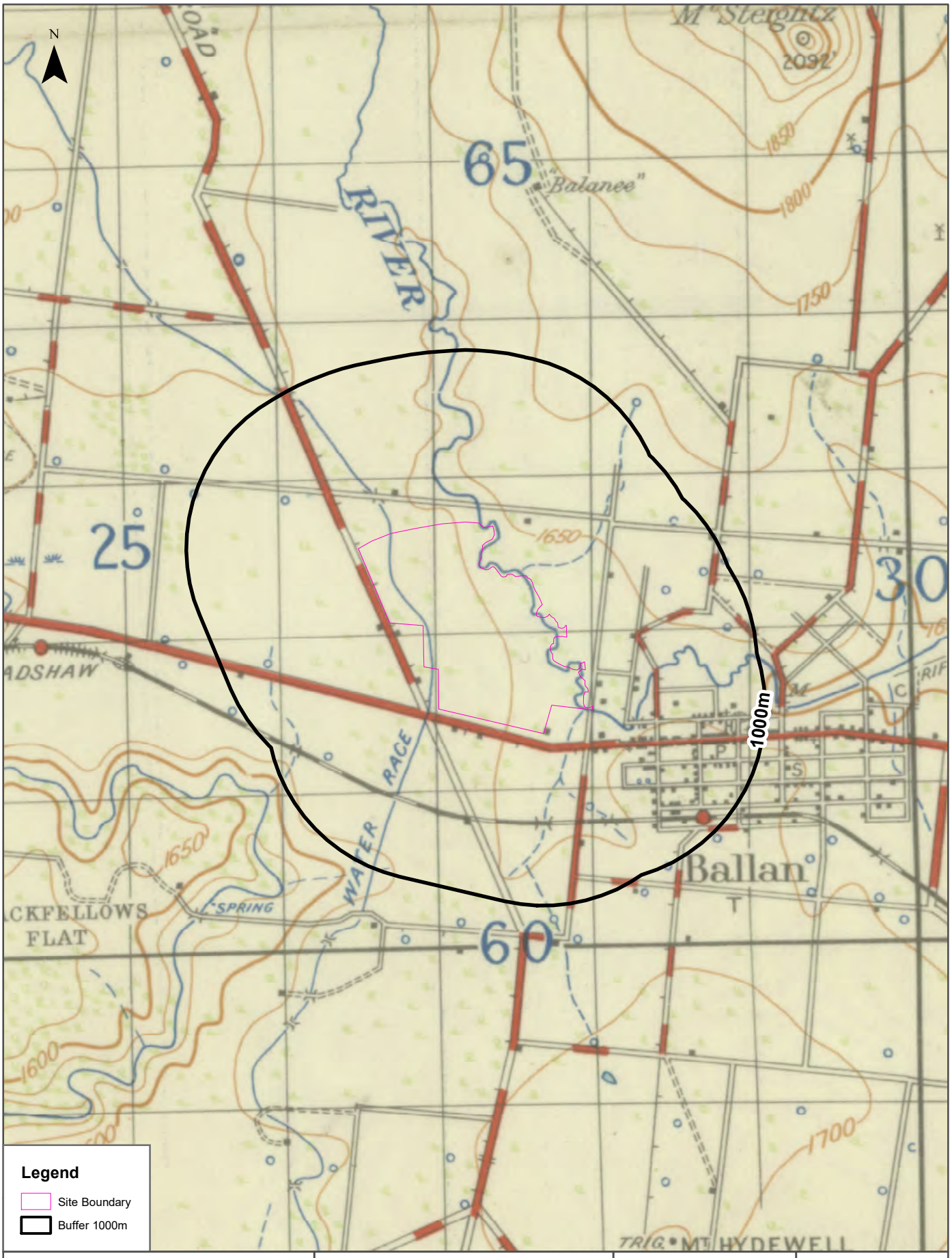
Historical Map 1981

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



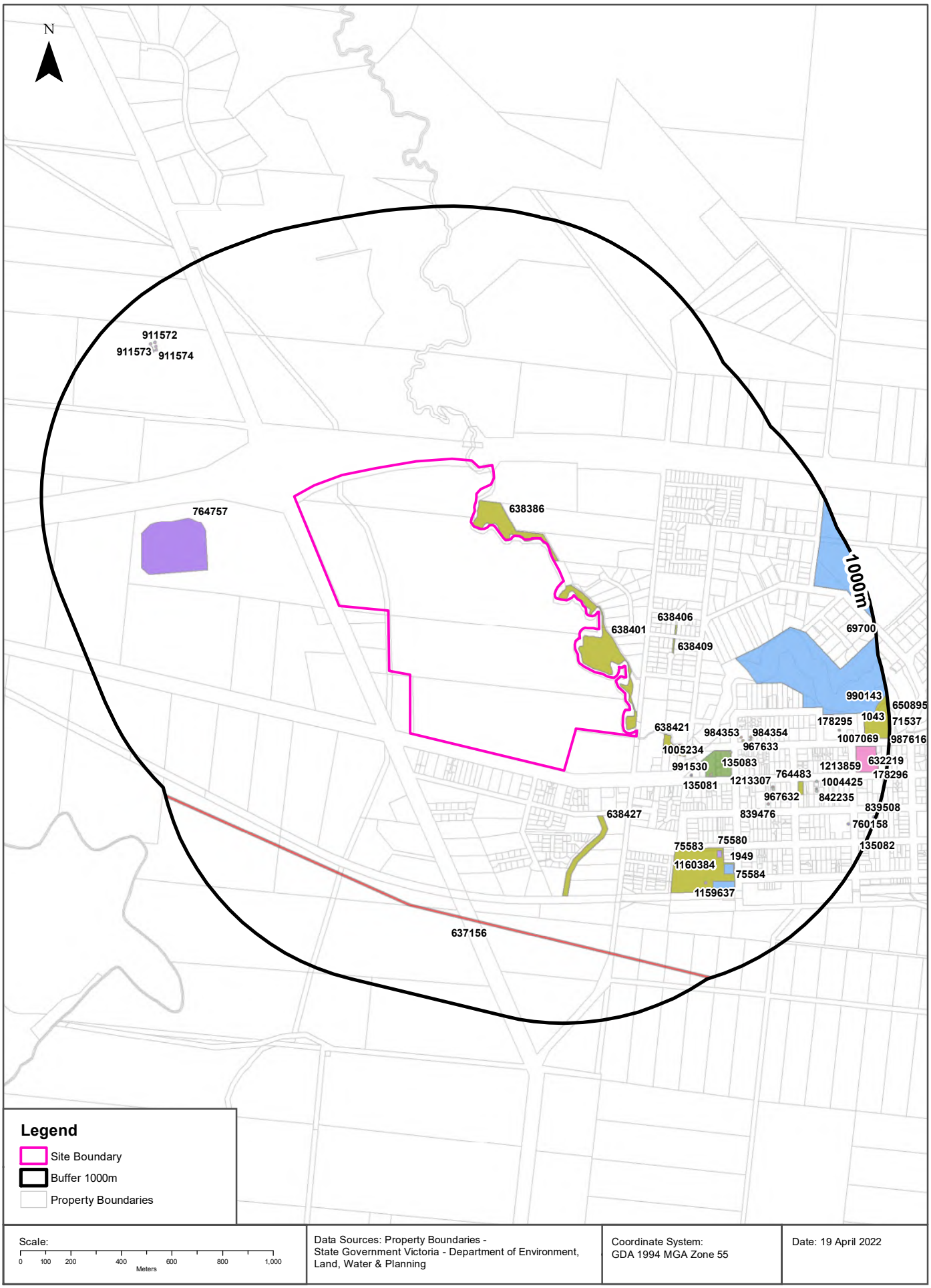
Historical Map c.1936

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Features of Interest

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Features of Interest

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Features of Interest

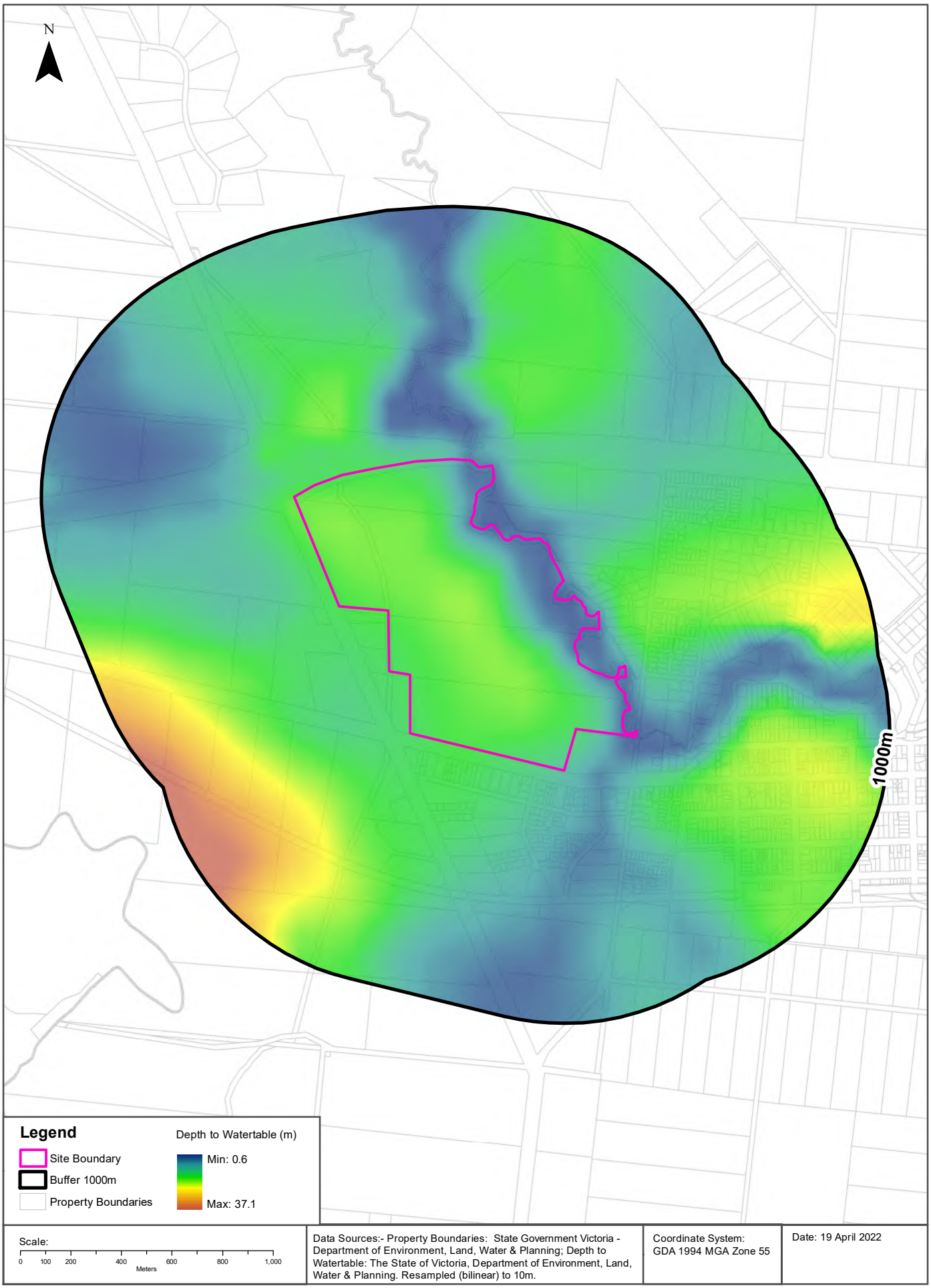
Features of Interest within the dataset buffer:

Feature Id	Feature Type	Feature Sub Type	Name	Distance	Direction
638386	reserve	park		0m	On-site
638401	reserve	park		2m	East
638421	reserve	park		107m	South East
638409	reserve	park		190m	East
638427	reserve	park		221m	South East
638406	reserve	park		229m	East
135081	emergency facility	police station	Ballan Police Station	260m	South East
1005234	hospital	hospital complex		269m	South East
991530	care facility	aged care	Ballan Hostel	325m	South East
135083	hospital	bush nursing hospital	Ballan District Health Care	371m	South East
991760	care facility	aged care	Ballan Nursing Home	371m	South East
764757	community space	caravan park	Crossroads Re-Creation Caravan Park	376m	West
967633	health facility	maternal/child health centre	Ballan Maternal And Child Health Centre	405m	South East
984353	care facility	child care	Ballan District Preschool	415m	South East
69700	sport facility	golf course	Ballan Golf Club	434m	East
839475	community venue	community centre	Ballan Community Centre	444m	South East
984354	care facility	child care	Ballan Childcare Centre	444m	South East
75580	reserve	park	Ballan Recreation Reserve	469m	South East
75583	sport facility	sports ground		508m	South East
1160384	recreational resource	skate park		553m	South East
967632	community venue	community centre	Ballan And District Community House	568m	South East
649088	community venue	hall	Ballan Mechanics Institute Hall	569m	South East
1213307	cultural centre	library	Ballan Library	573m	South East
839476	community venue	senior citizens	Ballan Senior Citizens	579m	South East
1949	sport facility	bowling green	Ballan Bowling Club	612m	South East
637156	pipeline	gas pipeline	Brooklyn - Ballan	616m	South
1159637	recreational resource	club house		635m	South East
75584	sport facility	tennis court		646m	South East
655116	emergency facility	fire station	Ballan Fire Station	649m	South East
996409	emergency facility	emergency coordination centre	Ballan Local Command Facility	649m	South East

Feature Id	Feature Type	Feature Sub Type	Name	Distance	Direction
764483	reserve	park	Mclean Reserve	661m	South East
1004425	landmark	monument	Ballan War Memorial	728m	South East
842235	communication service	telephone exchange	Ballan Telephone Exchange	735m	South East
1160419	landmark	tower		738m	South East
911577	storage facility	silo		792m	North West
178295	place of worship	church	St Johns Anglican Church	794m	East
911576	storage facility	silo		798m	North West
911574	storage facility	silo		803m	North West
911575	storage facility	silo		810m	North West
911573	storage facility	silo		817m	North West
911572	storage facility	silo		825m	North West
1007069	education centre	education complex		865m	East
71537	reserve	park	Mill Park	897m	East
760158	admin facility	municipal office	Moorabool Shire Council - Ballan	900m	South East
632219	education centre	primary school	St Brigids School	912m	East
1213859	care facility	child care	Big Childcare - St Brigids Ps Ballan Oshc	912m	East
1043	recreational resource	picnic site		914m	East
178296	place of worship	church	St Brigids Catholic School	926m	East
990143	sport facility	sports complex		979m	East
839508	admin facility	law court	Ballan Court House	984m	South East
987616	recreational resource	playground		997m	East
135082	emergency facility	ambulance station	Ballan Ambulance Station	999m	South East
650895	sport facility	swimming pool	Ballan Swimming Pool	999m	East

Depth to Watertable

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Hydrogeology & Groundwater

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Fractured or fissured, extensive highly productive aquifers	0m	On-site
Fractured or fissured, extensive aquifers of low to moderate productivity	918m	West

Hydrogeology Map of Australia: Commonwealth of Australia (Geoscience Australia)

Groundwater Salinity

On-site Groundwater Salinity:

Groundwater Salinity	Percent Of Site Area
1,000 - 3,500 mg/l	100
500 - 1,000 mg/l	<1

Depth to Watertable

On-site Depth to Watertable:

Depth to Watertable	Percent Of Site Area
10 to 20 metres	82
Less than 5 metres	14
5 to 10 metres	3

Surface Elevation

Approximate on-site Surface Elevation:

Surface Elevation
488 AHDm to 518 AHDm

Basement Elevation

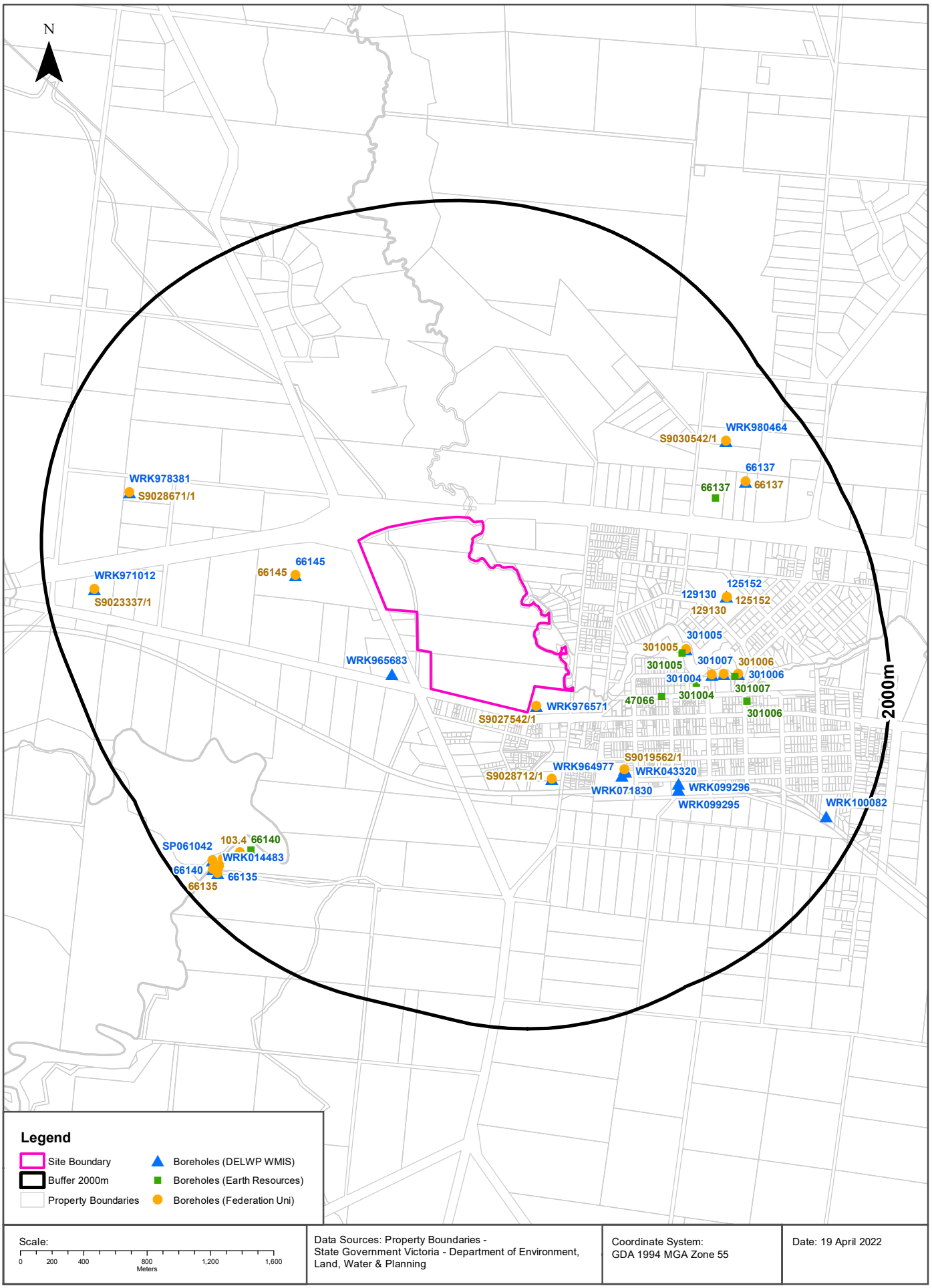
Approximate on-site Basement Elevation:

Basement Elevation - Basement Rocks comprise Lower Palaeozoic basement rocks that form the highlands and the crystalline basement; and Mesozoic rocks of the Otway and Gippsland basins both outcropping and subsurface
462 AHDm to 484 AHDm

Groundwater Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning

Groundwater Boreholes

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Groundwater Boreholes

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Boreholes (DELWP WMIS)

Boreholes from the Department of Environment, Land, Water & Planning's Water Measurement Information System, within the dataset buffer:

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK976571	Domestic & Stock		0.10m-0.50m OUTER LINING - GRAVEL = Cement 3.00m-3.50m OUTER LINING - GRAVEL = Not Known			15/12/2006	46m	South East
WRK965683						02/11/2005	224m	South West
66145	Domestic	0.00m-2.00m STIFF GREY CLAY 2.00m-32.00m HARD BLUE BASALT 32.00m-33.00m LOOSE COARSE GRAVEL 33.00m-61.00m HARD BLACK SHALE	0.00m-53.00m INNER LINING - CASING = Pvc 53.00m-56.00m INNER LINING - SCREEN = Pvc 56.00m-60.00m INNER LINING - CASING = Pvc		53.00m-56.00m Shale	27/06/1988	449m	West
WRK978446	Domestic & Stock	0.00m-0.50m TOP SOIL 0.50m-3.00m BROWN CLAY 3.00m-11.00m WEATHERED BASALT 11.00m-19.00m HARD BASALT 19.00m-21.00m VOLCANIC CLAY 21.00m-42.00m HARD BASALT 42.00m-48.00m FRACTURED BASALT	42.00m-48.00m INNER LINING - CASING = Pvc 0.10m-1.00m OUTER LINING - GRAVEL = Not Known 22.00m-23.00m OUTER LINING - GRAVEL = Not Known			22/04/2007	449m	South East
WRK964977							595m	South East
WRK043320	Domestic & Stock, Irrigation	0.00m-4.00m SANDY CLAY DARK BROWN 4.00m-15.00m BASALT FRACTURED 15.00m-30.00m MOD-HIGHLY WEATHERED BASALT 30.00m-39.50m WEATHERED BASALT 39.50m-42.00m BAKED CLAY, DARK BROWN FRACT'D	0.00m-36.00m INNER LINING - CASING = Pvc 36.00m-40.00m INNER LINING - SCREEN = Stainless Steel 40.00m-42.00m INNER LINING - CASING = Pvc 25.00m-25.00m OUTER LINING - GRAVEL = Cement			01/01/1950	606m	South East
WRK071830	Irrigation		4.10m-30.00m OUTER LINING - GRAVEL = Cement 30.00m-33.00m OUTER LINING - GRAVEL = Bentonite 33.00m-33.50m OUTER LINING - GRAVEL = Seal			02/12/2012	619m	South East
301005	Non Groundwater					25/11/1939	756m	East
301004	Non Groundwater					20/11/1939	881m	East
WRK099296	Observation	0.00m-1.50m CLAY/silt 1.50m-14.90m Weatherd Basalt	0.00m-10.00m INNER LINING - CASING = Pvc 10.00m-14.90m INNER LINING - SCREEN = Pvc 0.20m-9.50m OUTER LINING - GRAVEL = Cement 9.50m-11.50m OUTER LINING - GRAVEL = Bentonite 11.50m-14.90m OUTER LINING - GRAVEL = Gravel			31/03/2017	890m	South East
WRK099295	Observation	0.00m-0.50m BASALT 0.50m-0.90m RESIDUAL CLAYS 0.90m-10.15m BASALTIC HW/SW BASALT	0.00m-7.15m INNER LINING - CASING = Pvc 7.15m-10.15m INNER LINING - SCREEN = Pvc 0.00m-3.45m OUTER LINING - GRAVEL = Cement 3.45m-6.45m OUTER LINING - GRAVEL = Bentonite 6.45m-10.15m OUTER LINING - GRAVEL = Gravel			07/03/2017	914m	South East
301007	Non Groundwater					20/12/1939	956m	East
301006	Non Groundwater					08/12/1939	1049 m	East
125152	Domestic, Stock	0.00m-3.00m BASALT & CLAY 3.00m-10.00m BROWN CLAY 10.00m-24.00m BASALT	-0.30m-18.00m INNER LINING - CASING = Pvc Class 9 18.00m-24.00m INNER LINING - SCREEN = Pvc Class 9			20/12/1994	1063 m	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
129130	Domestic, Stock	0.00m-0.30m RUBBLY STONE 0.30m-10.62m BROWN STONE 10.62m-29.87m BASALT 29.87m-31.09m BLACK CLAY 31.09m-34.09m RED CLAY 34.09m-35.31m GREEN CLAY 35.31m-37.19m LIMESTONE & GREEN CLAY 37.19m-42.67m YELLOW LIMESTONE 42.67m-51.82m GREY LIMESTONE	-0.30m-37.80m INNER LINING - CASING = Steel 37.80m-51.82m INNER LINING - SCREEN = Steel			23/04/1995	1063 m	East
WRK978381							1475 m	West
66137	Domestic, Stock	0.00m-2.00m CLAY 2.00m-29.00m BASALT	0.00m-20.00m INNER LINING - CASING = Pvc 20.00m-26.00m INNER LINING - SCREEN = Pvc 26.00m-27.00m INNER LINING - CASING = Pvc		20.00m-26.00m Basalt	01/12/1979	1493 m	North East
WRK980464	Domestic & Stock	0.00m-0.70m TOP SOIL 0.70m-3.00m CLAY 3.00m-9.00m STIFF CLAY 9.00m-11.00m WEATHERED BASALT 11.00m-17.00m FIRM BASALT 17.00m-19.00m ORANGE CLAY 19.00m-20.00m LARGE GRAVEL 20.00m-20.50m WHITE CLAY 20.50m-30.00m COARSE SAND	0.10m-0.50m OUTER LINING - GRAVEL = Bentonite			11/12/2007	1554 m	North East
WRK971012	Domestic & Stock	0.00m-0.50m TOP SOIL 0.50m-4.00m BROWN/ RED CLAY 4.00m-17.00m HIGHLY WEATHERED BASALT 17.00m-21.00m MED BLUE BASALT 21.00m-24.00m HARD BLUE BASALT 24.00m-31.00m FRACTURED BASALT	0.00m-24.00m INNER LINING - CASING = Pvc 24.00m-31.00m INNER LINING - SLOT = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 1.00m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-22.00m OUTER LINING - GRAVEL = Bentonite 22.00m-31.00m OUTER LINING - GRAVEL = Seal			18/10/2005	1692 m	West
SP061042	Domestic & Stock	0.00m-2.80m CLAY 2.80m-3.20m GRAV 3.20m-3.40m SAST	0.00m-3.20m INNER LINING - CASING = Pvc 3.20m-18.00m INNER LINING - CASING = Pvc 18.00m-26.00m INNER LINING - CASING = Pvc 26.00m-32.00m INNER LINING - SLOT = Pvc 32.00m-34.00m INNER LINING - CASING = Pvc 0.00m-21.00m OUTER LINING - GRAVEL = Cement 21.00m-22.00m OUTER LINING - GRAVEL = Bentonite 22.00m-34.00m OUTER LINING - GRAVEL = Gravel		26.00m-32.00m Sandstone	03/06/2008	1753 m	South West
WRK014483	Domestic & Stock					03/06/2008	1753 m	South West
66135	Mineral Water					01/01/1914	1778 m	South West
66140	Commercial, Mineral Water	0.00m-1.00m TOP GREY SOIL 1.00m-12.00m SOFT SLATES 12.00m-23.00m HARD SANDSTONE	0.00m-18.00m INNER LINING - CASING = Pvc 18.00m-23.00m INNER LINING - SCREEN = Pvc		18.00m-23.00m Sand	01/06/1981	1786 m	South West
WRK100082	Observation	0.00m-1.28m BASALT 1.28m-12.70m XW	0.00m-9.50m INNER LINING - CASING = Pvc 9.50m-12.50m INNER LINING - SCREEN = Pvc 0.00m-9.00m OUTER LINING - GRAVEL = Bentonite 9.00m-12.70m OUTER LINING - GRAVEL = Gravel			04/04/2017	1787 m	South East

Groundwater Boreholes

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Boreholes (Earth Resources Database)

Boreholes from the Earth Resources dataset, within the dataset buffer:

Bore Id	Bore Type	Company	Usage	Method	Status	Drill Date	Depth	Elevation	Accuracy (m)	Dist (m)	Dir
47066		Unknown (or Not Specified)				30/12/1899			100	565m	South East
301005		Department of Manufacturing & Industry Development		Rotary (diamond/drag bit)		25/11/1939	21.34		300	724m	East
301004		Department of Manufacturing & Industry Development		Rotary (diamond/drag bit)		20/11/1939	32.62		300	781m	East
301007		Department of Manufacturing & Industry Development		Rotary (diamond/drag bit)		20/12/1939	34.75		300	1024 m	East
301006		Department of Manufacturing & Industry Development		Rotary (diamond/drag bit)		08/12/1939	28.35		300	1103 m	East
66137		Private Individual/Corporation	Domestic & Stock water supply	Air Percussion/Air Rotary		31/12/1979	29.00		300	1276 m	North East
66140		Private Individual/Corporation	Industrial/commercial water	Rotary (diamond/drag bit)		01/06/1981	23.00		100	1526 m	South West

Boreholes (Federation University)

Boreholes from the Federation University Australia dataset, within the dataset buffer:

Bore Id	Authority	Type	Uses	Initial TD	Log	Dist (m)	Dir
S9027542/1		Groundwater	Domestic and Stock			46m	South East
66145	Private Landholders Bore	Groundwater	Domestic	507.00	D: 0.000m-2.000m Stiff Grey Clay D: 2.000m-32.000m Hard Blue Basalt D: 32.000m-33.000m Loose Coarse Gravel D: 33.000m-61.000m Hard Black Shale	449m	West
S9028712/1		Groundwater	Domestic and Stock		D: 0.000m-0.500m Top Soil D: 0.500m-3.000m Brown Clay D: 3.000m-11.000m Weathered Basalt D: 11.000m-19.000m Hard Basalt D: 19.000m-21.000m Volcanic Clay D: 21.000m-42.000m Hard Basalt D: 42.000m-48.000m Fractured Basalt	449m	South East
S9019562/1		Groundwater				595m	South East
301005			Non Groundwater		: 0.000m-2.000m Clay : 2.000m-15.200m Basalt : 15.200m-21.300m Clay And Sand	756m	East

Bore Id	Authority	Type	Uses	Initial TD	Log	Dist (m)	Dir
301004			Non Groundwater		: 0.000m-2.400m Clay And Gravel : 2.400m-16.000m Basalt : 16.000m-32.600m Drift, Clay And Gravel	881m	East
301007			Non Groundwater		: 0.000m-1.600m Clay : 1.600m-17.100m Basalt : 17.100m-27.000m Sand And Clay : 27.000m-34.700m Gravelly Clay And Wash	956m	East
301006			Non Groundwater		: 0.000m-0.900m Clay : 0.900m-15.400m Basalt : 15.400m-28.300m Clay, Sand And Drift : 28.300m-28.400m Wash	1049 m	East
125152		Groundwater	Domestic Stock		D: 0.000m-3.000m Basalt & Clay D: 3.000m-10.000m Brown Clay D: 10.000m-24.000m Basalt	1063 m	East
129130		Groundwater	Domestic Stock		D: 0.000m-0.300m Rubbly Stone D: 0.300m-10.600m Brown Stone D: 10.600m-29.900m Basalt D: 29.900m-31.100m Black Clay D: 31.100m-34.100m Red Clay D: 34.100m-35.300m Green Clay D: 35.300m-37.200m Limestone & Green Clay D: 37.200m-42.700m Yellow Limestone D: 42.700m-51.800m Grey Limestone	1063 m	East
S9028671/1		Groundwater				1475 m	West
66137		Groundwater	Domestic Stock		D: 0.000m-2.000m Clay D: 2.000m-29.000m Basalt	1493 m	North East
S9030542/1		Groundwater	Domestic and Stock		D: 0.000m-0.700m Top Soil D: 0.700m-3.000m Clay D: 3.000m-9.000m Stiff Clay D: 9.000m-11.000m Weathered Basalt D: 11.000m-17.000m Firm Basalt D: 17.000m-19.000m Orange Clay D: 19.000m-20.000m Large Gravel D: 20.000m-20.500m White Clay D: 20.500m-30.000m Coarse Sand	1554 m	North East
103.4		Spring	Mineral Water			1587 m	South West
S9023337/1		Groundwater	Domestic (DM) Stock (ST)		D: 0.000m-0.500m Top Soil D: 0.500m-4.000m Brown/ Red Clay D: 4.000m-17.000m Highly Weathered Basalt D: 17.000m-21.000m Med Blue Basalt D: 21.000m-24.000m Hard Blue Basalt D: 24.000m-31.000m Fractured Basalt	1692 m	West
103.3		Spring	Mineral Water			1697 m	South West
103.1		Spring	Mineral Water			1743 m	South West
103.2		Spring	Mineral Water			1747 m	South West
SP061042		Groundwater	Domestic and Stock		D: 0.000m-2.800m Clay D: 2.800m-3.200m Grav D: 3.200m-3.400m Sast	1753 m	South West
66135	Government (General)	Groundwater	Mineral Water			1778 m	South West
66140	Private Landholders Bore	Groundwater	Mineral Water Commercial	647.00	D: 0.000m-1.000m Top Grey Soil D: 1.000m-12.000m Soft Slates D: 12.000m-23.000m Hard Sandstone	1786 m	South West

Historical Mining Activity - Shafts

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Historical Mining Activity - Shafts

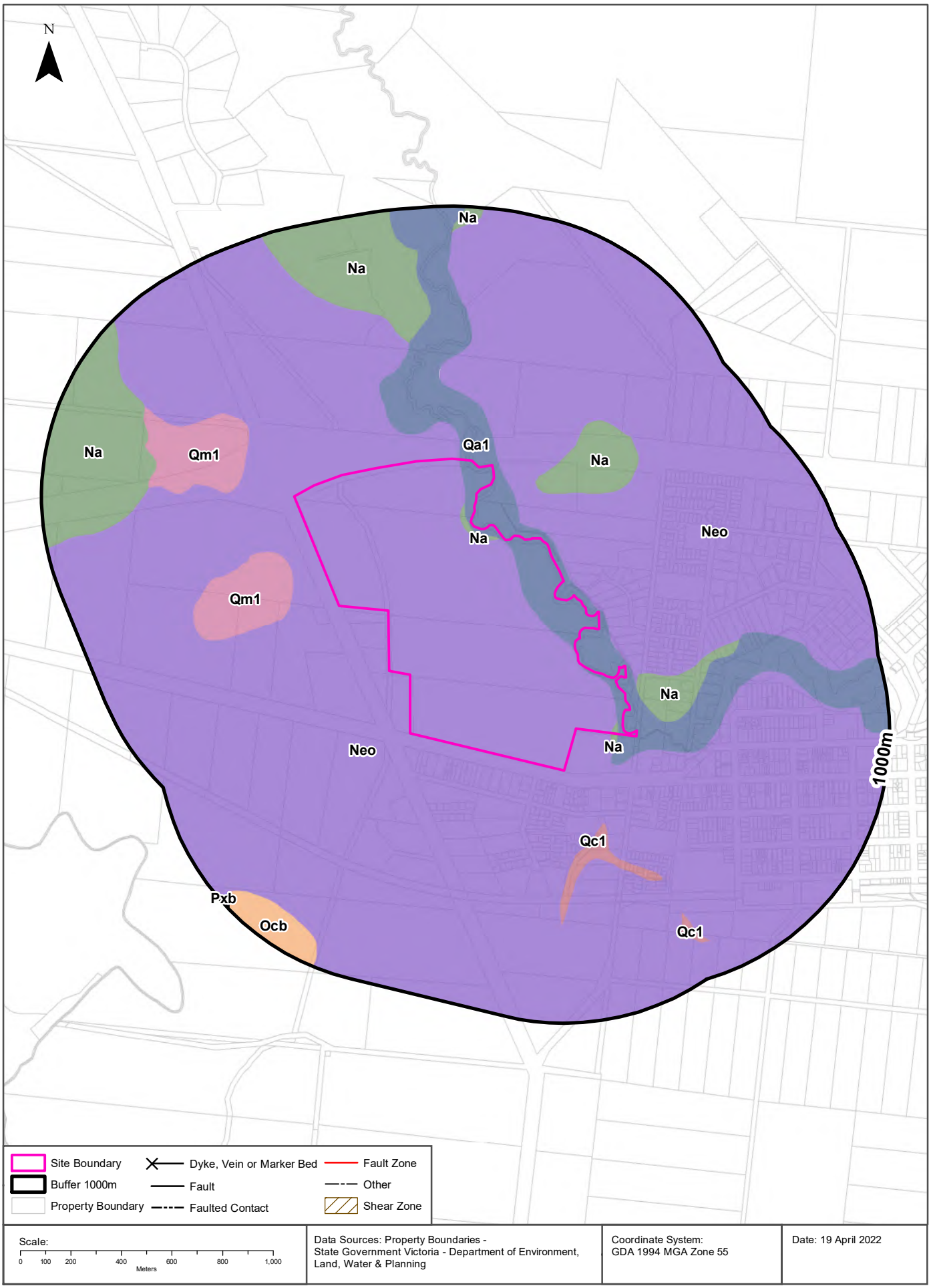
Mine Shaft Locations were collected by a variety of methods from 1869 in some areas of the state, mainly concentrating in Ballarat and Bendigo. In places a shaft may be recorded multiple times with a different source. In cases where several shaft locations are shown close together (generally with separations less than stated position errors) and they have different sources, it is possible that one shaft has been mapped several times. In cases where several shaft locations are shown close together but they have the same information source, it is possible that each shaft location represents a different shaft on the ground.

Historical Mine Shafts within the dataset buffer:

Map Id	Name	Source	Depth (m)	Collar (ft)	Fill/Cap Method	Location Desc	Location Accuracy	Distance	Direction
N/A	No records in buffer								

Geology

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Geology

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Geological Units 1:50,000

What are the Geological Units within the dataset buffer?

Symbol	Name	Description	Geological Age	Lithology	Distance	Direction
Neo	Newer Volcanic Group - basalt flows (Neo): generic	Olivine tholeiite, quartz tholeiite, basanite, basaltic icelandite, hawaiite, mugearite, minor scoria and ash, fluvial sediments: tholeiitic to alkaline; includes sheet flows and valley flows and intercalated gravel, sand, clay	Miocene to Holocene	alkali basalt (major proportion); tholeiitic basalt (major proportion); alluvium (minor proportion); tuff (minor proportion)	0m	On-site
Qa1	alluvium(Qa1): generic	Gravel, sand, silt: variably sorted and rounded; generally unconsolidated; includes deposits of low terraces; alluvial floodplain deposits	Pleistocene to Holocene	gravel material (significant); sand (significant); silt material (significant)	0m	On-site
Na	incised alluvium (Na): generic	Gravel, sand, silt, minor ferricrete; variably incised.	Pliocene to Pleistocene	silt material (significant); sand (significant); gravel material (significant)	0m	On-site
Qm1	swamp and lake deposits (Qm1): generic	Grey to black carbonaceous mud, silt, clay, minor peat: generally unconsolidated; rare dolomite	Pleistocene to Holocene	mud (major proportion); silt material (significant); clay lithology (significant); peat (minor proportion)	122m	West
Qc1	colluvium(Qc1): generic	Diamictite, gravel, sand, silt, clay, rubble: sorting variable, usually poor; generally poorly rounded; clasts locally sourced; includes channel deposits with better rounding and sorting	Pliocene to Holocene	diamictite (dominant); gravel material (significant); sand (significant); silt material (significant)	259m	South East
Ocb	Castlemaine Group - Bendigonian(Ocb): generic	Sandstone, mudstone, black shale and minor granule quartz conglomerate: mostly thick-bedded sandstone, coarse- to fine-grained, often graded, diffusely stratified to cross laminated, moderately to well sorted; sparsely fossiliferous with graptolites and	Bendigonian to Bendigonian	sandstone (significant); mudstone (significant); shale (significant); conglomerate (minor proportion)	858m	South West
Pxb	Bacchus Marsh Formation (Pxb): generic	Tillite, diamictite, sandstone, mudstone, conglomerate: tillite and diamictite grey; massive to slump-folded; conglomerates range from pebble to boulder size; generally well-rounded; of highly varied lithology; mudstone dark grey to black; thinly bedded	Carboniferous to Permian	tillite (significant); diamictite (significant); sandstone (significant); mudstone (significant)	954m	South West

Geology

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Geological Structures 1:50,000

What are the Geological Faults or Faulted Contacts within the dataset buffer?

Map Id	Type	Name	Contact	Positional Accuracy	Distance	Direction
110544	faulted contact		sharp	accurate	954m	South West
88497	faulted contact		sharp	accurate	998m	South West

What are the Dykes, Marker Beds and Veins within the dataset buffer?

Map Id	Type	Name	Description	Positional Accuracy	Distance	Direction
N/A	No records in buffer					

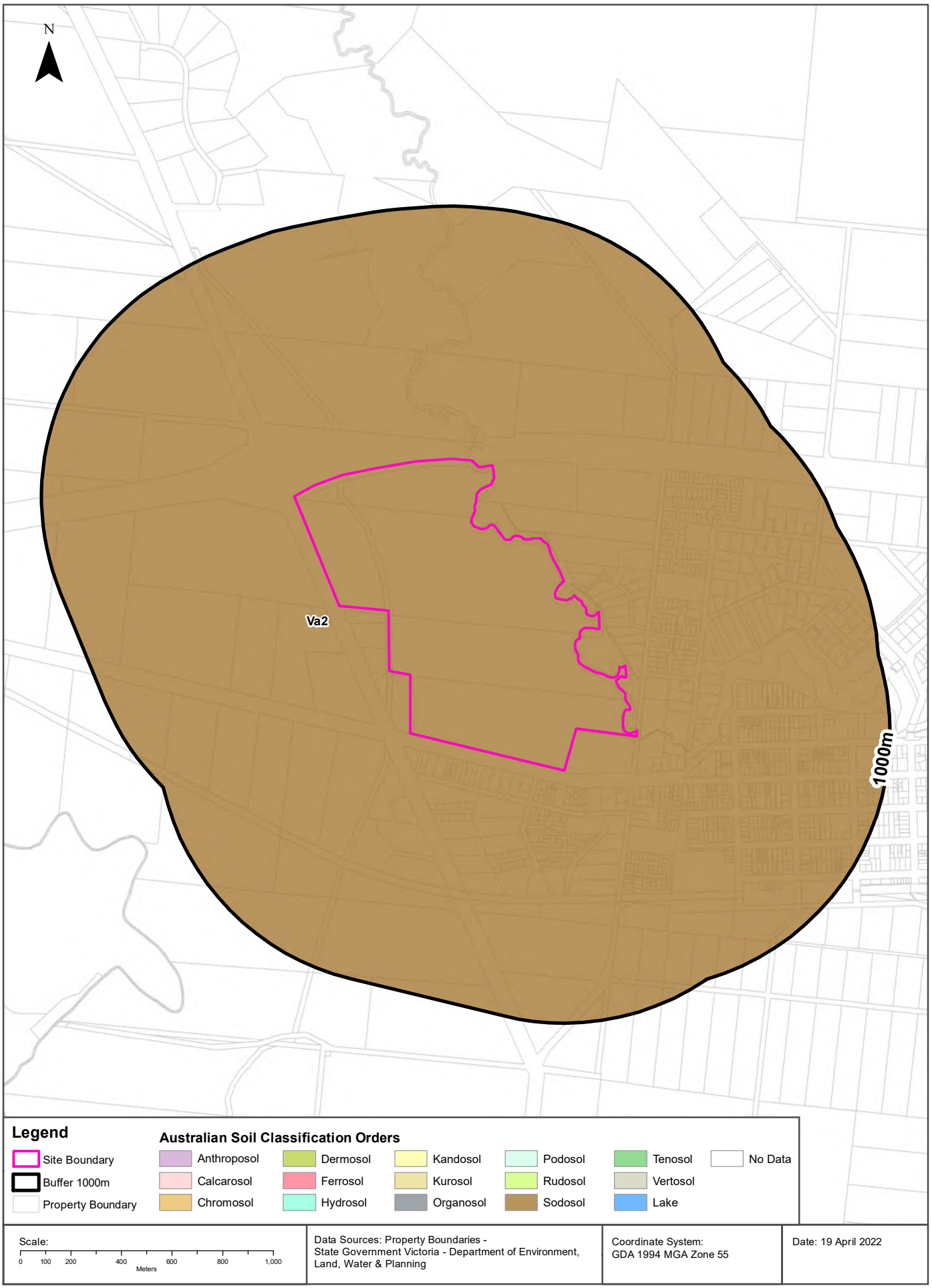
Geological Structures 1:250,000

What are the Shear Zones within the dataset buffer?

Map Id	Type	Name	Description	Positional Accuracy	Distance	Direction
N/A	No records in buffer					

Atlas of Australian Soils

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Soils

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

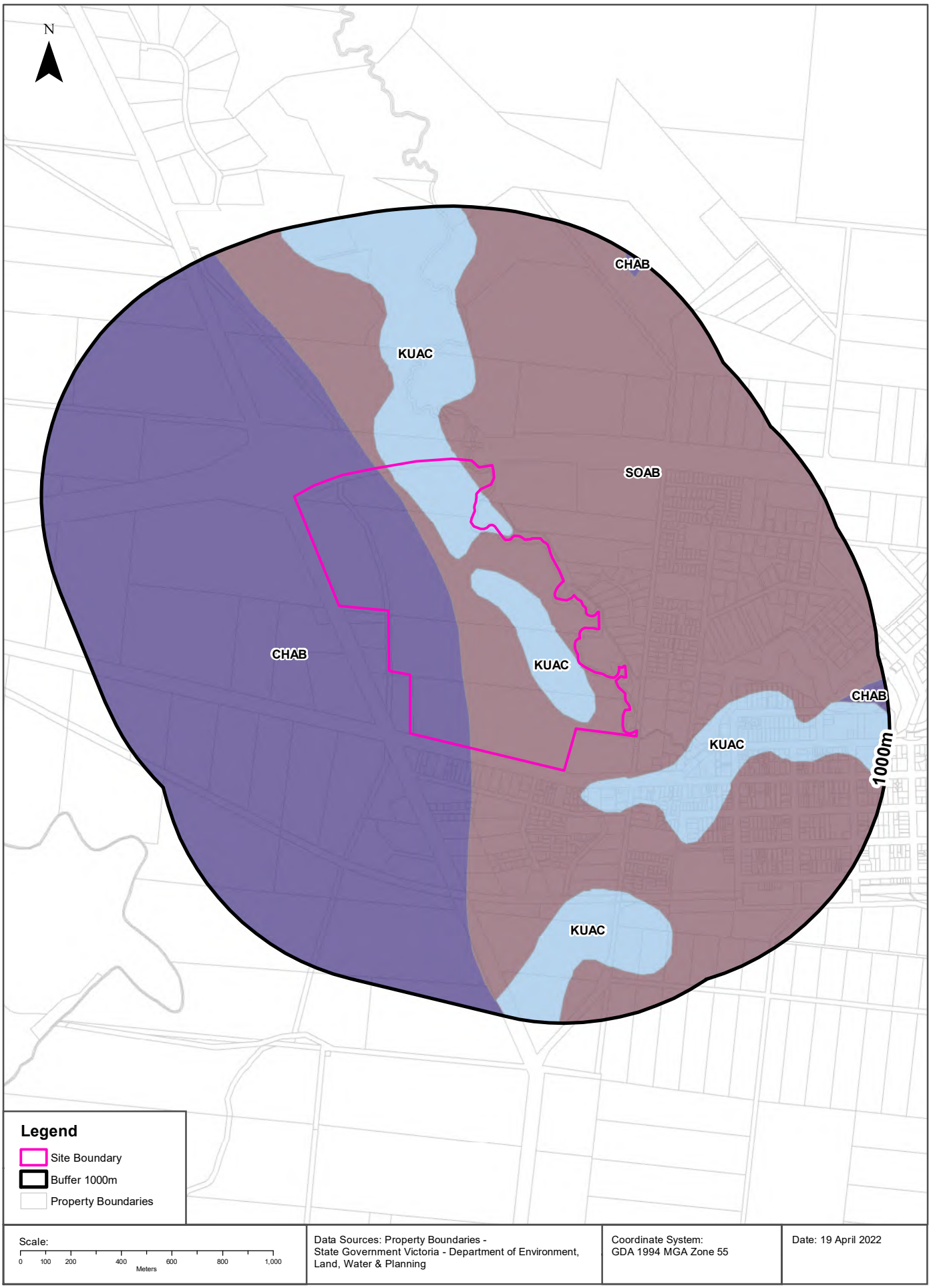
Atlas of Australian Soils

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

Map Unit Code	Soil Order	Map Unit Description	Distance	Direction
Va2	Sodosol	Plains with occasional stony rises: gilgai plains of hard alkaline and neutral yellow mottled soils (Dy3_43 and Dy3.42) in association with small areas of cracking grey clays (Ug5.2) which may be dominant locally; stony rises with shallow friable loamy soils (Um6.12, Um6.13, Um6.21, Um6.24, and Um6.41); dark cracking clays (Ug5. 16) on terraces and some floodplains along stream valleys; minor areas of (Dy3.41), (Dy3.11), (Dy5.42), and (Ug5.1) occur on the plains as well. Ironstone gravs are a common feature of surface horizons of (D) soils. Some volcanic cones occur in the Va2 area in Sheet 2 but their associated soils are not described.	0m	On-site

Victorian Soil Type Mapping

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Soils

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

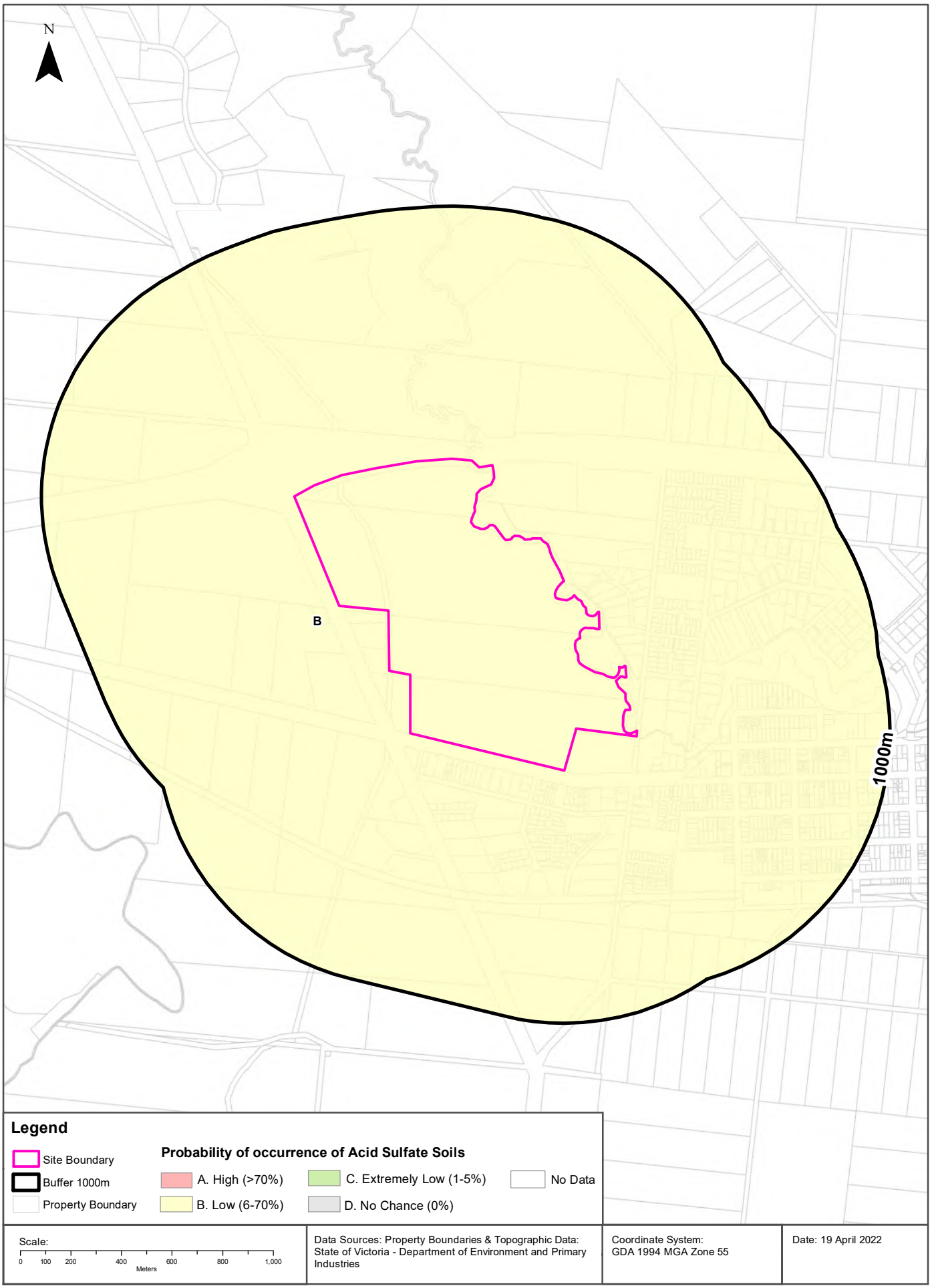
Victorian Soil Type Mapping

Victorian Soil Types within the dataset buffer:

Symbol	Description	Distance	Direction
SOAB	Brown Sodosols	0m	On-site
CHAB	Brown Chromosols	0m	On-site
KUAC	Yellow Kurosols	0m	On-site

Atlas of Australian Acid Sulfate Soils

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Acid Sulfate Soils

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

Class	Description	Distance	Direction
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m	On-site

Acid Sulfate Soils

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

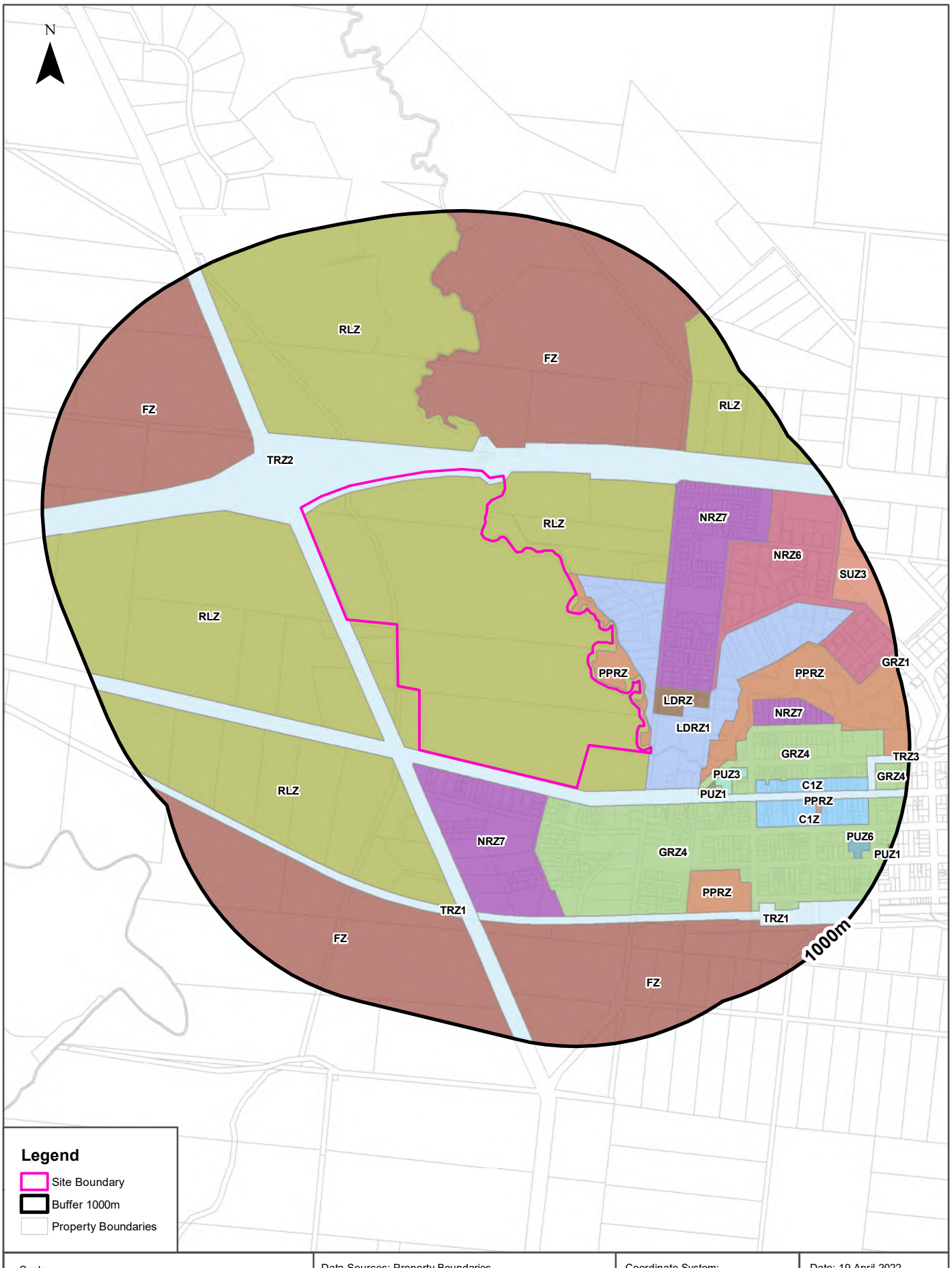
Coastal Acid Sulfate Soils

Coastal Acid Sulfate Soil types within the dataset buffer:

Coastal Acid Sulfate Soil Types	Distance	Direction
No records in buffer		

Planning Zones

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Planning

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Planning Zones

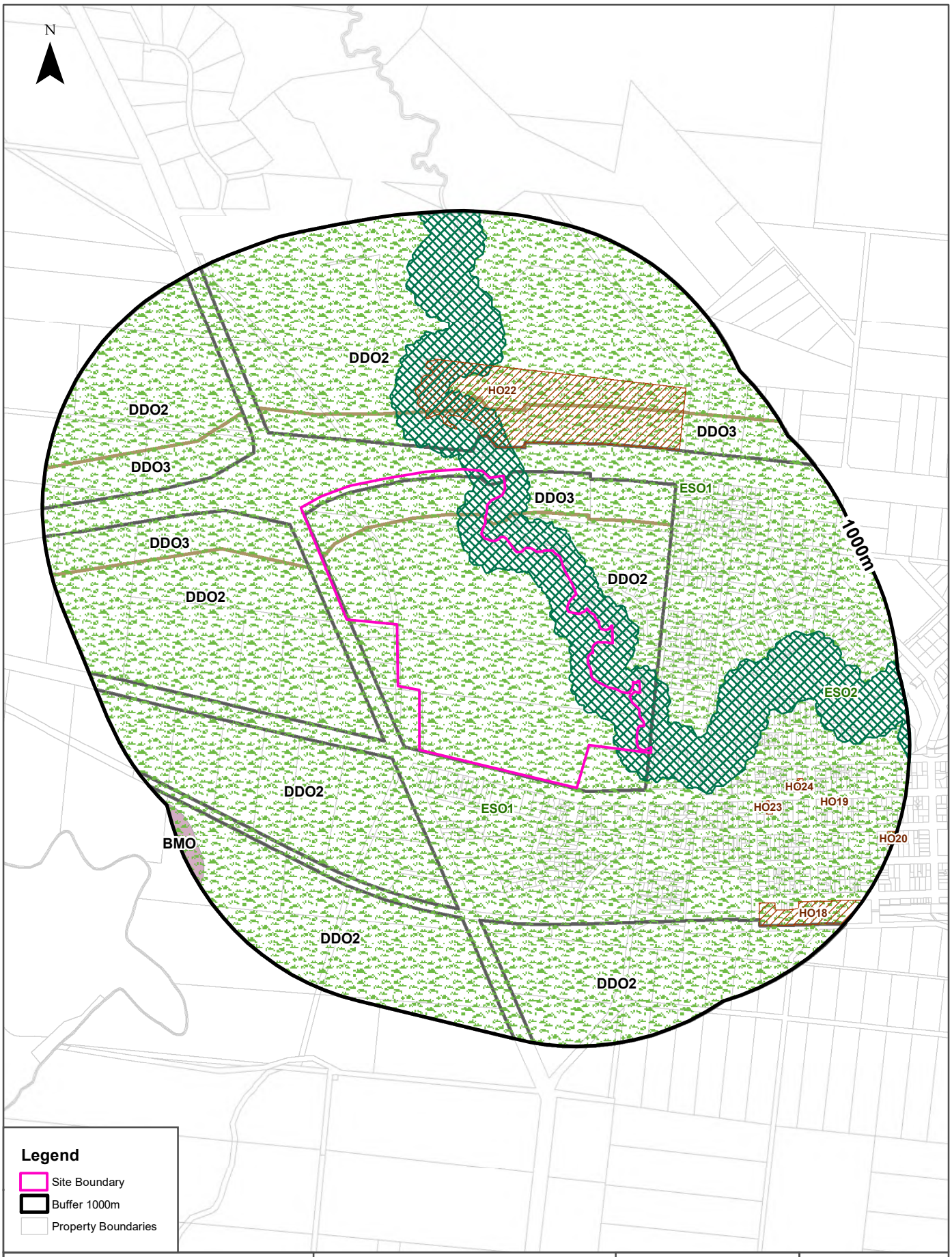
Planning zones within the dataset buffer:

Zone Code	Description	Distance	Direction
RLZ	RURAL LIVING ZONE	0m	On-site
TRZ2	TRANSPORT ZONE 2 - PRINCIPAL ROAD NETWORK	0m	On-site
LDRZ1	LOW DENSITY RESIDENTIAL ZONE - SCHEDULE 1	0m	East
PPRZ	PUBLIC PARK AND RECREATION ZONE	0m	East
LDRZ	LOW DENSITY RESIDENTIAL ZONE	47m	East
RLZ	RURAL LIVING ZONE	55m	West
GRZ4	GENERAL RESIDENTIAL ZONE - SCHEDULE 4	56m	South East
NRZ7	NEIGHBOURHOOD RESIDENTIAL ZONE - SCHEDULE 7	56m	South
NRZ7	NEIGHBOURHOOD RESIDENTIAL ZONE - SCHEDULE 7	59m	East
RLZ	RURAL LIVING ZONE	73m	North West
FZ	FARMING ZONE	106m	North
RLZ	RURAL LIVING ZONE	111m	South West
PPRZ	PUBLIC PARK AND RECREATION ZONE	203m	East
GRZ4	GENERAL RESIDENTIAL ZONE - SCHEDULE 4	222m	East
PUZ1	PUBLIC USE ZONE - SERVICE AND UTILITY	245m	South East
PUZ3	PUBLIC USE ZONE - HEALTH AND COMMUNITY	269m	South East
GRZ4	GENERAL RESIDENTIAL ZONE - SCHEDULE 4	279m	South East
NRZ6	NEIGHBOURHOOD RESIDENTIAL ZONE - SCHEDULE 6	280m	East
FZ	FARMING ZONE	281m	North West
NRZ7	NEIGHBOURHOOD RESIDENTIAL ZONE - SCHEDULE 7	403m	East
C1Z	COMMERCIAL 1 ZONE	416m	South East
C1Z	COMMERCIAL 1 ZONE	446m	South East
PPRZ	PUBLIC PARK AND RECREATION ZONE	480m	South East
TRZ1	TRANSPORT ZONE 1 - STATE TRANSPORT INFRASTRUCTURE	496m	South East
FZ	FARMING ZONE	526m	South East
TRZ1	TRANSPORT ZONE 1 - STATE TRANSPORT INFRASTRUCTURE	557m	South West
FZ	FARMING ZONE	590m	South West
RLZ	RURAL LIVING ZONE	632m	North East
PPRZ	PUBLIC PARK AND RECREATION ZONE	661m	South East
SUZ3	SPECIAL USE ZONE - SCHEDULE 3	808m	East
PUZ6	PUBLIC USE ZONE - LOCAL GOVERNMENT	821m	South East

Zone Code	Description	Distance	Direction
TRZ3	TRANSPORT ZONE 3 - SIGNIFICANT MUNICIPAL ROAD	831m	East
GRZ4	GENERAL RESIDENTIAL ZONE - SCHEDULE 4	865m	East
PUZ1	PUBLIC USE ZONE - SERVICE AND UTILITY	981m	South East
GRZ1	GENERAL RESIDENTIAL ZONE - SCHEDULE 1	989m	East

Planning Overlays

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Planning

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Planning Overlays

Planning overlays within the dataset buffer:

Zone Code	Description	Distance	Direction
DDO2	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2	0m	On-site
ESO1	ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1	0m	On-site
ESO2	ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 2	0m	On-site
DDO3	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 3	0m	On-site
ESO1	ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1	45m	North East
DDO2	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2	55m	West
DDO3	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 3	61m	West
DDO2	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2	73m	North
DDO3	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 3	73m	North
HO22	HERITAGE OVERLAY (HO22)	106m	North
DDO2	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2	111m	South West
DDO2	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2	281m	North West
DDO3	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 3	281m	North West
HO23	HERITAGE OVERLAY (HO23)	482m	South East
DDO2	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2	526m	South East
HO24	HERITAGE OVERLAY (HO24)	573m	South East
DDO2	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2	590m	South West
HO18	HERITAGE OVERLAY (HO18)	714m	South East
HO19	HERITAGE OVERLAY (HO19)	724m	South East
BMO	BUSHFIRE MANAGEMENT OVERLAY	931m	South West
HO20	HERITAGE OVERLAY (HO20)	963m	South East

Heritage

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Commonwealth Heritage List

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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National Heritage List

What are the National Heritage List Items located within the dataset buffer?
Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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Victorian Heritage Register

What are the Victorian Heritage Register items located within the dataset buffer?:

VHR Number	Description	Distance	Direction
N/A	No records in buffer		

Victorian Heritage Register Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning
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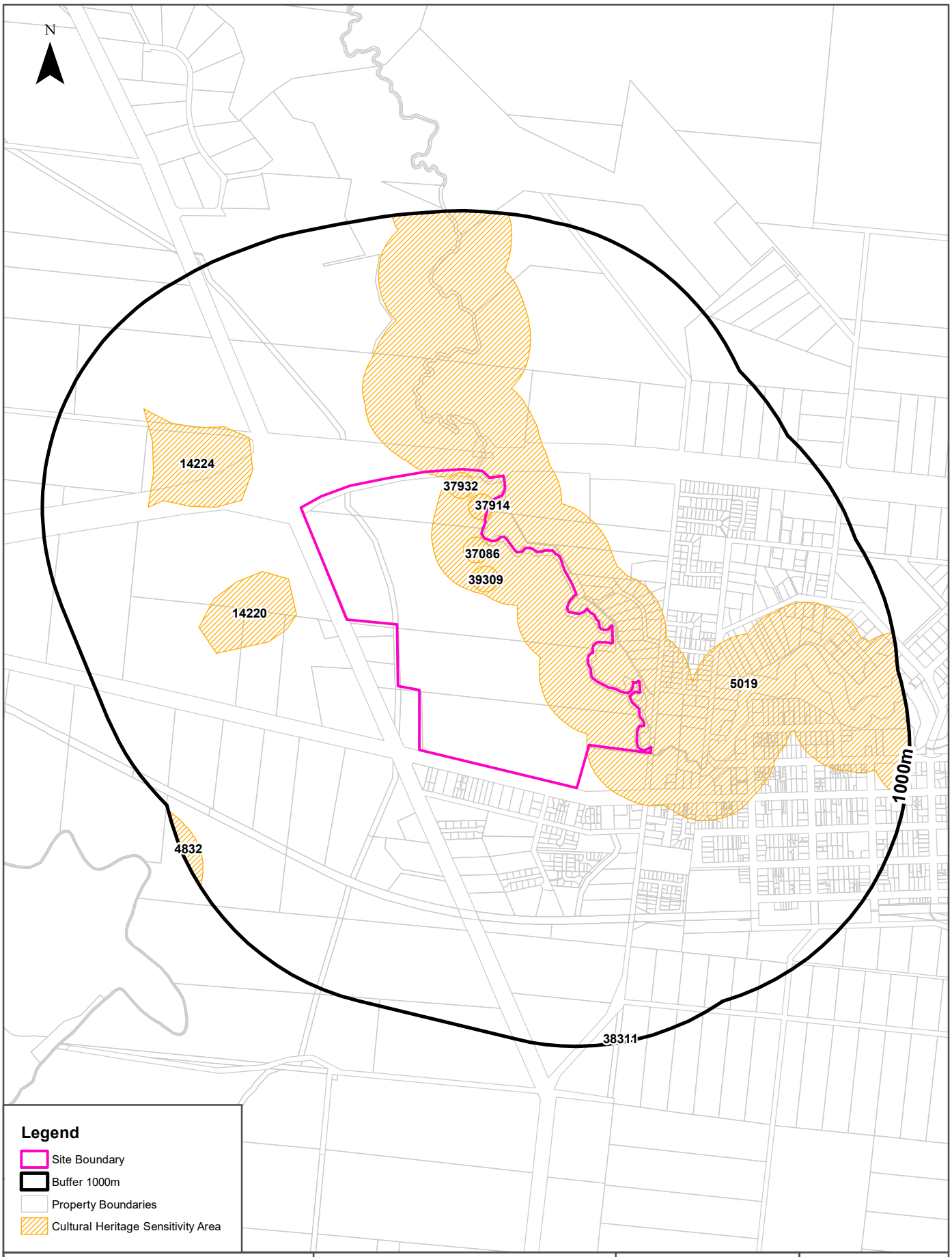
Cultural Heritage Sensitivity

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Heritage

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

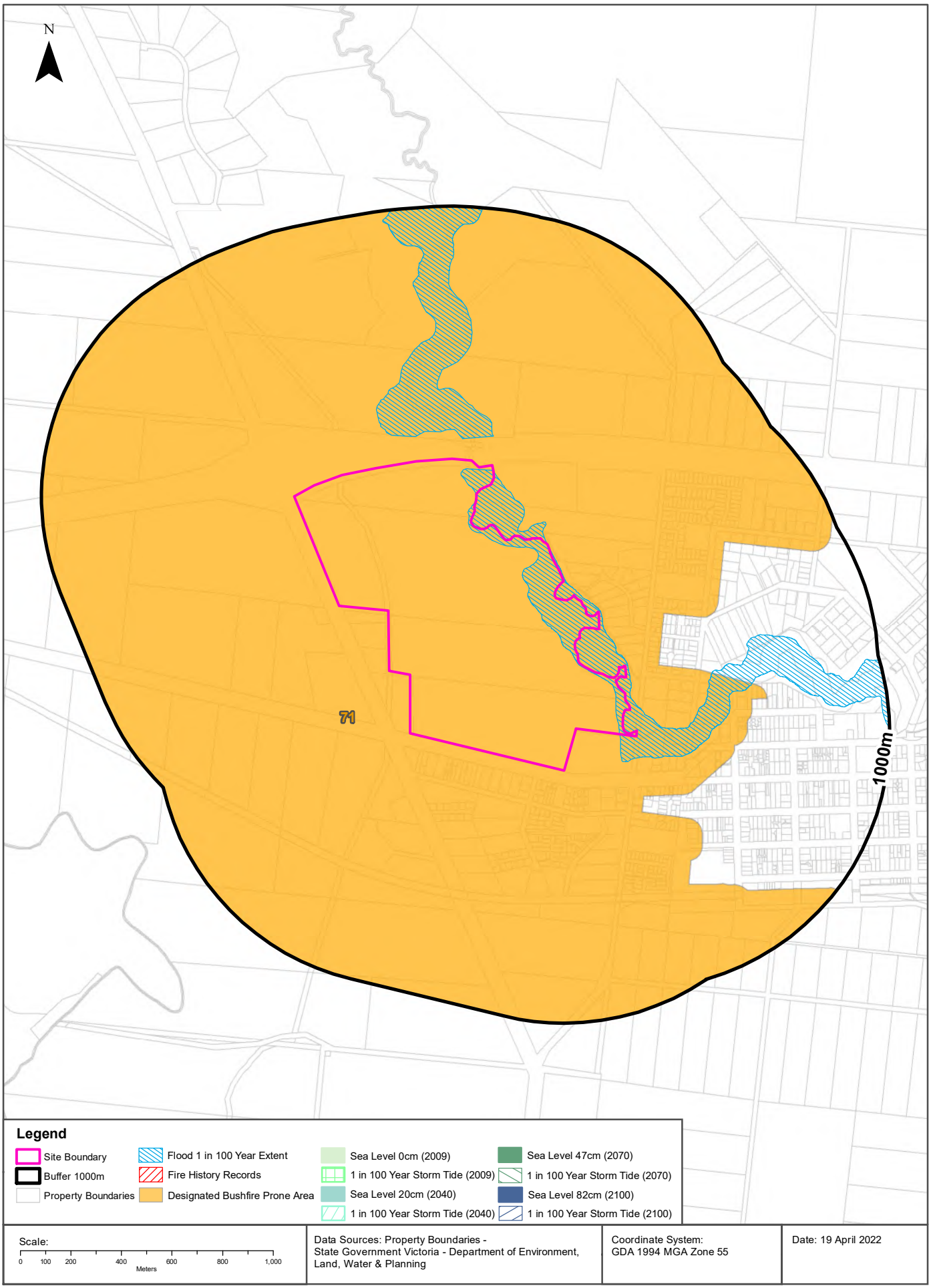
Cultural Heritage Sensitivity

Areas of Cultural Heritage Sensitivity as specified in Division 3 of Part 2 in the Victorian Aboriginal Heritage Regulations 2018, within the dataset buffer:

Map Id	Distance	Direction
5019	0m	On-site
37932	0m	On-site
37086	0m	On-site
39309	0m	On-site
37914	0m	On-site
14220	148m	West
14224	224m	North West
4832	932m	South West
38311	972m	South

Natural Hazards

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Natural Hazards

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Bushfire Prone Areas

What are the designated bushfire prone areas within the dataset buffer?

Map ID	Feature	Plan No	LGA	Gazetted Date	Distance	Direction
71	Designated Bushfire Prone Area	LEGL./20-485	MOORABOOL	25/01/2021	0m	On-site

Fire History

What are the fire history records of fires primarily on public land, within the dataset buffer?

Map Id	Fire Type	Fire Key	Season	Fire No	Fire Name	Treatment	Fire Cover	Start Date	Dist (m)	Direction
N/A	No records in buffer									

Flood - 1 in 100 year modelled flood extent

What 1 in 100 year flood extent features exist within the dataset buffer?

Feature	Source	Method	Scale	Modified Date	Distance	Direction
100 Year Flood Outline	Melbourne Water	Modelled		03/10/2013	0m	On-site

Natural Hazards

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

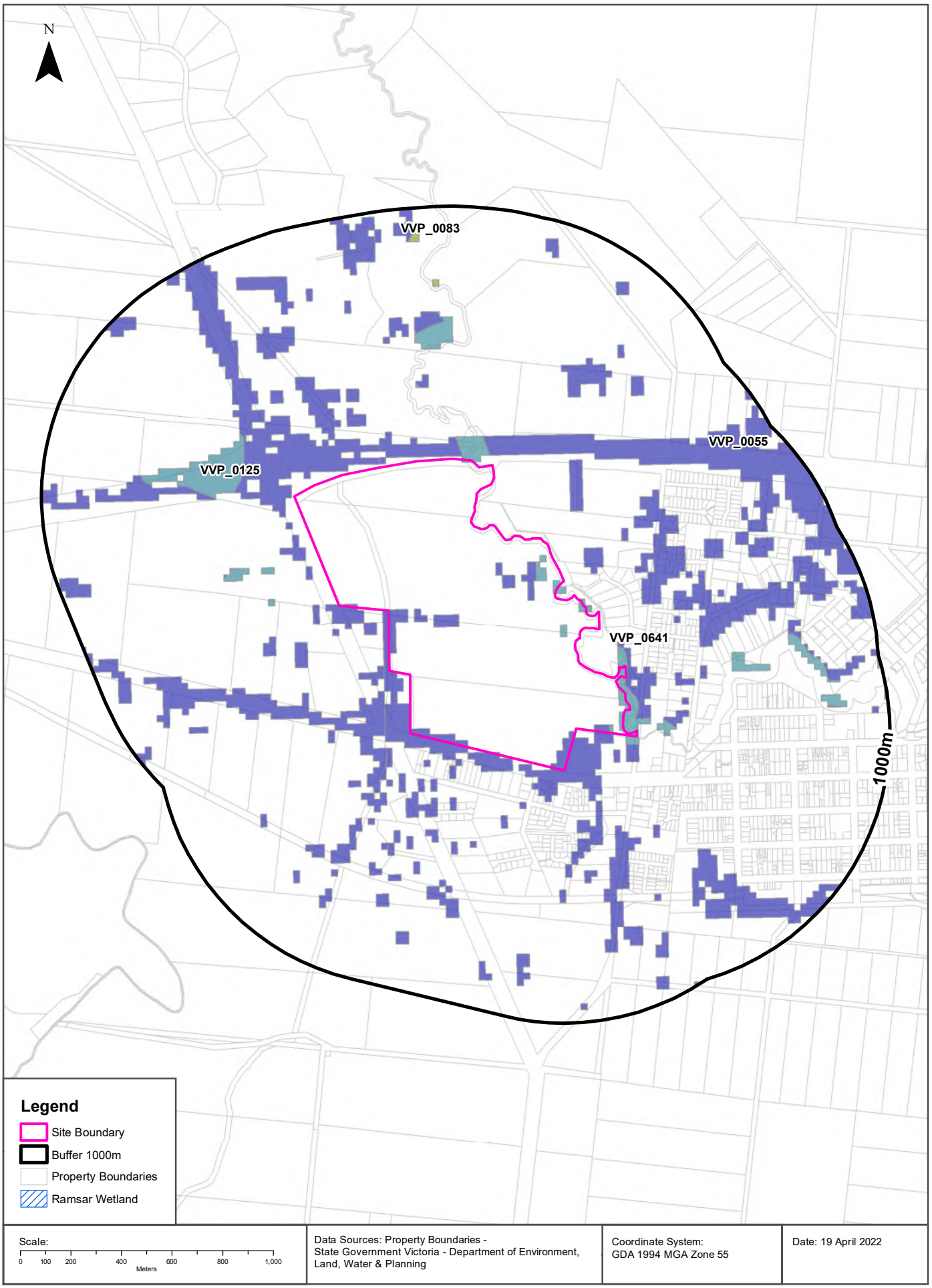
Victorian Coastal Inundation Sea Level Rise

What coastal inundation sea level rise features exist within the dataset buffer?

Description	Distance	Direction
No records in buffer		

Ecological Constraints - Native Vegetation 2005 & Ramsar Wetlands

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Ecological Constraints

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Native Vegetation (Modelled 2005 Ecological Vegetation Classes)

What native vegetation exists within the dataset buffer?

Veg Code	EVC Name	EVCCode	Group	Subgroup	Bioregion	Conservation Status	Geographic Occurance	Dist	Dir
VVP_0055	Plains Grassy Woodland	0055	Plains Woodlands or Forests	Freely-draining	Victorian Volcanic Plain	Endangered	Common	0m	On-site
VVP_0641	Riparian Woodland	0641	Riparian Scrubs or Swampy Scrubs and Woodlands		Victorian Volcanic Plain	Endangered	Common	0m	On-site
VVP_0125	Plains Grassy Wetland	0125	Wetlands	Freshwater	Victorian Volcanic Plain	Endangered	Common	181m	West
VVP_0083	Swampy Riparian Woodland	0083	Riparian Scrubs or Swampy Scrubs and Woodlands		Victorian Volcanic Plain	Endangered	Naturally Restricted	687m	North

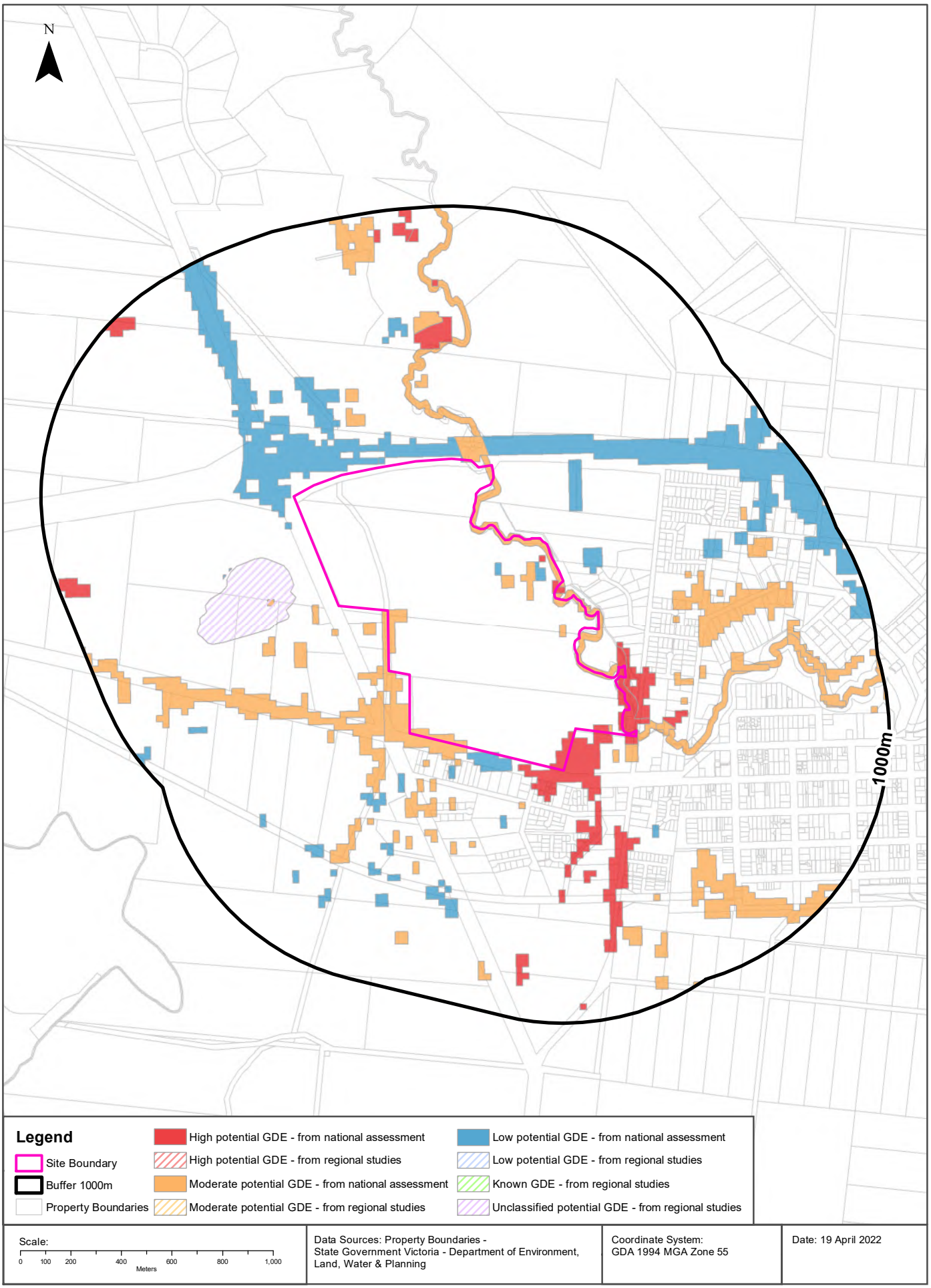
Ramsar Wetlands

What Ramsar wetland areas exist within the dataset buffer?

Map ID	Site Name	Lake Name	Distance	Direction
N/A	No records in buffer			

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Ecological Constraints

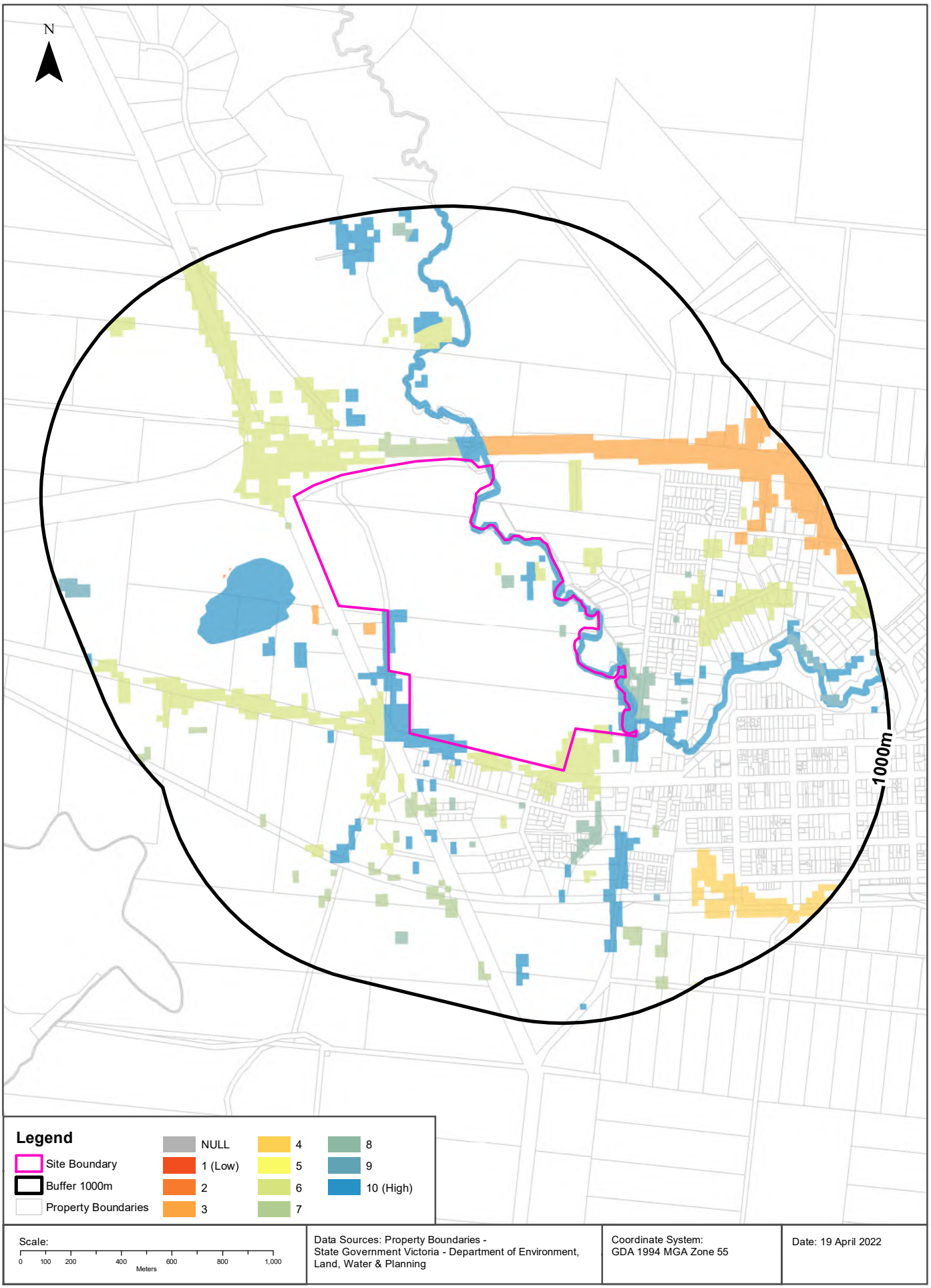
Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Groundwater Dependent Ecosystems Atlas

Type	Name	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Aquatic	WERRIBEE RIVER	Moderate potential GDE - from national assessment	Moderately high plateaus and strike ridges.	River	Fractured rock	0m	On-site
Terrestrial		High potential GDE - from national assessment	Moderately high plateaus and strike ridges.	Vegetation	Unconsolidated sedimentary	0m	On-site
Terrestrial		Moderate potential GDE - from national assessment	Moderately high plateaus and strike ridges.	Vegetation	Unconsolidated sedimentary	0m	On-site
Terrestrial		Low potential GDE - from national assessment	Moderately high plateaus and strike ridges.	Vegetation	Unconsolidated sedimentary	0m	On-site
Terrestrial		High potential GDE - from national assessment	Moderately high plateaus and strike ridges.	Vegetation	Fractured rock	0m	On-site
Terrestrial		Moderate potential GDE - from national assessment	Moderately high plateaus and strike ridges.	Vegetation	Fractured rock	0m	On-site
Terrestrial		Low potential GDE - from national assessment	Moderately high plateaus and strike ridges.	Vegetation	Fractured rock	0m	On-site
Aquatic		Unclassified potential GDE - from regional studies	Moderately high plateaus and strike ridges.	Wetland		131m	West

Inflow Dependent Ecosystems Likelihood

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342



Ecological Constraints

Western Freeway, Geelong-Ballan Road & Old Melbourne Road, Ballan, VIC 3342

Inflow Dependent Ecosystems Likelihood

Type	Name	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Aquatic	WERRIBEE RIVER	10	Moderately high plateaus and strike ridges.	River	Fractured rock	0m	On-site
Terrestrial		10	Moderately high plateaus and strike ridges.	Vegetation	Unconsolidated sedimentary	0m	On-site
Terrestrial		6	Moderately high plateaus and strike ridges.	Vegetation	Unconsolidated sedimentary	0m	On-site
Terrestrial		10	Moderately high plateaus and strike ridges.	Vegetation	Fractured rock	0m	On-site
Terrestrial		6	Moderately high plateaus and strike ridges.	Vegetation	Fractured rock	0m	On-site
Terrestrial		7	Moderately high plateaus and strike ridges.	Vegetation	Fractured rock	0m	On-site
Terrestrial		8	Moderately high plateaus and strike ridges.	Vegetation	Fractured rock	0m	On-site
Terrestrial		8	Moderately high plateaus and strike ridges.	Vegetation	Unconsolidated sedimentary	0m	On-site
Terrestrial		3	Moderately high plateaus and strike ridges.	Vegetation	Fractured rock	39m	North East
Aquatic		10	Moderately high plateaus and strike ridges.	Wetland		131m	West
Terrestrial		2	Moderately high plateaus and strike ridges.	Vegetation	Unconsolidated sedimentary	335m	West
Terrestrial		4	Moderately high plateaus and strike ridges.	Vegetation	Fractured rock	507m	South East
Terrestrial		9	Moderately high plateaus and strike ridges.	Vegetation	Fractured rock	606m	South East
Terrestrial		9	Moderately high plateaus and strike ridges.	Vegetation	Unconsolidated sedimentary	736m	East

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

Location Confidences

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a code is given under the field heading “LC” or “LocConf”. These codes lookup to the following location confidences:

LC Code	Location Confidence
Premise Match	Georeferenced to the site location / premise or part of site
Area Match	Georeferenced to an approximate or general area
Road Match	Georeferenced to a road or rail corridor
Road Intersection	Georeferenced to a road intersection
Buffered Point	A point feature buffered to x metres
Adjacent Match	Land adjacent to a georeferenced feature
Network of Features	Georeferenced to a network of features
Suburb Match	Georeferenced to a suburb boundary
As Supplied	Spatial data supplied by provider

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Attachment 7 Field protocols

1 Soil sampling

1.1 Soil sample collection

Collect all samples on the basis of a prepared sampling plan. Take samples from excavation pits and trenches by using the excavation bucket to scoop a slab of material from the required sample point. Remove the sample from this slab using a stainless steel sample spoon and place into a 250 ml glass sample jar. Immediately cap jar samples with a plastic screw cap. Label each sample and place into a chilled cooler box.

Collect surface samples of unconsolidated soil from the 0.1-0.2m layer using a stainless steel sample spoon. Cap, label and store these samples as described above.

Collect samples from soil bores using the method set out in the work scope for the job. This will be one or more of:

- Geoprobe direct push plastic liners.
- SPT sampler.
- Direct from auger flights.
- Hand auger inserted into the bore.
- Grab sample from the bore cuttings.

1.2 Operation of MiniRAE photoionisation detector

Analyse for organic vapors in the field using a Rae Systems photoionisation detector (PID). This PID is a small, battery operated handheld unit that measures the concentration in ppm of volatile organic compounds in the soil. A small pump in the PID draws the air to be sampled into the PID. Within the PID the air passes over a 10.6 eV gas discharge lamp in an ionisation chamber. The PID measures the amount of ionisation that occurs each second, and from this computes the organic vapor concentration of the air drawn in by the PID. An LED screen on the PID gives a readout of the concentrations at 1 second intervals. The peak reading for each sample is recorded as the organic vapor concentration of that sample. If required, the Rae Systems PID can be used to log data for subsequent downloading to a computer.

The Rae Systems PID is calibrated using 100 ppm isobutylene reference gas. In addition, zero gas calibration is carried out in the field using the supplied calibration adapter and charcoal filter element.

To analyse the organic vapor concentration of sampled soil in the field, place approximately 50 ml volume of the sampled soil into a pre-labelled zip-lock plastic bag, and immediately seal the bag, trapping air inside the bag in the process. Shake the bag to mix the contents then place it in an unchilled cooler box. In this way it is ensured that the field analysis temperature of all samples is similar. After 5 minutes equilibration analyse the sample headspace by opening one corner of the zip-lock and inserting the PID inlet tube directly into the bag. Record the maximum reading obtained.

2 Decontamination

Clean and decontaminate soil sampling equipment after each sample is collected. For soil sampling and groundwater sampling equipment, implement the following decontamination sequence:

- Clean with *Decon* (or similar phosphate free detergent) mixed with tap water.
- Multiple rinse (3 times) with clean tap water.
- Multiple rinse (3 times) with deionised water.
- Clean and decontaminate drill rig after completion of each bore using high pressure water jet.

3 Sample handling

At the conclusion of sample collection check all samples to ensure they are fully and correctly labeled. Take samples in a chilled cooler box to the Connolly Environmental office and refrigerate samples until delivery to the analysing laboratory. Upon return to office, fill out a chain of custody and analysis request form. This form serves two purposes:

- It tracks the movement of the sample batch from the time of sample collection to the time of acceptance by the analysing laboratory.
- It lists the full sample set, and provides the laboratory with all the information needed to carry out the required analysis.

4 QA/QC procedures for sample analysis

Consign samples only to laboratories that have NATA registration and a full quality assurance program, including the use of laboratory duplicates, blanks and handspikes to monitor analysis accuracy, precision and completeness.

As a further check on the reliability of laboratory results, collect field duplicate and split samples at the rate of 1 field duplicate/split set per 20 samples. Send the field duplicate sample to the analysing laboratory and the field split sample to a second NATA registered laboratory which has in place a full quality assurance program.

As a part of preparation of the project report assess the outcomes of the internal laboratory QA/QC measures, and the field duplicate/split analysis program, to test whether the data quality objectives have been met.