# **Glismann Road Development Plan:** *Contaminated Land Study*

Project No: 112064

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## **Prepared For:**

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# **Executive Summary**

Meinhardt has been engaged by Cardinia Shire Council to undertake a Contaminated Land Assessment (Desktop Study) for the Glismann Road Development Plan (GRDP). This study will form part of the suite of documents required to collate the Planning Scheme Amendment for the proposed development area.

The Council site comprises of 22 lots ranging in size from 0.4 hectares to 1.2 hectares along Glismann Road, Mahon Avenue and Old Princes Highway Beaconsfield

The overall objective of the assessment was to identify the potential for contamination within the GRDP study area and assess the nature of potential contamination to be considered during the design and construction phases.

A desktop review was conducted to evaluate current and previous land uses across the study area. An assessment was then made on the potential for environmental contamination based upon the current and historic land use activities and the environmental setting at the GRDP site.

**Note:** Subsequent to Revision C of this report being prepared in 2015, Cardinia Shire Council asked Meinhardt to re-assess the findings of this report for two properties located at 11 Mahon Avenue and 12 Glismann Road, Beaconsfield. The findings of this further investigation have been included as an addendum to the current report and is included in Appendix F. In 2020, Cardinia Shire Council asked Meinhardt to prepare a letter summarising and supporting the methodology used in the Rev C version of this report and next steps for further assessment. This is included in Appendix G. The contents of both the further investigation conducted in 2018 and Meinhardt's response to Council's 2020 query report and the addenda in Appendices F and G should be read concurrently with the current report.

## **Site Contamination**

The GRDP site desktop and historical review identified several potential sources of contamination.

Based on the results of the desktop study and our understanding of the future land uses for the GRDP site, the overall likelihood or risk of contamination being encountered across the majority of the site on properties 3, 4, 5, 6, 7, 9, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21 & 22 is considered 'Low' due to onsite activities which included:

- Rural residential with no significant evidence of miscellaneous outbuildings; and
- Historic agriculture at the site was identified as having been used as grazing paddocks prior to subdivision, with no in-situ farm buildings or sheep dips.

The activities onsite which were identified as having a 'Medium' potential contamination risk included:

- Filling (imported soil) onto property number 2 as highlighted through correspondence with Council; and
- Historic farming operations including buildings, potentially used for the storage of hydrocarbons, insecticides (sheep dips), fungicides, herbicides and pesticides on properties 1, 2, 8, 10 and 17 as observed on historical aerial photographs.

There were no properties that had historical activities onsite considered as having a 'High' potential contamination risk.



## 1 Introduction

## 1.1 Background

Meinhardt has been engaged by Cardinia Shire Council (Council) to undertake a Contaminated Land Assessment (Desktop Study) for the Glismann Road Development Plan (GRDP). This study will form part of the suite of documents required to collate the Planning Scheme Amendment for the proposed development area.

The GRDP area comprises 22 lots ranging in size from 0.4 hectares to 1.2 hectares along Glismann Road, Mahon Avenue and Old Princes Highway Beaconsfield within the jurisdiction of the Cardinia Shire Council.

A site location map is provided as Figure 1, in Appendix A.

**Note:** Subsequent to Revision C of this report being prepared in 2015, Cardinia Shire Council asked Meinhardt to re-assess the findings of this report for two properties located at 11 Mahon Avenue and 12 Glismann Road, Beaconsfield. The findings of this further investigation have been included as an addendum to the current report and is included in Appendix F. The contents of this report and the addendum should be read concurrently, and the findings reported in the addendum supersede references to the 11 Mahon Avenue and 12 Glismann Road properties in the body of this report.

## 1.2 Objectives

The overall objective of this desktop study is to identify the potential for contamination, which may affect the potential re-zoning or development of the GRDP into the future.

The key objectives of this assessment were to conduct a desktop study to:

- Confirm suitability of the GRDP site for sensitive uses and what level of further assessment
  would be required to determine suitability of the site for sensitive uses in accordance with the
  Potentially Contaminated Land General Practice Note No.30 2005 (e.g. Environmental Site
  Assessment);
- Identify data gaps and outline future testing and more detailed investigations (if required).
- Provide a plan of the study area clearly showing the GRDP site and which areas of the site have 'Low', 'Medium' or 'High' potential for contamination;
- Prepare a report of findings that will be used to inform the design of the GRDP (in terms of suitability of land uses nominated for each location/area) and to identify key issues that should be addressed prior to any development works taking place within the GRDP area; and
- Reflect a review of previous Environmental Site assessments that may have been performed within the investigation area.

## 1.3 Scope of Works

## 1.3.1 Desktop Review

A desktop review was conducted to evaluate current and previous land uses across the study area. Assessment was then made on the implications of these current and historic land use activities on potential for environmental contamination.

The desktop review comprised:

- Assessment of historical aerial photography for the precinct and surrounding areas.
- EPA for review of records including the 'Priority Sites Registry' and the list of issued 'Certificates and Statements of Environmental Audit':
- Soil, geology and hydrogeology conditions desktop review, including survey, mapping and other base data as available from relevant authority and agency data sets and maps. This is aimed at identifying potential shortcomings in data coverage;
- Review and summary of Environmental Audit Reports within the vicinity of the study area;
- Compilation of known groundwater borehole/well locations and testing results.
- Groundwater well databases;
- Review of Wetlands databases;



- Historical title search of the property for twenty-two (22) historic titles; and
- Victoria Department of Primary Industries online GIS system.

## 1.3.2 Reporting

Based on the findings of this desktop assessment, Meinhardt prepared this report comprising:

- Summary of findings and recommendations of the desktop review;
- Issues summary and resultant recommendations for management in terms of environmental contamination;
- Outline of possible future testing and more detailed investigations;
- Evaluation (to the extent practicable within limitations) of the suitability of the site for sensitive
  uses and what level of further assessment would be required to determine suitability of the
  site for sensitive uses in accordance with the Potentially Contaminated Land General Practice
  Note No.30 2005;
- Provision of a plan of the study area clearly showing the GRDP site and which areas of the site have 'Low', 'Medium' or 'High' potential for contamination; and
- Drawings/maps, to illustrate existing conditions.

It should be noted that this report is a limited desktop assessment only, and no on-site visual assessment or sampling was performed when first prepared. In 2018, Meinhardt inspected the properties at 11 Mahon Avenue (Property 17) and 12 Glismann Road (Property 12) as part of further investigations conducted on behalf of Council..

## 1.3.3 Legislative Requirements and Relevant Assessment Guidelines

The scope of work for this desktop environmental contamination assessment of the site has been performed in general accordance with requirements outlined in the following documents:

- Victoria Environmental Protection Act 1970;
- Australian and New Zealand Environment and Conservation Council (ANZECC), Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ), 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000. Canberra: ANZECC
- DSE 2005. Potentially Contaminated Land, General Practice Note No30;
- Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile substances, AS 4482.2-1999, Standards Australia;
- Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds, AS 4482.1-2005, Standards Australia;
- National Environment Protection (Assessment of Site Contamination) Measure, 2013;
- State Environment Protection Policy (SEPP), Groundwaters of Victoria, December 1997, No. S160:
- State Environment Protection Policy (SEPP), Prevention and Management of Contaminated Land, June 2002, No. S95; and
- State Environment Protection Policy (SEPP), Waters of Victoria, October 2004, No. S210;

#### 1.3.4 Limitations

Meinhardt have prepared this report for the exclusive use of Cardinia Shire Council, regulatory authorities, Auditors and others approved by the Client for the purpose of desktop contamination assessment for the GRDP site.

The Report must be read with the following caveats and assumptions:

- The limited readership and purposes for which it was intended;
- Its reliance upon information provided to Meinhardt by the Client and others which has not been verified by Meinhardt and over which Meinhardt has no control;



- The limitations and assumptions referred to throughout the Report;
- Other relevant issues which are not within the scope of the Report;
- Subject to the limitations referred to above, Meinhardt has exercised all due care in the preparation of the Report and believes that the information, conclusions, interpretations and recommendations of the Report are both reasonable and reliable;
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- This disclaimer must accompany every copy of the Report, which is an integral document and must be read in its entirety; and
- This report does not remove the requirement for additional direct assessments to be conducted and the information provided is for planning reasons only.



## 2 Site Description

## 2.1 Current Site Use and Zoning

The GRDP area comprises of 22 lots ranging in size from 0.4 hectares to 1.2 hectares along Glismann Road, Mahon Avenue & Old Princes Highway Beaconsfield, within the jurisdiction of the Cardinia Shire Council. The GRDP area consists of zoned Rural Living Schedule 1 & Residential Schedule 1 under the Cardinia Planning Scheme.

For the purpose of this report Meinhardt have referenced each property with a number as shown in Figure 2 of *Appendix A* in order to identify the various lots more easily and accurately. These street addresses and corresponding property numbers which Meinhardt have assigned are provided in Table 2-1 below.

Table 2-1 Street Address & Corresponding Property Number

Street Address	Property Number
1 Glismann Road	1
2 Glismann Road	2
3 Glismann Road	3
4 Glismann Road	4
5 Glismann Road	5
6 Glismann Road	6
7 Glismann Road	7
8 Glismann Road	8
9 Glismann Road	9
10 Glismann Road	10
11 Glismann Road	11
12 Glismann Road	12
13 Glismann Road	13
14 Glismann Road	14
15 Glismann Road	15
16 Glismann Road	16
11 Mahon Avenue	17
13-15 Mahon Avenue	18
111-113 Old Princes Highway	19
115-117 Old Princes Highway	20
119-121 Old Princes Highway	21
123-125 Old Princes Highway	22

Planning Property Reports for the specific properties along Glismann Road are provided in *Appendix B*.

Site location and features are presented on Figure 1 and Figure 2 in Appendix A.



## 2.2 Surrounding Land Use

The land uses directly adjacent to the GRDP area comprise:

- **North** the north of the GRDP is bounded by Timberside Drive with Residential 1 (R1Z) planning zones continuing beyond this followed by Green Wedge A (GWAZ) and Rural Conservation (RCZ) land use areas;
- East the East of the GRDP is bounded Janet Bowman Boulevard and Woods Point Drive.
   R1Z continues to the east as well as Public Park and Recreation (PPRZ) along Oneil Road including the Oneil Road Oval and Beaconsfield Community Centre. Large areas of Urban Growth Zones (UGZ) continue to the east around Whiteside Road; and
- **South –** the south of the GRDP is bounded by the Old Princes Highway with Industrial 1 zoning (IN1Z) around Beaconsfield Avenue and a Low Density Residential Zone (LDRZ) to the south east around Kenilworth Avenue.
- West the west of the GRDP is bounded by Mahon Avenue and Beaconsfield Primary School (PUZ2). Beyond this the land use is predominately R1Z with Commercial (B1Z) and Farming (FZ1) areas to the west and Public Park & Recreation(PPRZ) and Public Conservation & Resource (PCRZ) zones to the north west over the Emerald-Beaconsfield Road;

## 2.3 Topography

The land within the GRPD area is characterised by sedimentary terrain ranges from steep rocky crests and highly dissected steep slopes near the metamorphic aureole, to low undulating hills and broader drainage depressions. Slopes range from 21-35 per cent, with an average gradient of 25 per cent in the steeper hill country, while in the low undulating hills, slopes range from 10-25 per cent, with an average gradient of 16 per cent (*DEPI 1997*).

The GRDP site is characterised by elevated topography in the northern areas at 70m Australian Height Datum (AHD) with a gradual slope downwards to around 50m AHD in the southern section. Regional topography around the GRDP site shows elevated areas to the northeast towards Beaconsfield Upper and low-lying areas to the southwest in the direction of Cranbourne North and further towards Westernport.

A contour and drainage map showing topography within and surrounding GRDP site is provided as Figure 3, in *Appendix A*.

## 2.4 Geology

The Cranbourne 1:63,360 Geological Map (Geological Survey of Victoria, 1967) and the GeoVic Geology Mapping Tool indicate that the geology of the GRDP is split into two main classifications. The south of the site is Recent Quaternary geology comprising of silt, sand, clay and occasional gravel. The north of the GRDP site is Silurian sediment comprising of sandstone, siltstone, mudstone and shale.

Details of the geology at GRDP and the surrounding area are illustrated in Figure 4, in Appendix A.

## 2.5 Soil Characteristics

The Australian Soil Resource Information (ASRIS) map identifies the soils beneath the GRDP to be Dermosols, with a medium to heavy clay content of greater than 45% and a subsoil pH of 4.8 - 5.5, and a topsoil pH of 3.0 - 4.8 (refer to Figure 5, Appendix A).

Dermosols in the western Gippsland region occur on Silurian sediments ranging from steep rocky crests, highly dissected steep slopes, low undulating hills and broader drainage depressions. Modification of soils present has occurred since early European settlement where cultivation has removed the topsoil and mixed it with subsoil. Weak stony yellow Dermosol soil occurs where soil depth increases, especially when moderate slopes are encountered (*DEPI 1997*).

## 2.6 Hydrology and Hydrogeology

Information regarding the hydrology and hydrogeology of the site and surrounding area is based solely on the desktop study. No direct evaluation of groundwater chemistry or groundwater elevation was performed as part of this assessment.



#### 2.6.1 Surface Water Assessment

According to the Westernport Groundwater Catchment Map (2012) the GRDP site is located within the Westernport Catchment. Surface water from the GRDP will generally move in a south to south westerly direction towards the Cardinia Creek (Cardinia Drain). Topography maps also show a sloping of the GRDP to the southwest in the direction of Cardinia Creek, which is located approximately 900m to the west from the entrance to the GRDP. The Westernport Groundwater Catchment Map (2012) shows Cardinia Creek continues in a southerly direction before flowing into the Lower Toomuc Creek and eventually into Western Port between Tooradin and Koo Wee Rup.

Based on analysis of topography and groundwater maps it can be assumed that surface water flow in local area surrounding the GRDP is from northeast to southwest, while on a regional scale the overall direction of flow is from north to south.

Details of the GRDP site topography and interaction with surface waters is illustrated in Figure 3, in *Appendix A*.

#### 2.6.2 Groundwater Assessment

With reference to the Department of Sustainability and Environment (DSE) Westernport Groundwater Catchment Map (2012) and the Department of Minerals and Energy (DME) Groundwater Basins Map (1984) the groundwater beneath the GRDP site occurs as part of the Westernport Basin. The aquifer lithology beneath the GRDP consists of fractured and weathered indurated sediments, metasediments and intrusives.

DSE Melbourne Groundwater map and DEPI groundwater resource reports (*Appendix C*) show salinity at the site is expected to fall between a range of 1001 - 3500 mg/L Total Dissolved Solids (TDS) with an aquifer depth between 5m - 10m. The Groundwater State Environment Protection Policy (SEPP) (1994) classifies groundwater in this TDS range as category B suitable for maintenance of ecosystems, potable mineral water supply, agriculture parks and gardens, stock water, industrial water use primary contact recreation and buildings & structures.

## 2.6.3 Groundwater Resources and Usage

The DPI website Groundwater Monitoring Map identified that there are 17 registered groundwater bores located within a 2km radius of the GRDP site. None of these bores are located within the boundaries of the GRDP site. Details of the groundwater bores are provided in Table 2.1 below.

Table 2-2 Groundwater Bores within 2km radius of GRDP

Bore ID	Easting	Northing	Date Completed	Bore Depth (mbgl)	Monitoring Status	Lithology
130951	357813.2	5788644	7/2/1997	71.0	Stock & Domestic	Fractured Mudstone
301806	355713.2	5787044	5/17/1974	1.22	Non- Groundwater	N/A
301807	355893.2	5787064	5/17/1974	2.44	Non- Groundwater	N/A
301808	356393.2	5787004	5/17/1974	2.44	Non- Groundwater	N/A
301809	356273.2	5788384	5/24/1974	3.35	Non- Groundwater	N/A
301873	355903.2	5787064	1/24/1975	7.32	Non- Groundwater	N/A
301874	355803.2	5787024	1/24/1975	7.32	Non- Groundwater	N/A
87419	357293.2	5789504	6/30/1972	4.87	Stock & Domestic	Sand
87433	357614.2	5788914	11/26/1977	28.23	Stock & Domestic	Sandstone
87437	358375.2	5788100	4/18/1980	31.50	Stock & Domestic	Mudstone
WRK046845	355783	5787600	N/A	40.00	N/A	N/A



Bore ID	Easting	Northing	Date Completed	Bore Depth (mbgl)	Monitoring Status	Lithology
WRK047151	356540	5787740	10/22/2008	72.00	Irrigation	Siltstone
WRK062713	359420	5787760	8/29/2011	5.00	Observation	Clay
WRK062717	359425	5787761	8/29/2011	5.00	Observation	N/A
WRK062718	359420	5787760	8/29/2011	5.00	Observation	N/A
WRK966914	356766.2	5786625	2/24/2005	105.00	Domestic & Stock	N/A
WRK970805	357250	5787255	7/25/2005	7.00	Domestic & Stock	N/A

A list of the installation details for the registered boreholes is summarised in *Appendix C*, and a map illustrating the location of the bores is shown in Figure 6, *Appendix A*.

## 2.7 Wetlands

Wetland classification and mapping was undertaken across Victoria from 1980 onwards culminating in a State-wide Wetland Inventory. The inventory lists approximately 13,000 naturally occurring wetlands (over one hectare in size) covering about 635,000 hectares.

These have been classified into six categories:

- Freshwater meadows;
- Shallow freshwater marshes;
- Deep freshwater marshes,
- Permanent open freshwater wetlands,
- Semi-permanent saline wetlands; and
- Permanent saline wetlands.

The online Index of Wetland Condition (IWC) mapping tool identified that no wetlands are located within the GRDP site. There is an area in the northwest of site classified as a watercourse/permanent water feature shown in Figure 6, *Appendix A*; however, this is not considered a wetland area.



## 3 Records Review

#### 3.1 Certificates of Title

Land ownership records were reviewed to obtain evidence of previous land uses on the various parcels of land, as the occupation of land owners is often included. While an occupation does not necessarily denote land use for a property, it can give an indication of potential land use.

#### 3.1.1 Current Titles

Current certificates of title for property with the GRDP were obtained from the Landata website. Review of current title information found no ownership entries of environmental concern. Copies of current (2014) certificates of title are presented in *Appendix B*.

#### 3.1.2 Historic Titles

Historic certificates of title were obtained from the Landata website, for all properties within the GRDP.

Review of historic title information found some ownership entries of environmental concern, which are analysed in Table 3-1 below. Copies of historic certificates of title are presented in *Appendix B*.

Table 3-1 Summary of Significant Title Search Information

Property Number	Street Address	Significant Past or Present Usage		
1 – 16	Glismann Rd Properties	<ul> <li>Owned by smallgoods manufacturer 1915</li> <li>Site has been historically used for grazing farmland since at least 1918</li> </ul>		
17 and 18	Mahon Ave Properties	<ul> <li>Owned by National Bank of Australia from 1892 – 1897</li> <li>Site has been historically used for grazing farmland since at least 1915</li> </ul>		
19 - 22	Old Princes Hwy Properties	<ul> <li>Owned by smallgoods manufacturer 1915</li> <li>Site has been historically used for grazing farmland since at least 1918</li> </ul>		

Review of historical titles indicates the majority of properties comprising the GRDP were used as grazing farmland since the late 1800's, until current sub-division for rural residential purposes in approximately 1923. Land belonging to Volume 4726 Folio 038 which incorporates numbers 1-16 & 19-22 of the GRDP was transferred to William John Smith; a smallgoods manufacturer in 1915 however there is no further evidence to suggest the property was used for this purpose. The historical titles did not identify any other significant contamination sources from within the GRDP.

## 3.2 Historical Aerial Photography

Aerial photographs dating back to 1963 were obtained from the Land Victorian Aerial Photography site in Laverton (Victoria), Cardinia Shire Council and from a GIS base map model. These aerial photos were reviewed to ascertain information about the historic land use of the area within and surrounding GRDP site.

A summary of notable observations from each of the aerial photographs are contained within Table 3.2. Copies of the historical aerial photographs are collated in *Appendix D*.



Table 3-2 Review of Historical Aerial Photographs

Date	On-Site Description	Off-Site Description
1963	The majority of the properties within the GRDP site appear to be rural residential or used as grazing farmland. No cropping is evident from the photograph. One property within the GRDP off Mahon Avenue appears to be a poultry farm.	Surrounding land use is consistent with that within the GRDP with rural or farmland adjoining the site as well as some crop farming to the east and heavily vegetated forest areas to the north and north east.
1972	The majority of the GRDP site still appears to rural residential land with a significant increase in the number of permanent structures within the site. The property off Mahon Avenue remains used as a poultry farm.	Surrounding land use changes are seen with the clearing of the forested area to the north of the GRDP as well as increased development to the south as well as less evidence of crop farming to the east.
1976	Properties within the GRDP continue to be used as rural living with little change from previous land use or structures on site.	Surrounding land use is similar to previous with increased development to the west of the site around Mahon Avenue and some commercial developments along the Old Princes Highway with what appears to be a service station adjacent to the GDRP.
1984	Properties within the GRDP continue to be used as rural living with little change from previous land use or structures on site.	Surrounding land use changes are seen with increased residential or commercial development along Mahon Avenue to the west and along the Old Princes Highway to the south west of the GRDP. Further south there appears to be industrial developments and the St. Francis Xavier College constructed in 1978 on Beaconsfield Avenue.
1986	Properties within the GRDP continue to be used as rural living with little change from previous land use or structures on site.	Surrounding land use is similar to previous with more land cleared of vegetation on properties to the east while there is increased residential land use to the north west of the GRDP.
1992	Properties within the GRDP continue to be used as rural living with little change from previous land use or structures on site.	Surrounding land use is similar to previous with further development to the west of the GRDP with an extension of residential land use along Mahon Avenue.
2002	Properties within the GRDP continue to be used as rural living with little change from previous land use or structures on site. The property on Mahon Avenue previously used as a poultry farm has been cleared of major structures	Properties bordering GRDP on Old Princes Highway have been converted to residential and there has been increased industrial development to the south. Service station site on the corner of Old Princes Highway and Beaconsfield Avenue appears is now a commercial site.
2010	Properties within the GRDP continue to be used as rural living with little change from previous land use or structures on site	Little changes to the south of the GRDP however new residential development has taken place on subdivided land bordering the north of the site.



## 3.3 Heritage Study Review

A review of the Cardinia Local Heritage Study (2011) showed no areas of historical significance relating to possible environmental contamination within the GRDP. The closest heritage place to the GRDP site is the Wood Street Residential Precinct consisting of residential properties 46-56 Wood Street in Beaconsfield approximately 1km away.

## 3.4 Historic maps

## 3.4.1 Melbourne Metropolitan Board of Works

A search of The State Library of Victoria archives recovered Township Plan maps for Beaconsfield belonging to the Melbourne Metropolitan Board of Works (MMBW) from 1880 and 1881. Both MMBW maps show the area around GRDP to be unplanned or subdivided indicative of grazing farmland at this time.

Copies of MMBW Beaconsfield Township Plan maps are shown in Appendix D.

#### 3.4.2 Beaconsfield Action Area Plan

A review of the Beaconsfield Action Area Plan Map shows potentially contaminated land in the Beaconsfield area from 1990. The map shows there are several potentially contaminating land uses found within and around the GRDP which are listed in Table 3.3 below. A copy of the Beaconsfield Action Area Plan Map is provided in *Appendix D*.

Table 3-3 Beaconsfield Action Area Plan Land Uses 1990

Location	Land Use
12 Glismann Rd	Truck Depot
11 Mahon Ave	Poultry Farm
107 Old Princes Hwy	Nursery
124 Old Princes Hwy	Petrol Filling Station



## 4 Contamination Potential

## 4.1 Potential for Contamination from Off Site Sources

#### 4.1.1 Environmental Protection Authority

A search of EPA interaction portal records, including the 53X Statement category and the list of issued Certificates and Statements of Environmental Audit, was performed to identify the subject site or properties in the vicinity that have been listed as having been issued with a clean-up notice or pollution abatement notice (*relative to land and/or groundwater*) or undergone a statutory environmental audit. No locations were identified within the GRDP site or within a 5 km radius of the site. Details for properties issued with a Certificate or Statement of Environmental Audit and approximate distance from the site are detailed in Table 4.1 below.

Table 4-1 Closest EPA Recorded Sites to GRDP Site.

Transaction No.	CARMS No.	Date Completed	Locality	Address	Approx. Distance to Site	Issue
8001812	54149 - 1	31/8/2005	Pakenham	1043 Clearwater Drive, Pakenham	6.76 km	Arsenic contamination & buried refuse
8000943	38189 - 1	08/10/1999	Pakenham	11 – 15 Main Street, Pakenham	9.21 km	Phenols in shallow soils

#### 4.1.2 Historic Potential for Contamination from Off-Site Contamination Sources

A review of historical aerial photographs from the DSE as well as the Beaconsfield Council Land Use Map (1990) shows several potential sources for off-site contamination in the vicinity of the GRDP, listed below in Table 4.2.

Table 4-2 Potential Off-Site Contamination Sources

Address	Year	Land Use	Approx. Distance from Site	Direction from Site	Potential Contamination
107 Old Princes Hwy	1990	Service Station	110m	South	Underground storage tanks / contamination from TPH, PAH, BTEX & lead
124 Old Princes Hwy	1990	Nursery	Bordering	South	Pesticides & fertilisers in cultivated/storage areas



## 4.2 Potential for Contamination from On-Site Sources

A review of historical aerial photographs from the DSE as well as the Beaconsfield Action Area Plan Map (1990) shows several potential sources for on-site contamination. Table 4.3 shows potential on-site contamination sources within the GRDP.

Table 4-3 Potential On-Site Contamination Sources

Address	Land Use	Potential Contamination
2 Glismann Rd	Fill Deposit	Heavy Metals, TPH, BTEX, PAH
12 Glismann Rd	Truck Depot	Heavy Metals, TPH, BTEX, PAH
11 Mahon Ave	Poultry Farm	Pesticides, Herbicides, Fertilisers, Faecal Coliforms

## 4.2.1 Fill Material (2 Glismann Road)

Consultation with Council revealed that fill from a neighbouring development (approximately 3.2km north east of the GRDP) was placed onto some properties within the GRDP. Owners of property at 2 Glismann Road have confirmed they agreed to have fill placed on their property, as did other Glismann Road property owners however it is unknown which other properties have been affected or what type of fill was brought into the GRDP.

Correspondence between Council and land owners of 2 Glismann Road is provided in Appendix E.

## 4.3 Summary of Historic Contamination Potential

The historical data search including EPA records, aerial photograph review and information from Council provided limited information regarding potential sources of contamination on the site.

However, upon assessment of the above data several sources of environmental contamination have been identified both within, and adjacent to the GRDP. These sources of contamination comprise, but are not limited to:

- Truck Depot;
- Poultry Farm;
- Placement of Fill Material;
- Market Garden; and
- Petrol Station.



## 5 Environmental Risk Assessment

#### 5.1 Introduction

This Environmental Risk Assessment (ERA) is based on the contamination methodology:

## Source - Pathway - Receptor

**Contamination Source:** A substance that has the potential to cause harm to environmental

receptors. In a broader sense sources can include ground conditions, for example redundant footings in the ground, which have the

potential to impact on redevelopment proposals.

Contamination Pathway: The route by which the source is brought into contact with the

receptor. This can include the transport of contamination via water (surface and groundwater), wind borne dust, vapours, excavation

and deposition.

Contamination Receptor: Human beings, other living organisms, physical systems and built

structures that could be affected by the source. A receptor will only be affected if a pathway from the source to the receptor is present. Groundwater and surface water systems can be considered as receptors in their own right as their quality is regulated by statutory bodies, as well as being pathways for contaminant migration to other

receptors.

The **source-pathway-receptor** relationship allows an assessment of potential environmental risks to be determined, based on the nature of the source, degree of exposure of a receptor to a source and the sensitivity of the receptor. On this basis an assessment is made of the environmental liabilities associated with the risk. These can be expressed for example, in terms of additional costs associated with site redevelopment or remedial measures, the potential for costs, fines or penalties imposed for breaches of environmental legislation or third-party claims, and loss of land value.

The identified potential environmental liabilities about contamination have been evaluated with respect to the potential impacts on:

- Surface water features;
- Groundwater bodies;
- Soils and subsoils;
- Sensitive sites and ecosystems;
- Construction and maintenance workforce;
- Current and future site users; and
- Current and future adjacent site users.



## 5.2 Contamination Concerns within and surrounding the GRDP Site

Sources of potential contamination were identified within the GRDP site, and the following contaminants were identified as having the potential to be on-site:

- Petroleum hydrocarbons total petroleum hydrocarbons (TPH); Benzene, Toluene, Ethylbenzene and Xylenes (BTEX); and Polycyclic Aromatic Hydrocarbons (PAH);
- · Heavy metals (lead and chromium);
- Fertilisers, pesticides, fungicides and herbicides (arsenic (sheep dips), organochlorines, organophosphates, synthetic pyrethroids);
- Waste animal products buried animals, manure mounds and slurry pits;
- Asbestos; and
- Volatile and semi-volatile organic hydrocarbons.

## 5.3 Contaminant Pathways within and Surrounding the GRDP Site

The potential contaminant pathways that can impact on both human health and the environment include:

- Topographic and localised site drainage to nearby surface water features;
- Seepage of contaminants to groundwater;
- Particle (dust) release through the air;
- · Vapour inhalation of contaminants; and
- Direct contact with contaminants in soil.

The potential exists for the migration of contaminants to or from the GRDP site via stormwater runoff to local surface water features, by seepage through the subsoil into groundwater, as an airborne release such as dust or *vapour* (*usually from demolition and excavation activities*), and by dermal absorption caused by direct contact between skin with contaminated material.

Contaminated soil has the potential to migrate during transportation or movement of stockpiles to either on-site or offsite locations.

At the GRDP site the dispersal and migration of chemical contaminants (of concern) will generally be controlled by sub-surface conditions (soil type/permeability and groundwater levels) along with physical and chemical properties of individual contaminants and climatic conditions.

Other factors that may impact on the migration of contaminants include:

- Erosion of disturbed and cleared areas that contribute to sediment transport and deposition:
- Natural erosion of undisturbed soils along waterways and other areas that contribute to sediment transport and deposition;
- Stripping of topsoil material;
- Removal or damage to aquitard layers resulting in contamination of lower groundwater aquifers.
- On-site movement of light vehicles and machinery that will contribute to shallow soils being disturbed;
- The presence of drainage culverts forming preferential migration pathways down gradient of identified Areas of Environmental Concern (AECs); and
- Precipitation rates.



## **5.4** Potential Receptors

Potential receptors identified on the site and in the surrounding areas include:

- · Residential properties on and off site;
- Agricultural properties on and off site;
- Construction workers;
- Watercourses on and off site; and
- Groundwater.

Potential receptors and pathways from identified sources are summarised in Table 5.1.

Table 5-1 Potential Contaminant Source, Receptors & Pathways

Source	Receptor	Pathway	
	Site Users	Dermal Contact, Ingestion & Inhalation	
Soil	Adjacent Site Uses	Dermal Contact, Ingestion & Inhalation	
	Future Site Users (including site users during construction)	Dermal Contact, Ingestion & Inhalation	
	Perched Water table	Leaching in/from topsoil, Transport in Perched Groundwater.	
Groundwater	Unconfined Aquifers	Leaching from Soils, Transport in Perched Groundwater.	
	Confined Aquifers	Damage to Aquitard, Leaching from Soils, Transport from upper tier Groundwater	
	Drain/Creek	Transport in Perched Groundwater, Surface Run-off	
Surface Water	River	Transport in Perched Groundwater, Surface Run-off, Tributary Creek or Drain. Flooding.	
	Inundation Area/ Pooled Water / Farm Dams / Wetlands	Transport in Perched Groundwater, Surface Run-off, Tributary Creek or Drain. Flooding.	
Ecosystems	Plants	Uptake through Soil, Direct Contact.	
– Flora & Fauna	Animals (Wild & Domestic)	Direct Contact, Ingestion.	
	Telstra Pits	Integrity Degradation, Water Migration Vapour Migration	
Sub-Surface Services	Culverted Drains	Integrity Degradation, Water Migration Vapour Migration	
	Gas Pipelines	Integrity Degradation, Water Migration Vapour Migration	



## 5.5 Risk Assessment

A qualitative risk assessment was conducted considering the sources of potential contamination identified above, and the series of potential receptors identified, together with linking pathways. Risk matrixes are based on the AS/NZS ISO 31000: 2009, *Risk Management Principles and Guidelines, Standards Australia and Standards New Zealand and the Australian Standards Handbook for Environmental Risk Management – Principles and Processes* (HB 203:2006). These linkages are summarised in Table 9, where the associated contamination risk is assessed for a given source on a particular receptor. This assessment also takes account of specific chemicals of concern or groups of similar chemicals of concern. It is implicit that where a source has been identified during the desktop study, it has been included within the list, conversely, where the findings of the desktop study have not encountered a potential source it has not been included unless there is good reason to suspect that it may be present but is yet unidentified.

In Table 12, a two-stage assessment has been carried out based on the identified sources, pathways and receptors. Initially, the column designated as 'Potential Consequence of Source – Receptor Linkage', gives an indication of the sensitivity of a given receptor to a source or contaminant of concern under consideration. It is a 'Worst Case Scenario Classification' and is based on full exposure from the linkage being examined. The derivations of classes used to rank this particular aspect are presented in Table 5.2.

Table 5-2 Derivation of Risk

Classification	Human Health	Ground/Surface Water	Ecological	Built Environment
Severe	Irreversible damage to human health, or death.	Substantial contamination of sensitive receiving waters.	Significant change to one or more species, or ecosystem.	Irreparable damage to buildings, structures or the environment.
Moderate	No long term/permanent health effects to humans.	Substantial contamination of non-sensitive water resources or small-scale contamination of sensitive water resources.	Change to population densities of non-sensitive species.	Damage to sensitive buildings, structures or the environment.
Mild	Short term health effects to humans.	Substantial contamination to non-sensitive water resources.	Some change to population densities but with no negative effects on the function of the ecosystem.	Easily reparable effects of damage to buildings and or structures.
Negligible	No measurable health impacts on humans.	Insubstantial contamination to non-sensitive water resources.	No significant changes to population densities in the environment or in any ecosystem.	Very slight, non- structural, damage or cosmetic harm to buildings or structures.

Subsequently, in the column entitled 'Likelihood of Source-Receptor Linkage', an assessment is made of the probability of the selected source and receptor being linked by the identified pathway. This assessment is ranked based on site-specific conditions as follows:

•	Very unlikely	(0  to  < 5%)
•	Unlikely	(5 to 45%)
•	Possible	(45 to 55%)
•	Likely	(55 to 95%)
•	<b>Almost Certain</b>	(95 to 100%)



The 'Risk Classification' column is an overall assessment of the actual risk, which considers the likely effect on a given receptor, taking account of both of the previous rankings (i.e. consequence and likelihood). The risk classifications are assigned using the consequence/likelihood matrix detailed in Table 5.3 below.

Table 5-3 Consequences / Likelihood Matrix

Consequences	Likelihood		
Extreme	There is a high probability that severe harm to a designated receptor could arise from an identified source, without appropriate remedial action.		
High	A designate receptor is likely to experience significant harm from an identified source, without remedial action.		
Medium	It is possible that harm could arise to a specific receptor, but it is unlikely that such harm would be significant.		
Low	It is possible that harm could arise to a designated receptor, though it is likely to be mild.		
Negligible	The presence of the identified source does not give rise to the potential to cause significant harm.		

On this basis, the overall risk is ranked as outlined in Table 5.4 below.

Table 5-4 Overall Risk Matrix

			Likelihood		
Potential Consequence	Very Unlikely	Unlikely	Possible	Likely	Almost Certain
Severe	Low	Low	Medium	High	Extreme
Moderate	Negligible	Low	Medium	Medium	High
Mild	Negligible	Low	Low	Medium	Medium
Negligible	Negligible	Negligible	Negligible	Low	Low
Source: Risk Matrix based on AS/	NZS ISO 31000: 20	09			

Based on the results of the desktop study and our understanding of the future land uses for the GRDP site, the overall likelihood or risk of contamination being encountered across the majority of the site is considered **'Low'**.

A breakdown of the likelihood or risk of contamination being encountered in on-site structures, soil and/or groundwater has been presented in Table 5.5 below.



Table 5-5 Qualitative Risk Assessment for the GRDP Site

Risk Classification	Medium		Medium	Medium	Medium Low Medium	Medium Medium Medium	Medium Medium Low	Medium Medium Low Low	Medium  Low  Low  Low
Likelihood of Source - Receptor I Linkage	Possible		Possible	Possible Unlikely	Possible Unlikely Possible	Possible Unlikely Possible Possible	Possible Possible Possible Unlikely	Possible  Possible  Possible  Unlikely  Unlikely	Possible Possible Unlikely Unlikely Possible
Consequence of Source – Receptor Linkage	Severe		Severe	Severe	Severe Severe Moderate	Severe Severe Moderate	Severe Severe Moderate Moderate	Severe Severe Moderate Mild Mild	Severe Severe Moderate Mild Mild Severe
Potential Effect	Toxic, Carcinogenic, Hazardous to Human Health		Toxic, Carcinogenic, Hazardous to Human Health	Toxic, Carcinogenic, Hazardous to Human Health Toxic, Carcinogenic, Hazardous to Human Health	Toxic, Carcinogenic, Hazardous to Human Health Toxic, Carcinogenic, Hazardous to Human Health Groundwater Contamination	Toxic, Carcinogenic, Hazardous to Human Health Toxic, Carcinogenic, Hazardous to Human Health Groundwater Contamination Surface Water Contamination	Toxic, Carcinogenic, Hazardous to Human Health Toxic, Carcinogenic, Hazardous to Human Health Groundwater Contamination Surface Water Contamination Toxic, Phytotoxic	Toxic, Carcinogenic, Hazardous to Human Health Toxic, Carcinogenic, Hazardous to Human Health Groundwater Contamination Surface Water Contamination Toxic, Phytotoxic Physical and Chemical Damage to Structures	Toxic, Carcinogenic, Hazardous to Human Health Toxic, Carcinogenic, Hazardous to Human Health Groundwater Contamination Surface Water Contamination Toxic, Phytotoxic Physical and Chemical Damage to Structures Toxic, Carcinogenic, Hazardous to Human Health
Pathway	Dermal Contact, Ingestion, and Inhalation	Dermal Contact	Inhalation	Ingestion, and Inhalation and Inhalation Inhalation Inhalation Inhalation	Ingestion, and Inhalation Dermal Contact, Ingestion, and Inhalation Permeation through Soil Profile	Ingestion, and Inhalation Dermal Contact, Ingestion, and Inhalation Permeation through Soil Profile Perched Groundwater Flow, Surface Runoff.	Ingestion, and Inhalation Dermal Contact, Ingestion, and Inhalation Permeation through Soil Profile Perched Groundwater Flow, Surface Runoff. Leaching and Uptake	Ingestion, and Inhalation Dermal Contact, Ingestion, and Inhalation Permeation through Soil Profile Groundwater Flow, Surface Runoff. Leaching and Uptake Permeation through Soil Profile	Ingestion, and Inhalation Dermal Contact, Ingestion, and Inhalation Permeation through Soil Profile Groundwater Flow, Surface Runoff. Leaching and Uptake Dermal Contact, Ingestion, and Inhalation
Critical Receptor	Human (Current Site Users)	Human (Future Site Users including	workers)	acent	acent	acent r	acent r er	er er	er er rent
Contaminant	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos		Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos		so so	SO SO SO	S S S S S S	SO SO SO SO SO
Source / Contaminating Activity	Equipment Storage & Maintenance	Equipment Storage & Maintenance		Equipment Storage & Maintenance	Equipment Storage & Maintenance Equipment Storage & Maintenance	Equipment Storage & Maintenance Equipment Storage & Maintenance Equipment Storage & Maintenance	Equipment Storage & Maintenance Equipment Storage & Maintenance Equipment Storage & Maintenance Equipment Storage & Maintenance & Maintenance	Equipment Storage & Maintenance & Maintenance & Maintenance & Maintenance Equipment Storage & Maintenance Equipment Storage & Maintenance	Equipment Storage & Maintenance Equipment Storage & Maintenance and Fuel Storage and Fuel Storage





	Contaminant	Critical Receptor	Pathway	Potential Effect	Potential Consequence of Source – Receptor Linkage	Likelihood of Source – Receptor Linkage	Risk Classification
Fuelling Operations and Fuel Storage	Heavy Metals, TPH, BTEX, PAH	Human (Adjacent Site Users)	Dermal Contact, Ingestion, and Inhalation	Toxic, Carcinogenic, Hazardous to Human Health	Severe	Unlikely	Low
Fuelling Operations and Fuel Storage	Heavy Metals, TPH, BTEX, PAH	Groundwater	Permeation through Soil Profile	Groundwater Contamination	Moderate	Possible	Medium
Fuelling Operations and Fuel Storage	Heavy Metals, TPH, BTEX, PAH	Surface Water	Perched Groundwater Flow, Surface Runoff.	Surface Water Contamination	Moderate	Possible	Medium
Fuelling Operations and Fuel Storage	Heavy Metals, TPH, BTEX, PAH	Flora & Fauna	Leaching and Uptake	Toxic, Phytotoxic	Moderate	Unlikely	Low
Fuelling Operations and Fuel Storage	Heavy Metals, TPH, BTEX, PAH	Services / Infrastructure	Permeation through Soil Profile	Physical and Chemical Damage to Structures	Mild	Unlikely	Low
Farming Activities & Operations (including, stock yards, use of herbicides and pesticides, etc)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Human ( <i>Current</i> Site Users)	Dermal Contact, Ingestion, and Inhalation	Toxic, Carcinogenic, Hazardous to Human Health	Severe	Possible	Medium
Farming Activities & Operations (including, stock yards, use of herbicides and pesticides, etc)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Human (Future Site Users including construction workers)	Dermal Contact, Ingestion, and Inhalation	Toxic, Carcinogenic, Hazardous to Human Health	Severe	Possible	Medium
Farming Activities & Operations (including, stock yards, use of herbicides and pesticides, etc)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Human (Adjacent Site Users)	Dermal Contact, Ingestion, and Inhalation	Toxic, Carcinogenic, Hazardous to Human Health	Severe	Unlikely	Low

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Source / Contaminating Activity	Contaminant	Critical Receptor	Pathway	Potential Effect	Potential Consequence of Source – Receptor Linkage	Likelihood of Source – Receptor Linkage	Risk Classification
Farming Activities (including, stock yards, use of herbicides and pesticides, offal pits, etc)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Collforms	Groundwater	Permeation through Soil Profile	Groundwater Contamination	Severe	Likely	High
Farming Activities & Operations (including, stock yards, use of herbicides and pesticides, etc)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Surface Water	Perched Groundwater Flow, Surface Runoff.	Surface Water Contamination	Severe	Likely	High
Farming Activities & Operations (including, stock yards, use of herbicides and pesticides, etc)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Flora & Fauna	Leaching and Uptake	Toxic, Phytotoxic	Moderate	Possible	Medium
Farming Activities & Operations (including, stock yards, use of herbicides and pesticides, etc)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Services / Infrastructure	Permeation through Soil Profile	Physical and Chemical Damage to Structures	Mild	Unlikely	Low
Buildings & Structures (Including possible Septic Tanks & backfill material)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms	Human ( <i>Current</i> Site Users)	Dermal Contact, Ingestion, and Inhalation	Toxic, Carcinogenic, Hazardous to Human Health	Severe	Possible	Medium
Structures (Including possible Septic Tanks & backfill material))	Lead, Asbestos, Hazardous, Material, Faecal Coliforms	Human (Future Site Users including construction workers)	Dermal Contact, Ingestion, and Inhalation	Toxic, Carcinogenic, Hazardous to Human Health	Severe	Unlikely	Low





Source / Contaminating Activity	Contaminant	Critical Receptor	Pathway	Potential Effect	Potential Consequence of Source – Receptor Linkage	Likelihood of Source – Receptor Linkage	Risk Classification
Structures (Including possible Septic Tanks & backfill material))	Lead, Asbestos, Hazardous, Material, Faecal Coliforms	Human (Adjacent Site Users)	Dermal Contact, Ingestion, and Inhalation	Toxic, Carcinogenic, Hazardous to Human Health	Severe	Possible	Medium
Structures (Including possible Septic Tanks & backfill material))	Lead, Asbestos, Hazardous, Material, Faecal Coliforms	Groundwater	Permeation through Soil Profile	Groundwater Contamination	Severe	Likely	High
Structures (Including possible Septic Tanks & backfill material))	Lead, Asbestos, Hazardous, Material, Faecal Coliforms	Surface Water	Perched Groundwater Flow, Surface Runoff.	Surface Water Contamination	Severe	Likely	High
Structures (Including possible Septic Tanks & backfill material))	Lead, Asbestos, Hazardous, Material, Faecal Coliforms	Flora & Fauna	Leaching and Uptake	Toxic, Phytotoxic	Moderate	Unlikely	Low
Structures (Including possible Septic Tanks& backfill material)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms	Services/ Infrastructure	Permeation through Soil Profile	Physical and Chemical Damage to Structures	Mild	Unlikely	Low



## 6 Discussion

The assessment of the GRDP site has identified several potential sources of contamination and related contaminants of concern. Table 6-1 below summarises the potential contaminating activities and provides a classification of risk for potential contamination to soils, surface water and groundwater in every property within the GRDP site, based upon the outcomes of the Qualitative Risk Assessment detailed in Section 5.

**Note:** Table 6-1 has been updated based on the completion of site inspections at two (2) properties in October 2018, as detailed in Appendix F.

Table 6-1 Potential Contamination Risk Assessment

Property Number	Location	Potential Contaminating Activity	Contaminants of Potential Concern	Risk Classification	Comments
		Historical Farming Activities & Operations	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural
	1	Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos		residential with storage sheds and other structures observed from aerial photographs.
1	Glismann Road	Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms	Medium	Therefore, Meinhardt considers that the potential risk associated with historical farming activity & the current number of storage & maintenance structures, potentially associated with current agricultural or other activity at this location as 'Medium'.
	2	Fill Material Deposits	Heavy Metals, TPH, BTEX & PAH		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used. Current land use is rural residential.
2	2 Glismann Road	Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Medium	Section 4.2.1 highlights that Council sanctioned deposit of fill material from nearby development onto this site. Therefore, Meinhardt deems the potential risk associated
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		historical farming activity & deposited fill material at this location as 'Medium'.



Property Number	Location	Potential Contaminating Activity	Contaminants of Potential Concern	Risk Classification	Comments
		Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural
3	3 Glismann Road	Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos	Low	residential with no evidence of current potentially contaminating activities.
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the potential risk associated with historical farming at this site is 'Low'
4	4 Glismann Road	Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Low	The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural residential with no evidence of current potentially contaminating activities.
	Rodu	Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the potential risk associated with historical farming at this site is 'Low'
		Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural
5	5 Glismann Road	Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos	Low	residential with no evidence of current potentially contaminating activities.  Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		potential risk associated with historical farming at this site is ' <b>Low'</b>



Property Number	Location	Potential Contaminating Activity	Contaminants of Potential Concern	Risk Classification	Comments
		Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.
6	6 Glismann Road	Equipment Storage	Heavy Metals, TPH, BTEX,	Low	Current land use is rural residential with no evidence of current potentially contaminating activities.
		& Maintenance	PAH, Solvents & Asbestos		Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the potential risk associated with
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		historical farming at this site is 'Low'
		Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.
	7	Operations)	PAH, Faecal Coliforms		Current land use is rural residential with no evidence of current potentially
7	Glismann Road	Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos	Low	Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		potential risk associated with historical farming at this site is 'Low'



Property Number	Location	Potential Contaminating Activity	Contaminants of Potential Concern	Risk Classification	Comments	
		Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used. Current land use is rural residential with large storage sheds and other structures observed from aerial	
8	8 Glismann Road	Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos	Medium	photographs.  Therefore, Meinhardt considers that the potential risk associated with historical farming activity & the current number of storage & maintenance structures, potentially associated with current agricultural or other activity at this location as 'Medium'.	
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms			
	9 Glismann Rd	Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Low	The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural residential with no evidence of current potentially	
9		Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos		Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the potential risk associated with historical farming at this site is 'Low'	
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms			
10	10 Glismann	Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Medium	The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural residential. A number of structures are located on the property and the property is located immediately south of a former trucking depot,	
	Road	Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos		which was located at property number 12.  Therefore, due to unknown	
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		structures at the site and the properties position next to a former trucking depot, Meinhardt considers that the potential risk associated with the site is 'Medium'.	



Property Number	Location	Potential Contaminating Activity	Contaminants of Potential Concern	Risk Classification	Comments
11	11 Glismann Road	Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Low	The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural residential with no evidence of current potentially contaminating activities.
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the potential risk associated with historical farming at this site is 'Low'
	12	Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	used for farming & c grazing, with potent heavy farm equipme having been used.  A Council Land Use (1990) indicates this was used as a Truc with possible under fuel storage tanks.  Current land use is residential with stora sheds and other strands	A Council Land Use Map (1990) indicates this site was used as a Truck Depot with possible underground fuel storage tanks.  Current land use is rural residential with storage sheds and other structures observed from aerial
12	Glismann Road	Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos	Low	An inspection of this property in 2018 found insufficient evidence of the site being used as a truck
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		stop. It is believed a former owner owned a truck(s) but no evidence of bulk fuel storage was identified.  Therefore, as a former truck depot does not appear to have been located at the site Meinhardt deems the potential risk of contamination at this site as 'Low'.



Property Number	Location	Potential Contaminating Activity	Contaminants of Potential Concern	Risk Classification	Comments
		Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	used for farming & cat grazing, with potential heavy farm equipment having been used.  Current land use is ruit residential with no evic of current potentially contaminating activities  Low  Therefore, due to lack buildings being observaerial photographs Meinhardt considers the potential risk associated.	Current land use is rural residential with no evidence
13	13 Glismann Road	Glismann Road  Equipment Storage & Maintenance  Heavy M TPH, BT PAH, Sc	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos		Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		historical farming at this site



Property Number	Location	Potential Contaminating Activity	Contaminants of Potential Concern	Risk Classification	Comments
		Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural residential with no evidence of current potentially
14	14 Glismann Road	ann	Low	Therefore, due to lack of site buildings being observed on aerial photographs Meinhard considers that the	
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		potential risk associated with historical farming at this site is 'Low'
		Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural residential with no evidence
15	15 Glismann Road	Equipment Storage & Maintenance	torage to PAH, Solvents & Asbestos	of current potentially contaminating activities.  Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the	
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		potential risk associated with historical farming at this site is 'Low'
	16 Glismann Road	Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal	Low	The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural
16		Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos		residential with no evidence of current potentially contaminating activities.  Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		potential risk associated with historical farming at this site is 'Low'



Property Number	Location	Potential Contaminating Activity	Contaminants of Potential Concern	Risk Classification	Comments
		Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Council Land Use Map (1990) indicates this site was used as a Poultry Farm.  Current land use is residential with large storage sheds and other structures
47	11 Mahan	Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos	Medium	observed from aerial photographs.  A site inspection identified that the site had historically
17	Mahon Avenue	Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms	Medium	been used for farming or agricultural purposes, there was no evidence to suggest that the site had once been used as a poultry farm and that any sheds that had previously been located at the site were removed, and replaced by a pond.  The information provided by the land owner suggested that the potential risk associated with historical farming and current use for a rural residence and concreting business) as "Medium'.
		Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	les, des, ers, TPH aecal	The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural residential with no evidence
18	&	Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos	Low	of current potentially contaminating activities.  Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the potential risk associated with
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		historical farming at this site is 'Low'



Property Number	Location	Potential Contaminating Activity	Contaminants of Potential Concern	Risk Classification	Comments
	111 – 113 - Old Princes Highway	Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural residential with no evidence of current potentially contaminating activities.
19		Equipment Storage & Maintenance  Structures (Including possible Septic Tanks)	Heavy Metals,  TPH, BTEX, PAH, Solvents & Asbestos Lead, Asbestos, Hazardous, Material, Faecal Coliforms	Low	Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the potential risk associated with historical farming at this site is 'Low'
20	115 – 117 Old Princes	Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Low	The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural residential with no evidence of current potentially contaminating activities.
	Highway	Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the potential risk associated with historical farming at this site is 'Low'
21	119 – 121 Old Princes Highway	Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms	Low	The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural residential with no evidence of current potentially contaminating activities.  Therefore, due to lack of site
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		buildings being observed on aerial photographs Meinhardt considers that the potential risk associated with historical farming at this site is 'Low'



Property Number	Location	Potential Contaminating Activity	Contaminants of Potential Concern	Risk Classification	Comments
	123 – 125	Historical Farming Activities & Operations)	Heavy Metals, Pesticides, Herbicides, Fertilisers, TPH PAH, Faecal Coliforms		The site was historically used for farming & cattle grazing, with potential for heavy farm equipment having been used.  Current land use is rural residential with no evidence of current potentially
22	Old Princes Highway	Equipment Storage & Maintenance	Heavy Metals, TPH, BTEX, PAH, Solvents & Asbestos	Low	Therefore, due to lack of site buildings being observed on aerial photographs Meinhardt considers that the
		Structures (Including possible Septic Tanks)	Lead, Asbestos, Hazardous, Material, Faecal Coliforms		potential risk associated with historical farming at this site is 'Low'

Figure 7 (Appendix A), provides a 'Traffic Light' contamination maps summarising the outcomes of the Qualitative Risk Assessment, identifying areas of potential contamination for the GRDP site. Figure 7 indicates that the majority of the site is classified as having a 'Low' potential contamination risk. In total, 17 sites were allocated a 'Low' risk and 5 sites were allocated a 'Medium' risk rating.

The assessment of potential contamination has been made in accordance with the DSE, *Potentially Contaminated Land, General Practice Note No.30*, (DSE 2005).

Under the DSE *General Practice Note No.30* the land identified as having a **'Low'** potential contamination risk that is classified as dwelling, open space, agriculture, retail or office, industry or warehouse is categorised as Assessment Level C, and subject to general duty under the Section 12(2)(b) and Section 60(1)(a)(iii) of the Planning and Environment Act 1987 (DSE 2005).

However, land that is identified as having a 'Medium' potential contamination risk that is classified as childcare centre, primary school, dwellings or residential buildings is categorised as Assessment Level B, requiring a site assessment from a suitably qualified environmental professional, if insufficient information is available to determine if an audit is appropriate. If advised that an audit is not required, a review subject to general duty under the Section 12(2)(b) and Section 60(1)(a)(iii) of the Planning and Environment Act 1987 (DSE 2005) is required.

Detail on future recommended actions as a result of the risk ratings prescribed are included in Appendix G.

Details of assessment levels for the three levels of contamination assessment are summarised in Table 6.2 below, further details can also be found in the Potentially Contaminated Land General Practice Note, June 2005.



Table 6-2 Assessment Matrix as per Potentially Contaminated Land General Practice Note, June 2005

PROPOSED LAND-USE	POTENTIAL FOR CONTAMINATION (as indicated in Table 1)		
	High	Medium	Low
Sensitive Uses			
Child care centre, pre-school or primary school	A	В	С
Dwellings, residential buildings etc.	A	В	C
Other Uses			
Open space	В	С	C
Agricu <mark>lt</mark> ure	В	С	C
Retail or office	В	С	C
Industry or warehouse	В	C	C

- A. Require an environmental audit as required by Ministerial Direction No. 1 or the Environmental Audit Overlay when a planning scheme amendment or planning permit application would allow a sensitive use to establish on potentially contaminated land.
  - An environmental audit is also strongly recommended by the SEPP where a planning permit application would allow a sensitive use to be established on land with 'High Potential' for contamination.
- B. Require a site assessment from a suitably qualified environmental professional if insufficient information is available to determine if an audit is appropriate. If advised that an audit is not required, default to C.
- C. General duty under Section 12(2)(b) and Section 60(1)(a)(iii) of the Planning and Environment Act 1987.



# 7 Conclusions and Recommendations

Meinhardt has conducted a Land Capability (Desktop Environmental Contamination) Assessment for the GRDP. The key objective of this assessment was to conduct a desktop study to:

- Confirm suitability of the GRDP site for sensitive uses and what level of further assessment
  would be required to determine suitability of the site for sensitive uses in accordance with the
  Potentially Contaminated Land General Practice Note No.30 2005 (e.g. Environmental Site
  Assessment);
- Identify data gaps and outline future testing and more detailed investigations (if required).
- Provide a plan of the study area clearly showing the GRDP site and identifying which areas of the GRDP site have 'Low', 'Medium' or 'High' potential for contamination; and
- Prepare a report of findings that will be used to inform the re-zoning of the GRDP from Rural Residential to Urban Residential (or similar sensitive land use)

# 7.1 Summary of Contamination Potential

The GRDP site desktop review identified several potential sources of contamination. Based on the results of the desktop study and our understanding of the future land uses for the GRDP site, the overall likelihood or risk of contamination being encountered across the majority of the site is considered 'Low'.

#### 7.1.1 Low potential for contamination

The activities on-site which were identified as having a 'Low' potential contamination risk included:

- Rural Residential, with no significant evidence of miscellaneous outbuildings; and
- Historic agriculture at the site was identified as having been used as grazing paddocks prior to subdivision, with no in-situ farm buildings or sheep dips.

Therefore, properties 3, 4, 5, 6, 7, 9, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21 & 22 identified as having **'Low'** potential for contamination will be subject to a Level C assessment for all proposed developments on-site.

#### 7.1.2 Medium Potential for contamination

The activities on-site which were identified as having a 'Medium' potential contamination risk included:

- Filling (imported soil)
- Historic farming operations including buildings potentially used for the storage of hydrocarbons, insecticides (sheep dips), fungicides, herbicides and pesticides.

Therefore, properties 1, 8 & 10 which were used for historic farming operations shown on historic aerial photographs, as well as properties 2 and 17 which had fill placed on it, are identified as having 'Medium' potential for contamination will be subject to a Level C assessment for non-sensitive land uses, and subject to a Level B Assessment when sensitive land uses are proposed.

#### 7.1.3 High potential for contamination

There were no sites that contained activities which were identified as having a 'High' potential contamination risk.



# 7.2 Summary of Property Risk Ratings

Table 7-1 Summary of Property Risk Ratings

Street Address	Property Number	Contamination Potential
1 Glismann Road	1	Medium
2 Glismann Road	2	Medium
3 Glismann Road	3	Low
4 Glismann Road	4	Low
5 Glismann Road	5	Low
6 Glismann Road	6	Low
7 Glismann Road	7	Low
8 Glismann Road	8	Medium
9 Glismann Road	9	Low
10 Glismann Road	10	Medium
11 Glismann Road	11	Low
12 Glismann Road	12	Low
13 Glismann Road	13	Low
14 Glismann Road	14	Low
15 Glismann Road	15	Low
16 Glismann Road	16	Low
11 Mahon Avenue	17	Medium
13-15 Mahon Avenue	18	Low
111-113 Old Princes Highway	19	Low
115-117 Old Princes Highway	20	Low
119-121 Old Princes Highway	21	Low
123-125 Old Princes Highway	22	Low



Map 1 - Property Risk Ratings





# 8 References

- Standards Australia, AS 4482.2-1999: Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile substances, 1999.
- Standards Australia, AS 4482.1-2005, Standards Australia. Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds, 2005.
- Australian and New Zealand Environment and Conservation Council (ANZECC), Australian and New Zealand Guideline for the Assessment and Management of Contaminated Sites, 2000.
- Cardinia Local Heritage Study Review, Volume 1, 2011
- Centre for Land Protection and Research, 1997, A Land Capability Study of The Cardinia Shire (Accessed March 2014). <a href="http://vro.depi.vic.gov.au/dpi/vro/portregn.nsf/pages/pp\_lca\_cardinia">http://vro.depi.vic.gov.au/dpi/vro/portregn.nsf/pages/pp\_lca\_cardinia</a>
- DPI, GeoVic Online Mapping (Accessed March 2014)
   http://er-info.dpi.vic.gov.au/sd weave/anonymous.html>
- DPI, Australian Soil Resource Information System. (Accessed May 2014)
   <a href="http://www.asris.csiro.au/index">http://www.asris.csiro.au/index</a> other.html>
- Department of Sustainability and Environment (DSE), Melbourne Groundwater Map, 2012.
- DSE, Westernport Groundwater Catchment Map, 2012.
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- Geological Survey of Victoria, Cranbourne. 1 mile to 1 inch, geological map. Department of Mines, Victoria, 1967.
- Department of Minerals and Energy, *Groundwater Basins Victoria Map*, 1982.National Environment Protection Council (NEPC), *National Environment Protection (Assessment of Site Contamination) Measure*, 1999 (amended 2013).
- State Environment Protection Policy (SEPP), Groundwaters of Victoria, December 1997, No. S160.
- State Environment Protection Policy (SEPP), *Prevention and Management of Contaminated Land*, June 2002, No. S95.
- State Environment Protection Policy (SEPP), Waters of Victoria, October 2004, No. S210.
- State Government of Victoria, Environmental Protection Act, 1970.



# 9 Statement of Limitations

This assessment and assumed levels of contamination contained within are restricted by the limited amount of data currently available for the GRDP site, and are also subject to the limitations set out below or elsewhere within this report.

The assessment has been undertaken and performed in a professional manner consistent with the skill and care ordinarily exercised by reputable consultants under similar circumstances. No other warranty, expressed or implied, is given.

Where Meinhardt Infrastructure & Environment Pty Ltd (Meinhardt) has relied on verbal information and/or documentation provided by the client and/or third parties, Meinhardt did not attempt to independently verify the accuracy or completeness of that information. To the extent that the conclusions and recommendations in this report are based in whole or in part on such information, they are contingent on its validity. Meinhardt assume no responsibility for any consequences arising from any information or condition that was inaccurate, concealed, withheld, misrepresented, or otherwise not fully disclosed or made available to Meinhardt.

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APPENDIX A FIGURES



Figure 1 Site Location Map





Figure 2 Site Features Map







Figure 3
Topography & Surface Water Map

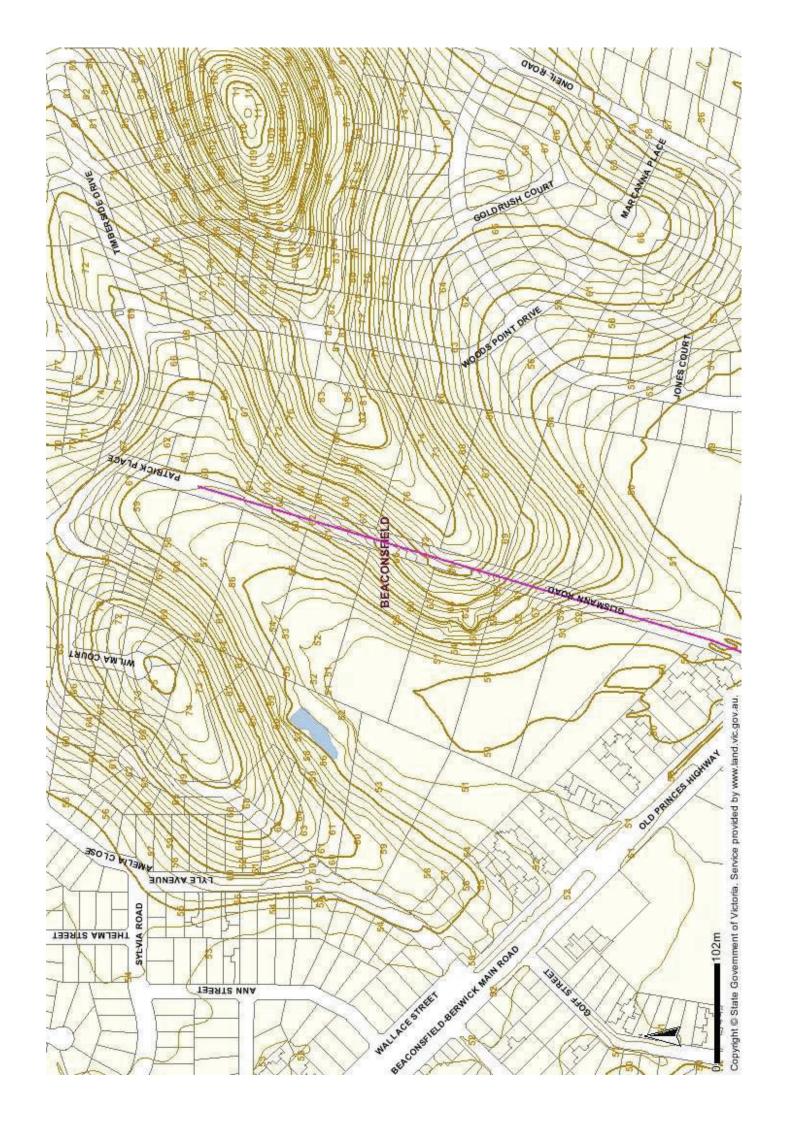
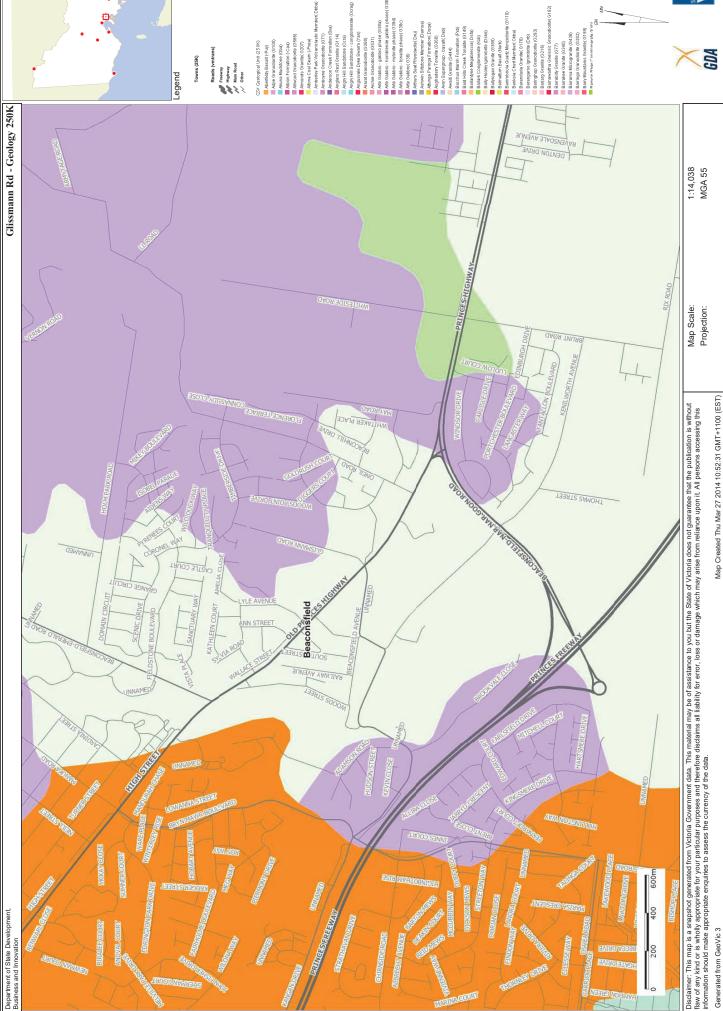




Figure 4 Geology Map



Glissmann Rd - Geology 250K



Figure 5
ASRIS Soil Classification Map

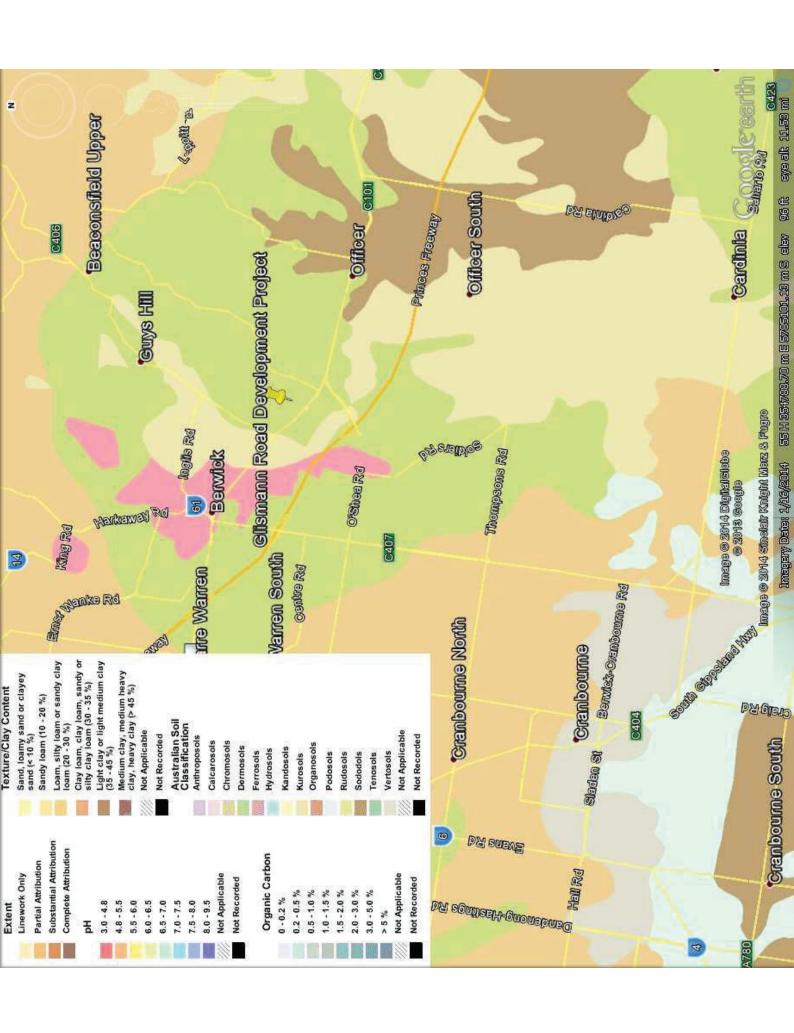
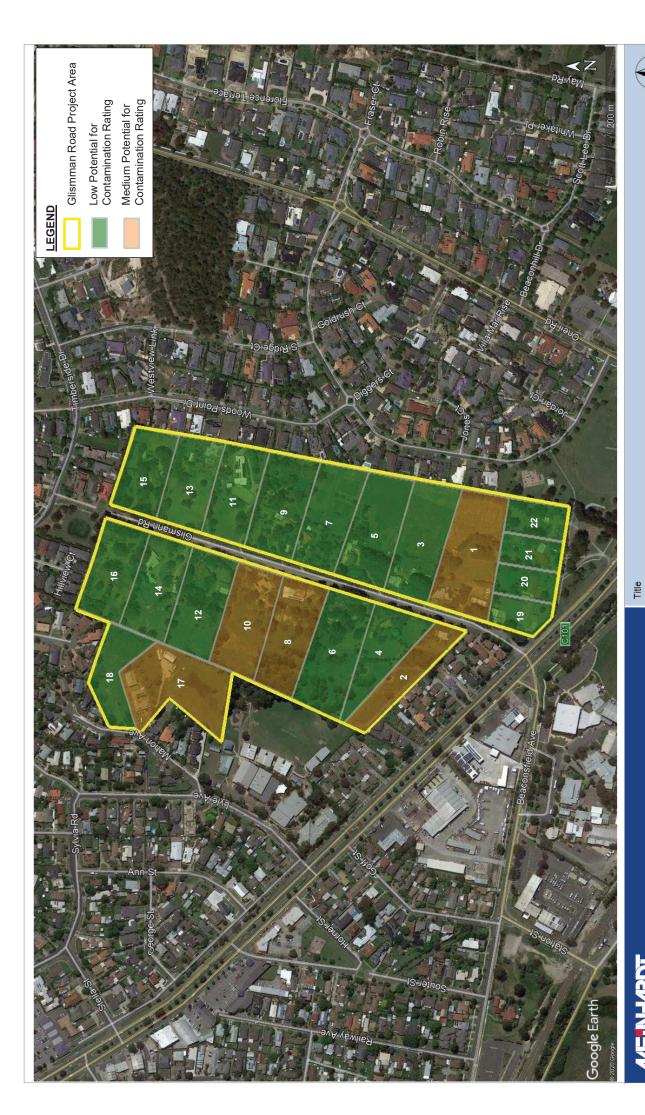


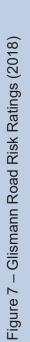


Figure 6
Bore Locations Map 2 km Radius



Figure 7
Potential Contamination "Traffic Light" Map





Project CSC – Glismann Road Contaminated Land Assessment

Client Cardinia Shire Council

Project Number 112064

Reference Number F07

Revision A

DATA SOURCE: Aerial Imagery, Google Earth Pro, Image date: 1/12/2018, obtained 2020; Site Boundaries, Meinhardt, 2018.
XX120139 - CSC- Glismann Road- Desktop Updatei 6\_EN4\_REPv2\_Working/2015 Report - With Addenda (2020)Appendix A - Figures/2005194-120139-CSC-Glismann Road Fig7.pptx

Level 11, 501 Swanston Street Melbourne VIC 3000 Australia T: +61 3 8676 1200





APPENDIX B PROPERTY REPORTS & TITLES



**Planning Property Reports** 

# **Planning Property Report**

from www.dtpli.vic.gov.au/planning on 14 March 2014 11:44 AM

Address: 1 GLISMANN ROAD BEACONSFIELD 3807

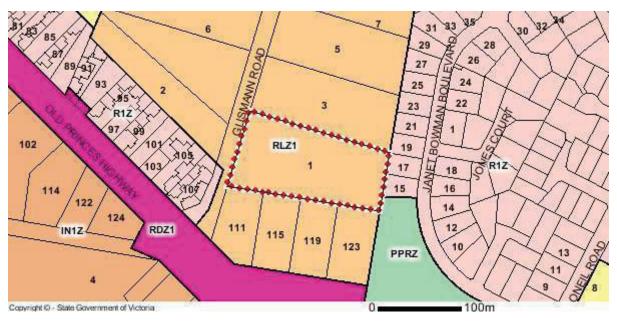
Lot and Plan Number: Lot 10 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333950100

**Directory Reference: Melway** 131 K1

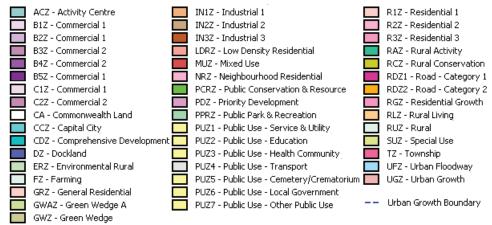
#### **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

#### **Zones Legend**



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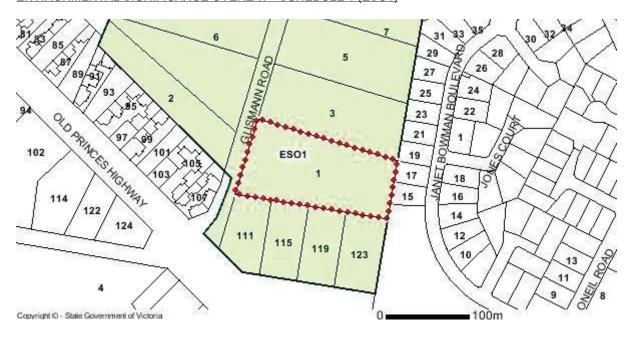
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### **Planning Overlay**

# **ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO) ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)**

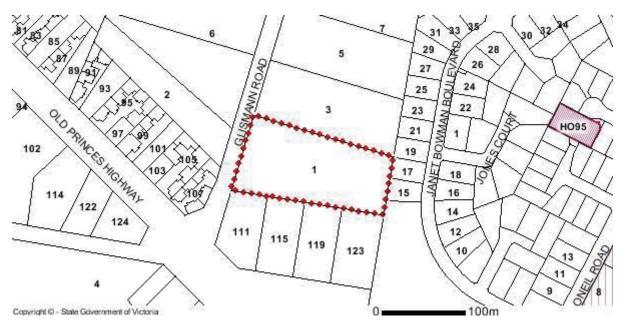


#### OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

**DEVELOPMENT PLAN OVERLAY (DPO)** 

HERITAGE OVERLAY (HO)





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### **Planning Overlays Legend**

Overlays Legend	Erosion Management	Public Acquisition
Overlays Legeria	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	 Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

Note: due to overlaps some colours on the maps may not match those in the legend.

#### **Further Planning Information**

Planning scheme data last updated on 13 March 2014.

A planning scheme sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State, local, particular and general provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting Planning Schemes Online

This report is NOT a Planning Certificate issued pursuant to Section 199 of the Planning & Environment Act 1987. It does not include information about exhibited planning scheme amendments, or zonings that may abut the land. To obtain a Planning Certificate go to Titles and Property Certificates

For details of surrounding properties, use this service to get the Reports for properties of interest

To view planning zones, overlay and heritage information in an interactive format visit Planning Maps Online For other information about planning in Victoria visit <a href="www.dpcd.vic.gov.au/planning">www.dpcd.vic.gov.au/planning</a>

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# **Planning Property Report**

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Address: 2 GLISMANN ROAD BEACONSFIELD 3807

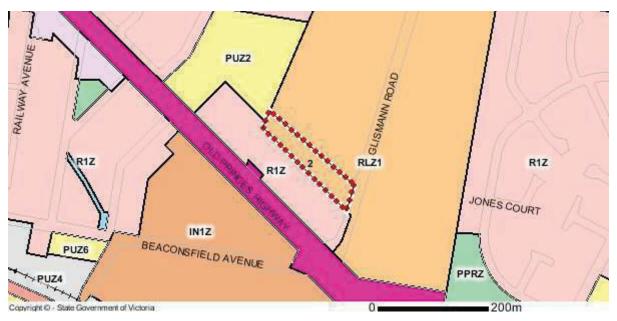
Lot and Plan Number: Lot 2 LP64568

Local Government (Council): CARDINIA Council Property Number: 1333900100

**Directory Reference: Melway** 131 K1

#### **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

#### **Zones Legend**



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### **Planning Overlay**

# **ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO) ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)**



#### OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

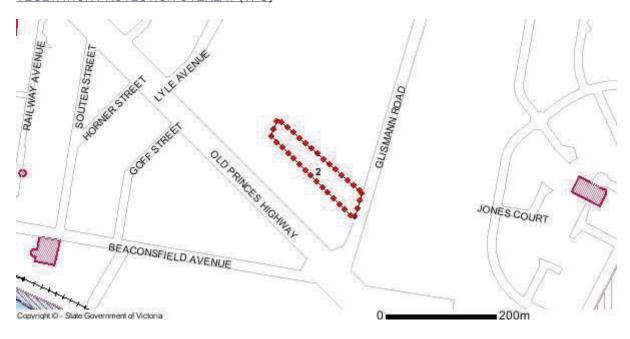
DESIGN AND DEVELOPMENT OVERLAY (DDO)

**DEVELOPMENT PLAN OVERLAY (DPO)** 

FLOODWAY OVERLAY (FO)

**HERITAGE OVERLAY (HO)** 

**VEGETATION PROTECTION OVERLAY (VPO)** 



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### **Planning Overlays Legend**

Overlays Legend	Erosion Management	Public Acquisition
Overlays Legeria	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	 Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

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# **Planning Property Report**

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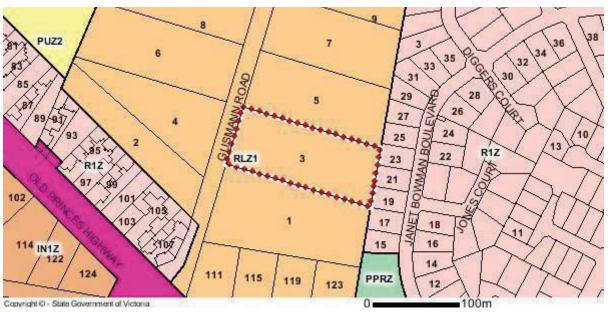
Lot and Plan Number: Lot 11 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333950200

Directory Reference: Melway 214 A1

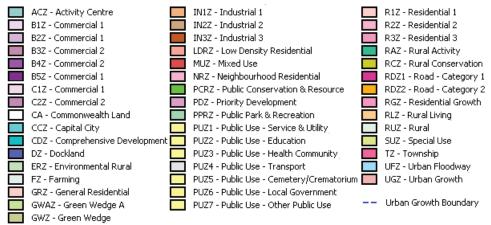
#### **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

#### **Zones Legend**



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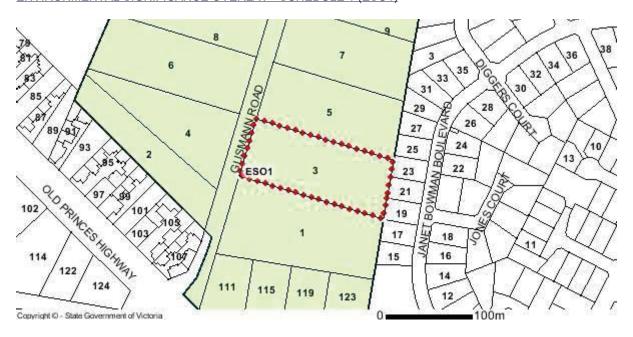
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### **Planning Overlay**

# **ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO) ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)**

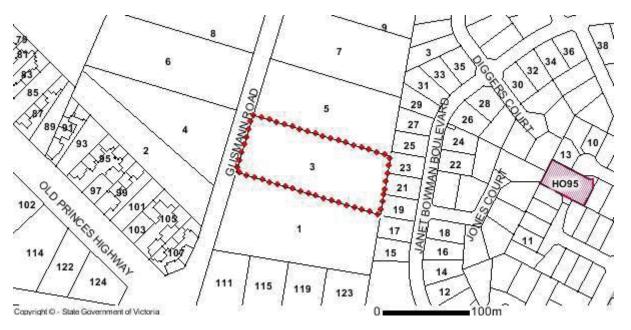


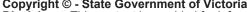
#### OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

**DEVELOPMENT PLAN OVERLAY (DPO)** 

HERITAGE OVERLAY (HO)





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# **Planning Overlays Legend**

Overlays Legend	Erosion Management	Public Acquisition
Overlays Legenu	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	 Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

Note: due to overlaps some colours on the maps may not match those in the legend.

#### **Further Planning Information**

Planning scheme data last updated on 13 March 2014.

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# **Planning Property Report**

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Address: 4 GLISMANN ROAD BEACONSFIELD 3807

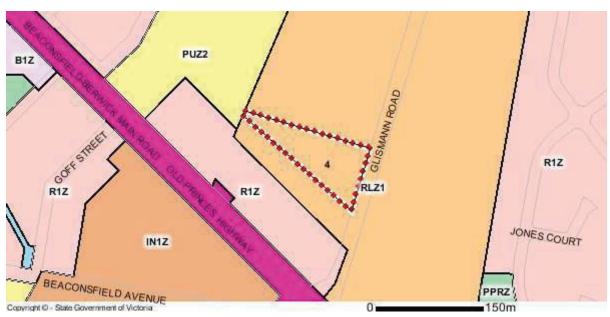
Lot and Plan Number: Lot 1 LP64568

Local Government (Council): CARDINIA Council Property Number: 1333900200

**Directory Reference: Melway** 131 K1

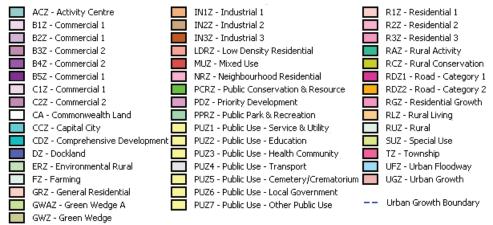
#### **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

#### **Zones Legend**



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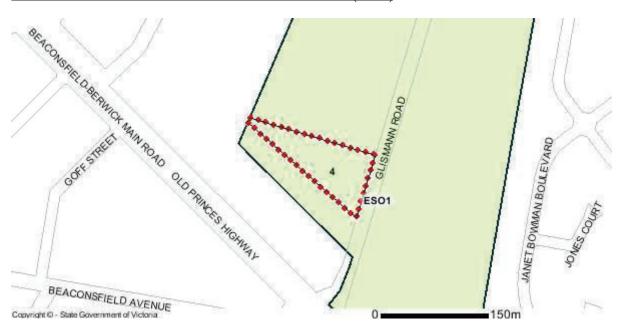
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### Planning Overlay

**ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)





Note: due to overlaps some colours on the maps may not match those in the legend.

#### **Further Planning Information**

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# **Planning Property Report**

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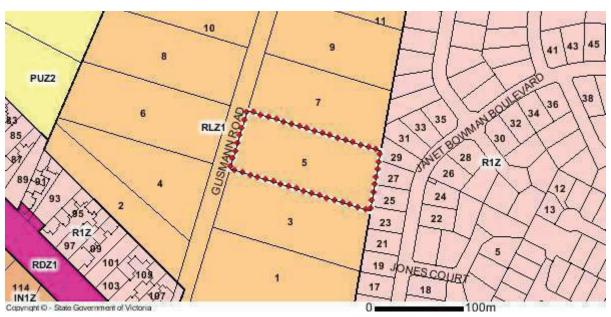
Lot and Plan Number: Lot 12 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333950300

**Directory Reference:** Melway 212 A12

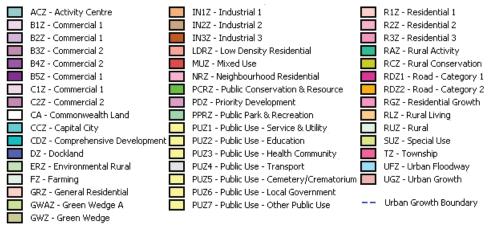
#### **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

#### **Zones Legend**



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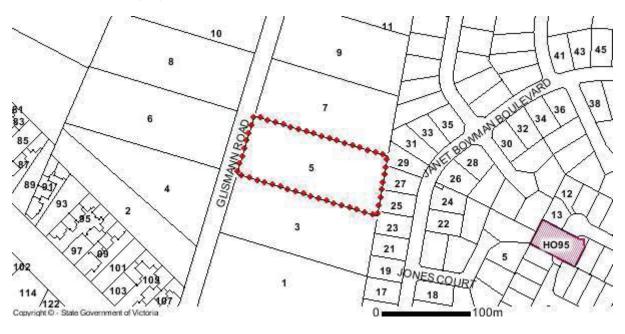
# **ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO) ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)**



#### OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

## HERITAGE OVERLAY (HO)





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# **Planning Overlays Legend**

Overlays Legend	Erosion Management	Public Acquisition
Overlays Legeria	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	 Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

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# **Further Planning Information**

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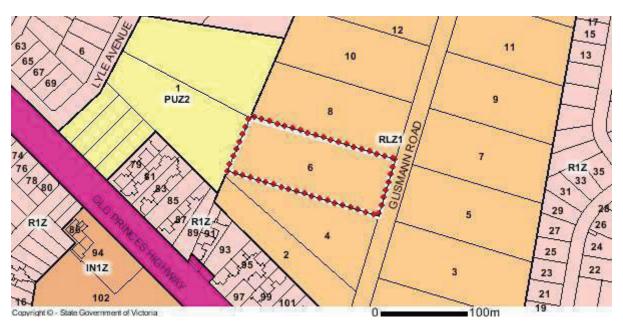
Lot and Plan Number: Lot 26 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333900300

**Directory Reference:** Melway 212 A12

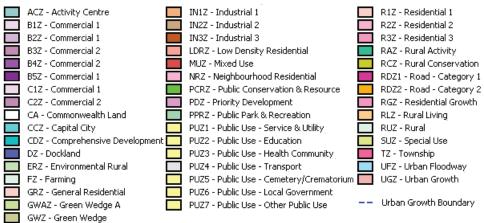
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**

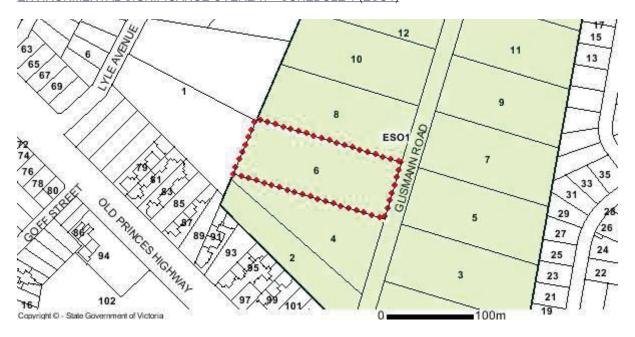


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ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)





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## **Further Planning Information**

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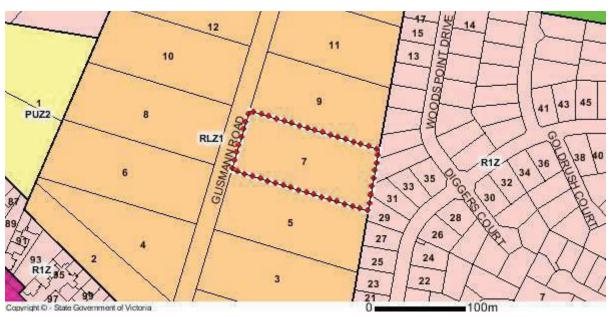
Lot and Plan Number: Lot 13 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333950400

**Directory Reference:** Melway 212 A12

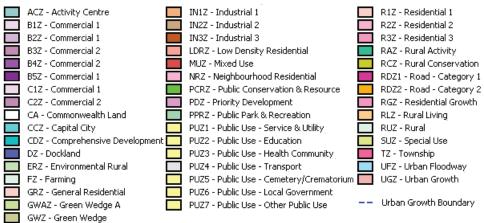
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**







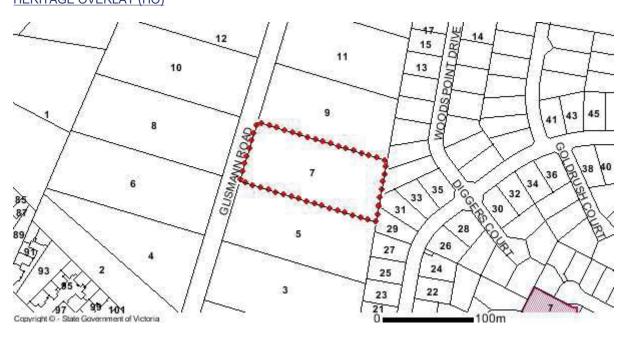


# **ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO) ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)**



#### OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land HERITAGE OVERLAY (HO)



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# **Planning Overlays Legend**

Overlays Legend	Erosion Management	Public Acquisition
Overlays Legeria	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	 Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

Note: due to overlaps some colours on the maps may not match those in the legend.

# **Further Planning Information**

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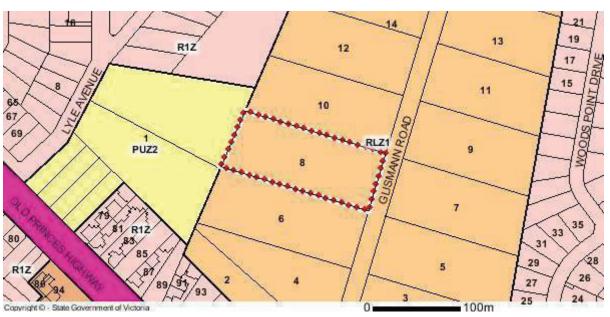
Lot and Plan Number: Lot 25 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333900400

**Directory Reference:** Melway 212 A12

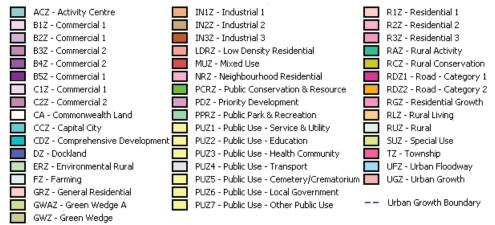
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**

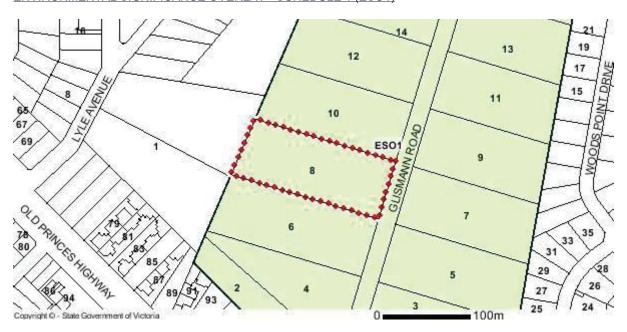


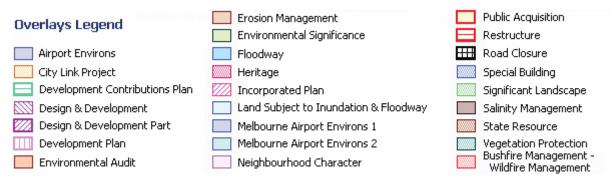






**ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)





Note: due to overlaps some colours on the maps may not match those in the legend.

## **Further Planning Information**

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Address: 9 GLISMANN ROAD BEACONSFIELD 3807

Lot and Plan Number: Lot 14 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333950500

**Directory Reference:** Melway 212 A12

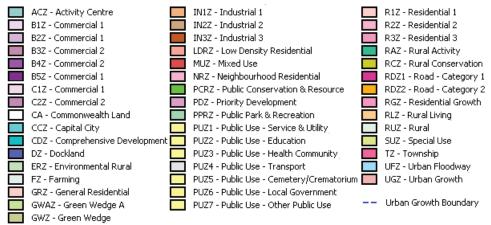
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**



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**ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Overlays Legend	Erosion Management	Public Acquisition
. 3	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

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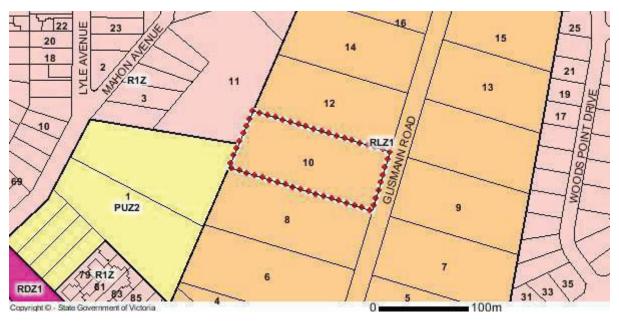
Lot and Plan Number: Lot 24 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333900500

**Directory Reference:** Melway 212 A12

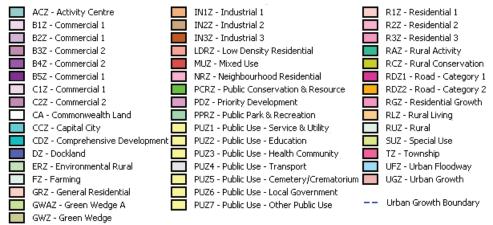
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**

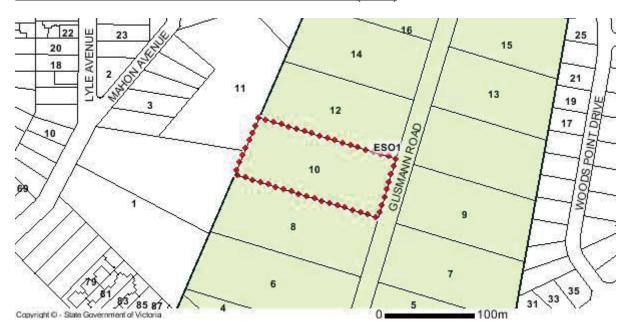


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**ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Overlays Legend	Erosion Management	Public Acquisition
overlays regena	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	Salinity Management
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Address: 11 GLISMANN ROAD BEACONSFIELD 3807

Lot and Plan Number: Lot 15 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333950600

**Directory Reference:** Melway 212 A12

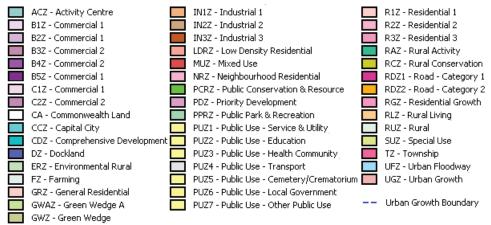
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**



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**ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Overlays Legend	Erosion Management	Public Acquisition
overidy's regend	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
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Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

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Address: 12 GLISMANN ROAD BEACONSFIELD 3807

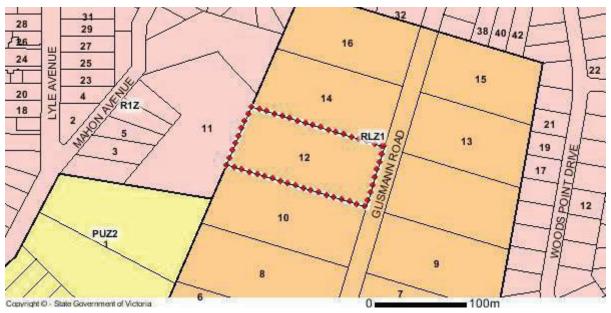
Lot and Plan Number: Lot 23 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333900600

**Directory Reference:** Melway 212 A12

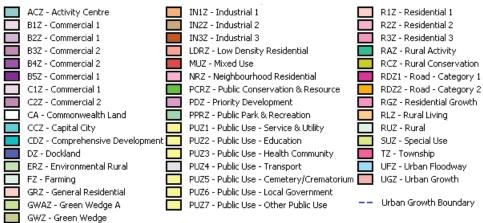
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**

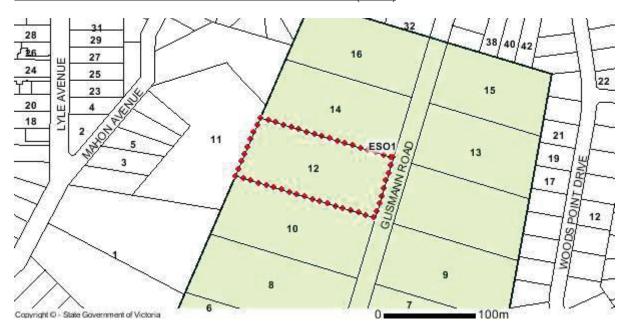








**ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Overlays Legend	Erosion Management	Public Acquisition
o terra, o cogerna	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
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from www.dtpli.vic.gov.au/planning on 14 March 2014 11:40 AM

Address: 13 GLISMANN ROAD BEACONSFIELD 3807

Lot and Plan Number: Lot 16 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333950700

**Directory Reference:** Melway 212 A12

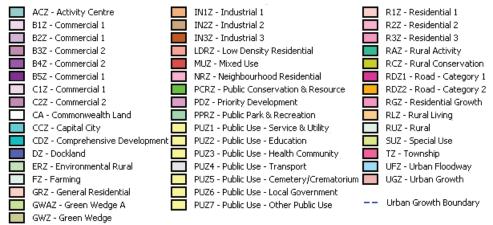
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**

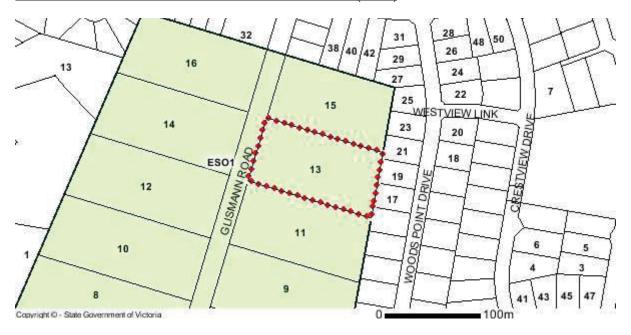


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**ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Overlays Legend	Erosion Management	Public Acquisition
Overlay's Legeria	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

Note: due to overlaps some colours on the maps may not match those in the legend.

## **Further Planning Information**

Planning scheme data last updated on 13 March 2014.

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Address: 14 GLISMANN ROAD BEACONSFIELD 3807

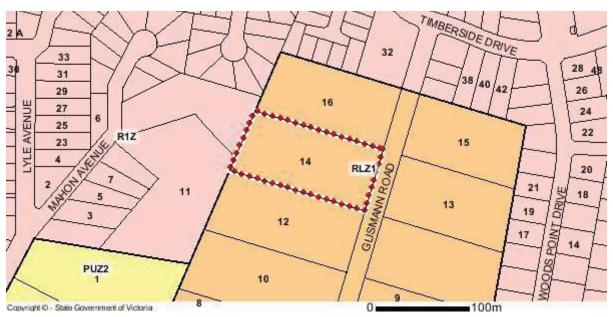
Lot and Plan Number: Lot 22 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333900700

**Directory Reference:** Melway 212 A12

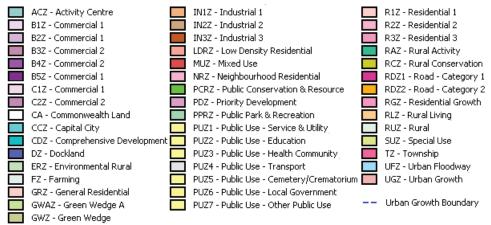
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**

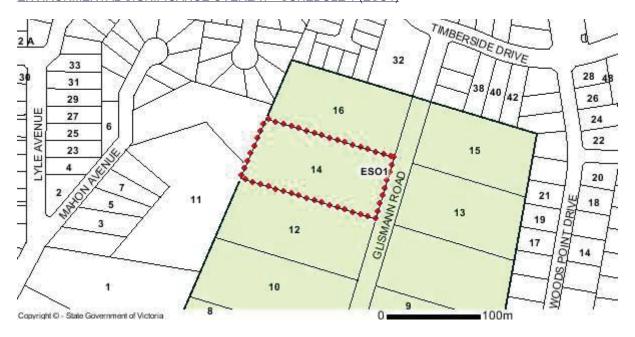


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ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)





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Address: 15 GLISMANN ROAD BEACONSFIELD 3807

Lot and Plan Number: Lot 17 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333950800

**Directory Reference:** Melway 212 A12

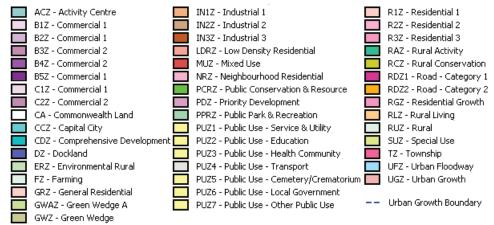
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**



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**ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Overlays Legend	Erosion Management	Public Acquisition
Overlay's Legeria	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

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## **Further Planning Information**

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Address: 16 GLISMANN ROAD BEACONSFIELD 3807

Lot and Plan Number: Lot 21 LP3783

Local Government (Council): CARDINIA Council Property Number: 1333900800

**Directory Reference:** Melway 212 A12

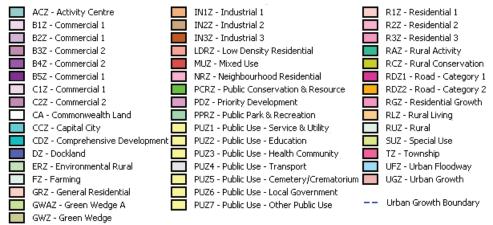
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**

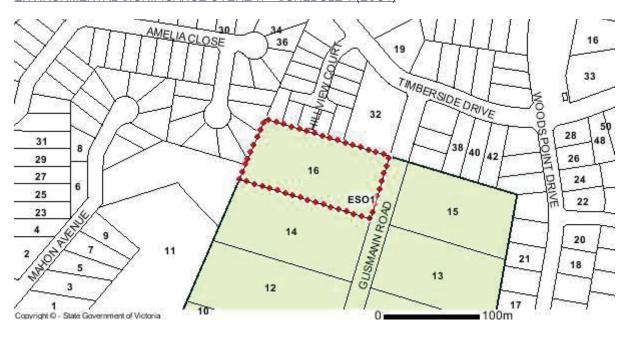


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**ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Overlays Legend	Erosion Management	Public Acquisition
,g	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

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## **Further Planning Information**

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Address: 11 MAHON AVENUE BEACONSFIELD 3807

Lot and Plan Number: Lot 1 TP258025

This property has a total of 2 parcels.

For full parcel details get the free Basic Property report at Property Reports

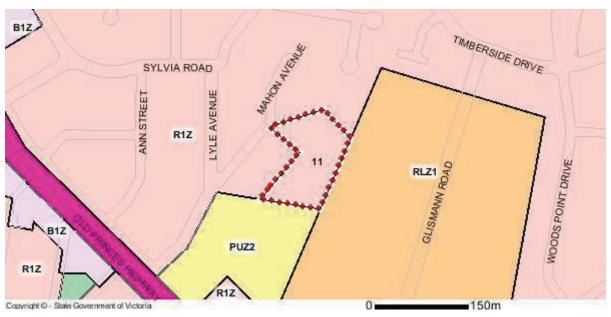
Local Government (Council): CARDINIA Council Property Number: 1509450550

**Directory Reference:** Melway 111 K12

## **Planning Zone**

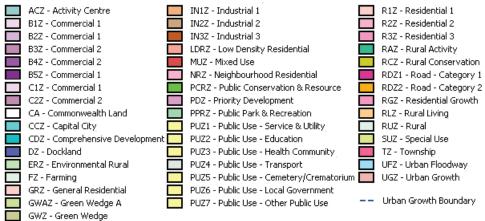
RESIDENTIAL 1 ZONE (R1Z)

SCHEDULE TO THE RESIDENTIAL 1 ZONE



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

## Zones Legend



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None affecting this land - there are overlays in the vicinity ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)





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### **Further Planning Information**

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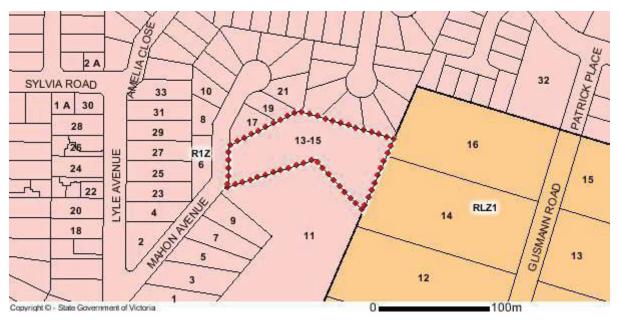
Lot and Plan Number: Lot 1 LP46245

Local Government (Council): CARDINIA Council Property Number: 1509450600

**Directory Reference:** Melway 111 K12

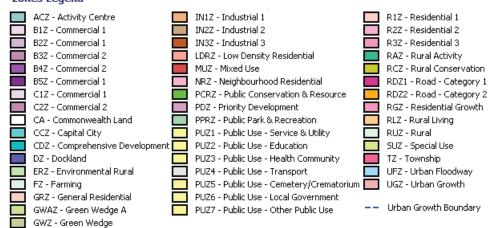
# **Planning Zone**

RESIDENTIAL 1 ZONE (R1Z)
SCHEDULE TO THE RESIDENTIAL 1 ZONE



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### Zones Legend

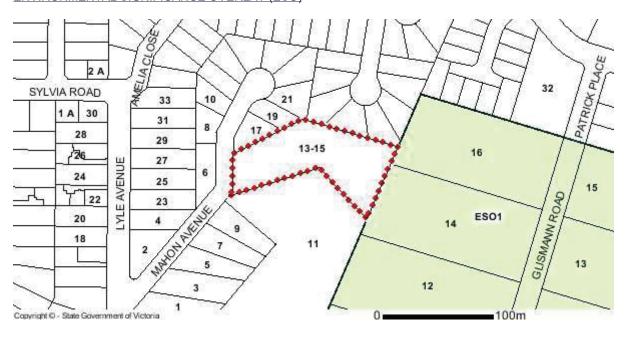








None affecting this land - there are overlays in the vicinity **ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** 



Overlays Legend	Erosion Management	Public Acquisition
,g	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

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## **Further Planning Information**

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Address: 111-113 OLD PRINCES HIGHWAY BEACONSFIELD 3807

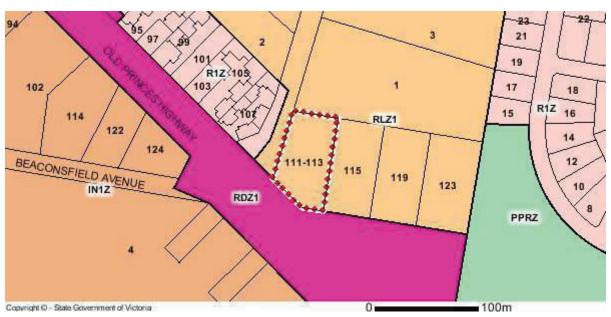
Lot and Plan Number: Lot 1 TP627007

Local Government (Council): CARDINIA Council Property Number: 1650705500

**Directory Reference: Melway** 131 K1

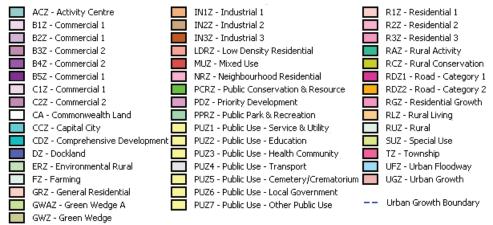
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**

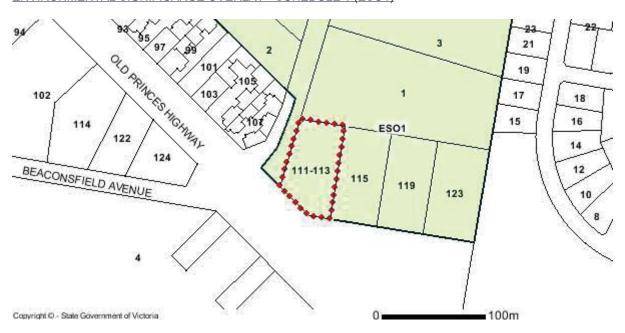


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ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Overlays Legend	Erosion Management	Public Acquisition
overlays regenu	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

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## **Further Planning Information**

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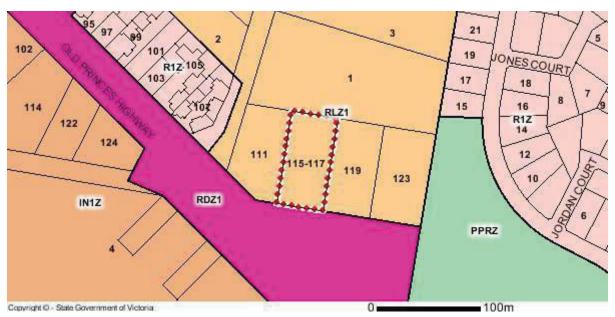
Lot and Plan Number: Lot 1 TP579082

Local Government (Council): CARDINIA Council Property Number: 1650705600

Directory Reference: Melway 214 A1

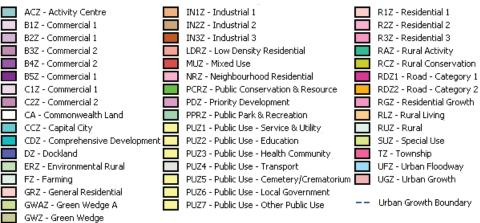
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**

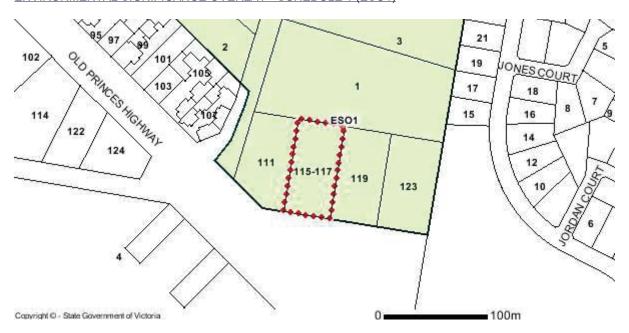








# **ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Overlays Legend	Erosion Management	Public Acquisition
overlays regena	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	Salinity Management
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Development Plan	Melbourne Airport Environs 2	Vegetation Protection
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Address: 119-121 OLD PRINCES HIGHWAY BEACONSFIELD 3807

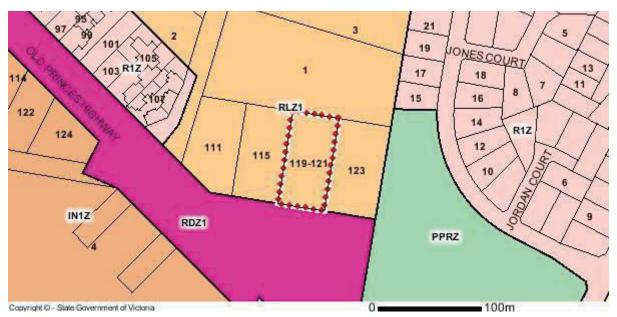
Lot and Plan Number: Lot 8 LP3783

Local Government (Council): CARDINIA Council Property Number: 1650705700

Directory Reference: Melway 214 A1

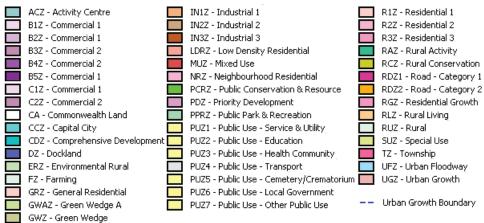
# **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### **Zones Legend**

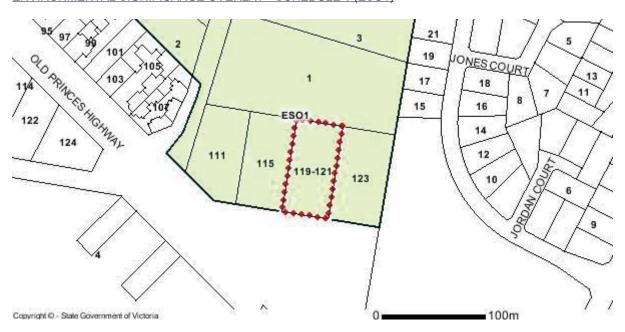


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# **ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO) ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)**

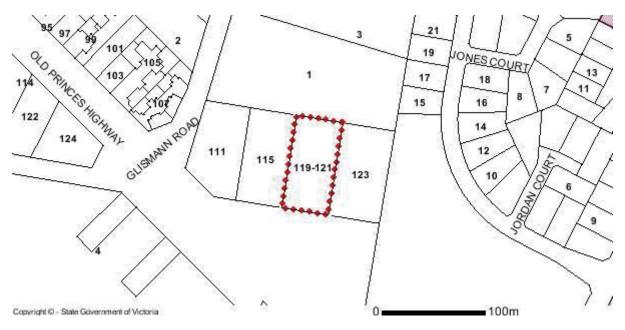


#### OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

**DEVELOPMENT PLAN OVERLAY (DPO)** 

HERITAGE OVERLAY (HO)









# **Planning Overlays Legend**

Overlays Legend	Erosion Management	Public Acquisition
	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	 Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

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## **Planning Property Report**

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Address: 123-125 OLD PRINCES HIGHWAY BEACONSFIELD 3807

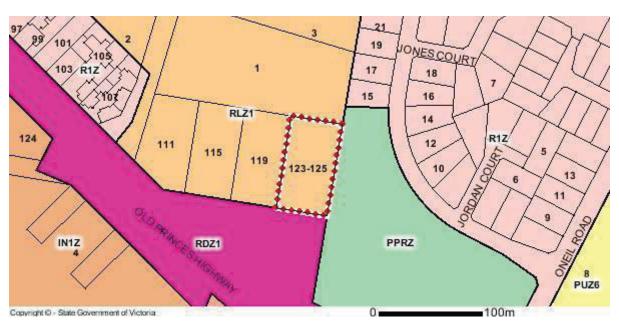
Lot and Plan Number: Lot 9 LP3783

Local Government (Council): CARDINIA Council Property Number: 1650705800

Directory Reference: Melway 214 A1

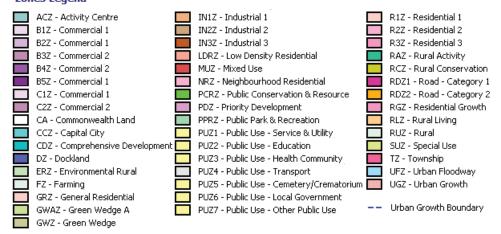
### **Planning Zone**

RURAL LIVING ZONE - SCHEDULE 1 (RLZ1)
SCHEDULE TO THE RURAL LIVING ZONE - SCHEDULE 1



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### Zones Legend



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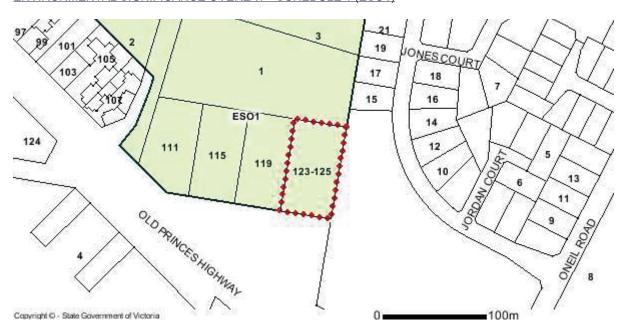
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## **Planning Overlay**

## **ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO) ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)**

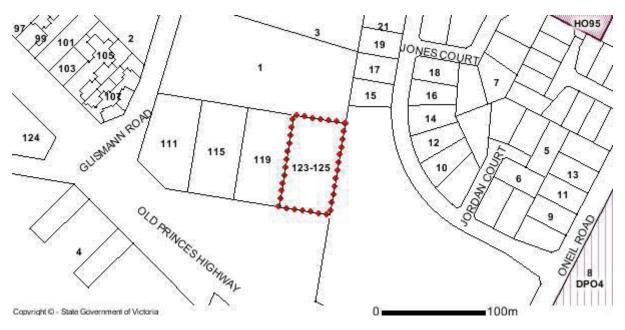


### OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

**DEVELOPMENT PLAN OVERLAY (DPO)** 

HERITAGE OVERLAY (HO)





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## **Planning Overlays Legend**

Overlays Legend	Erosion Management	Public Acquisition
Overlays Legeria	Environmental Significance	Restructure
Airport Environs	Floodway	Road Closure
City Link Project	Heritage	Special Building
Development Contributions Plan	Incorporated Plan	Significant Landscape
Design & Development	Land Subject to Inundation & Floodway	 Salinity Management
Design & Development Part	Melbourne Airport Environs 1	State Resource
Development Plan	Melbourne Airport Environs 2	Vegetation Protection
Environmental Audit	Neighbourhood Character	Bushfire Management - Wildfire Management

Note: due to overlaps some colours on the maps may not match those in the legend.

### **Further Planning Information**

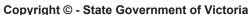
Planning scheme data last updated on 13 March 2014.

A planning scheme sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State, local, particular and general provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting Planning Schemes Online

This report is NOT a Planning Certificate issued pursuant to Section 199 of the Planning & Environment Act 1987. It does not include information about exhibited planning scheme amendments, or zonings that may abut the land. To obtain a Planning Certificate go to Titles and Property Certificates

For details of surrounding properties, use this service to get the Reports for properties of interest

To view planning zones, overlay and heritage information in an interactive format visit Planning Maps Online For other information about planning in Victoria visit <a href="www.dpcd.vic.gov.au/planning">www.dpcd.vic.gov.au/planning</a>



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Current and Historical land Title information has been removed to protect privacy



APPENDIX C GROUNDWATER INFORMATION



Groundwater Bore Data
Within 2 km radius of Glismann Road

																					l	ſ
								Distance to								Max	Elevation Elevation top of ground	Elevation		š	Screen	
Bore ID	Type	Status	Latitude	Longitude	Location method	Easting	Northing	nominated point Zone [m]	point Area		Alias ID	Date commenced	Date completed	Use	Total diamed diamed depth (m) (mm)	diameter (mm)	casing (mAHD)	level Date Survey (mAHD) surveyed desc	Surveyor name	Screen bott top (m) (m)	mo	Artesian V/n
130951	51 DRILLED RORF	BORF Used	-38.03877199	145 3797104	145.3797104 TRANSLATION	357813.2	2 5788644.1	55	RWC 1094 (GM	RWC=SOUTHERN RURAL WATER, GMU=NOT KNOWN 1094 (GMII) Parish=PAKENHAM	Victorian Water=B130951	6/30/1997	7/2/1997	7/2/1997 STOCK DOMESTIC	7.1		66.61	66.61 11/9/2011 DSFILE	DSF-C/O SKM TATURA	47	Z	
301806	$\overline{}$		-38.05285434	145.355466	145.355466 TRANSLATION	355713.2			1889 Pari	1889 Parish=BERWICK	DTR=3213100080, Victorian Water=B301806	5/17/1974		5/17/1974 NON GROUNDWATER	1.22		84.46	84.46 11/9/2011 DSELI	DSE-C/O SKMTATURA		z	
			000000000			000000	0000			7	DITR=3213100081, Victorian						-					
301807	07 DRILLED BORE	BORE Used	-38.05270332		145.357521 TRANSLATION	355893.2	.2 5787064.1	1.1 55	1712 Park	1712 Parish=BERWICK	Water=B301807	5/17/1974		5/17/1974 NON GROUNDWATER	2.44		71.99	71.99 11/9/2011 DSELI	DSE-C/O SKM TATURA		z	1
301808	08 DRILLED BORE	BORE Used	-38.05332326	145.3632059	38.05332326 145.3632059 TRANSLATION	356393.2	.2 5787004.1	11 55	1273 Pari	1273 Parish=BERWICK	D ITR=3213100082, Victorian Water=B301808	5/17/1974	5/17/1974	5/17/1974 5/17/1974 NON GROUNDWATER	2.44		50.96	50.96 11/9/2011 DSELI	DSE-C/O SKMTATURA		z	
301809	09 DRILLED BORE	BORE Used	-38.0408712	145.3621157	145.3621157 TRANSLATION	356273.2	.2 5788384.1	.1 55	1480 Park	480 Parish=BERWICK	DTR=3213100083, Victorian Water=8301809	5/24/1974		5/24/1974 NON GROUNDWATER	3.35		56.73	56.73 11/9/2011 DSEU	DSE-C/O SKM TATURA		z	
301873	$\overline{}$		-38.05270432	1	145,357635 TRANSLATION	355903.2			1702 Paris	1702 Parish=BERWICK	DITR=3213100159, Victorian Water=B301873	1/24/1975		1/24/1975 NON GROUNDWATER	7.32		71.19	71.19 11/9/2011 DSEU	DSE-C/O SKM TATURA		z	
301874			-38.05304933		145.356488 TRANSLATION	355803.2	2 5787024.1		1810 Park	1810 Parish=BERWICK	DTR=3213100160, Victorian Water=B301874	1/24/1975		1/24/1975 NON GROUNDWATER	7.32		80.34	80.34 11/9/2011 DSELI	DSE-C/O SKMTATURA		z	
87419	9 DRILLED BORE	BORE Used	-38,03094201		145.3739583 TRANSLATION	357293.2	.2 5789504.1		1932 RWC	1932 RWC=SOUTHERN RURAL WATER. Paris h=PAKENHAM	DTR=3336310008, Victorian Water=B87419	6/30/1972		6/30/1972 STOCK DOMESTIC	4.87		55.47	55.47 11/9/2011 DSEU	DSE-C/O SKM TATUBA	9'0	4.57 N	
87433	3 DRILLED BORE		-38.036308		145.3774974 TRANSLATION	357614.2	2 5788914.1		1329 RWC	1329 RWC=SOUTHERN RUBAL WATER, Paris h=PAKENHAM	DTR=3336310023, DIV=1350/065,V ictorian Water=887433	11/26/1977	11/26/1977	11/26/1977 11/26/1977 STOCK, DOMESTIC	28.23		74.79	74.79 11/9/2011 DSEU	DSE-C/O SKM TATURA	26	28 N	
87437	7 DRILLED BORE		-38.04376095		145.3860044 TRANSLATION	358375.2	2 5788100.1		991 RWC	991 RWC=SOLITHERN RURAL WATER Paris h=PAKENHAM	DTR=3336310027, DIV=1350/062,V	4/16/1980	4/18/1980	4/18/1980 STOCK.DOMESTIC	31.5		79.18	79.18 11/9/2011 DSELI	DSE-C/O SKMTATUBA	12	31.5 N	
WRK04	45		-38.04785733	145.3563734	145.3563734 NOT KNOWN	355783		L	1738 RWC	1738 RWC=SOUTHERN RURAL WATER, Parish=BERWICK	Historic GMS ID=S9024014/1				40		53.87	53.87 11/9/2011 DSEU	DSE-C/O SKM TATURA		z	
WRK04;	*151 DRILLED BA	WRK047151 DRILLED BORE Decommissioned		-38.04671635 145.3650256 NOT KNOWN	NOT KNOWN	356540	0 5787740	40 55	993 RWC	993 RWC-SOUTHERN RURAL WATER, Parish=BERWICK	Historic GMS ID=S9035793/1, Victorian Water=BS9035793/1	10/21/2008	10/22/2008	10/21/2008 10/22/2008 IRRIGATION	72	170	47.65	47.65 11/9/2011 DSELI	DSE-C/O SKMTATURA	99	Z Z	
WRK06	WRK062713 DRILLED BORE	BORE Used	-38.04698802	145.3978402	145.3978402 NOT KNOWN	359420	0 5787760	90 55	RWC 1901 WAT	RWC=SOUTHERN RURAL 1901 WATER, GMU=UNINCORPORATED (GMU)	Victorian Water=BWRK062713	8/29/2011		8/29/2011 OBSERVATION	2	125				2	20	
WRK06	WRK062717 DRILLED BORE	BORE Used	-38.04697979	145.3978973	145.3978973 NOT KNOWN	359425	15 5787761	55	RWC 1906 WAT	RWC=SOUTHERN RURAL 1906 WATER, GMU=UNINCORPORATED (GMU)	Victorian Water=BWRK062717	8/29/2011		8/29/2011 OBSERVATION	5						z	
WRK06	WRK062718 DRILLED BORE	BORE Used	-38.04698802		145.3978402 NOT KNOWN	359420	0 5787760	90 55	RWC 1901 WAT	RWC=SOUTHERN RURAL 1901 (WATER, GMU=UNINCORPORATED (GMU)	Victorian Water=BWRK062718	8/29/2011		8/29/2011 OBSERVATION	2						z	
WRK966	WRK966914 DRILLED BORE	BORE Used	-38.05679623	145.3673799	145.3673799 TRANSLATION	356766.2	.2 5786625.1	53	1229 RWC	1229 RWC=SOUTHERN RURAL WATER, Parish=BERWICK	Historic GMS ID=S9020758/1, Victorian Water=BS9020758/1	2/23/2005		2/24/2005 DOMESTIC AND STOCK	105	771	48.79	48.79 11/9/2011 DSEU	DSE-C/O SKM TATURA		z	
											Historic GMS ID=S9023151/1, Victorian				ľ		-			,	,	



Groundwater Resource Report Glismann Road

# Groundwater Resource Report

Easting: 2532991 Northing: 2383504 Depth to Water Table: 5 - 10m

Groundwater Layers (Aquifers and Aquitards)	Depth Below Surface (m)	Groundwater Salinity (mg/L)	Groundwater Management Unit (GMU)	(GMU) Depth Below Surface (m)	PCV (ML/yr)
QA Quaternary Aquifer sand, gravels, clay, silts	0 7	1001-3500	Unincorporated Area		
BSE Mesozoic and Palaeozoic Bedrock (basement) sedimentary (fractured rock): Sandstone, siltstone, mudstone, shale. Igneous (fractured rock): includes volcanics, granites, granodiorites.	7 207	Unknown	Unincorporated Area		

For further information about this report contact:

Department of Environment and Primary Industries Email: ground.water@dse.vic.gov.au

For further information on groundwater licensing in this area contact:

Southern Rural Water Corporation

Phone: 1300 139 510 Email: srw@srw.com.au Website: www.srw.com.au

## How to read this report

#### Introduction

Groundwater is part of the water cycle. When rain or snow falls on land, some of it evaporates, some flows to streams and rivers, and some seeps into the soil. Some of the water in the soil is used by plants but some continues to move down through the soil and rock until all the pores and cracks are full of water. This is known as the water table and this water is called groundwater.

Groundwater is a finite resource that, like surface water, is allocated under the *Water Act (1989)*. A Bore Construction Licence is required to drill for groundwater including for domestic and stock purposes. Taking and using groundwater for commercial or irrigation purposes requires an additional licence.

### Purpose of this report

This report has been prepared to provide potential groundwater users with basic information about groundwater beneath their property. This includes the different geological layers, the depths of the layers and the salinity of groundwater in the layers. Information on the groundwater management units (GMU) and any associated caps on the volume that can be licensed (the PCV) are also provided.

### **Definitions and context**

Term	Description
Groundwater Catchment	An identified area of the State within which groundwater resources are connected.
Easting / Northing	The coordinates of the spot that was selected on the interactive map.
Groundwater Salinity	Indicates the possible concentration of salts within the groundwater. The salt content indicates the possible uses of the water (see the Beneficial Use Table below). Fertilisers and other contaminants can also enter groundwater and affect its use. It is up to you to make sure that the groundwater you use is suitable for your purpose.
Aquifer	An aquifer is a layer of soil or rock which stores usable volumes of groundwater. Aquifers are generally limestones, gravels and sands, as well as some fractured rocks where the cracks in the rock are open and connected (some basalts, sandstones and limestones). How much water can be pumped from an aquifer depends on how much water is stored in pores and cracks, how well connected the pores and cracks are, and how thick the layer is. It is more likely that volumes of water for irrigation and urban water supply will come from gravels, sands, limestones and basalts that are at least 30 metres thick. Low volumes of water for domestic and stock use are likely from any aquifer greater than 10 metres thick. The advice above is a guide only, as the amount of water available can be highly variable. Actual pumping volumes can only be determined from drilling, appropriate construction and testing of a bore.
Aquitard	An aquitard is a layer of rock or soil that does not allow water to move through it easily, limiting its capacity to supply water. Aquitards are generally silts, clays and fractured rocks (where there are few cracks in the rock or the cracks are poorly connected).
Groundwater Management Unit (GMU)	A collective term for groundwater management areas (GMAs) and water supply protection areas (WSPAs). GMAs and WSPAs are defined areas and depths below the surface where rules for groundwater use may apply. WSPAs often have caps on groundwater use and plans describing how the resource is managed. GMAs usually have caps on groundwater use and may have local plans and rules. All other areas are managed directly through the Water Act (1989). Always check with your local Rural Water Corporation to be sure that the information on the GMU is correct for your specific location.
Permissible Consumptive Volume (PCV)	A cap that is set under the Water Act (1989) declaring the total volume of groundwater that may be taken from the area. Once the PCV is reached, no additional extraction can be licensed for use within the area unless traded from another groundwater licence holder.
Depth to Water Table	This is an indication of the depth at which groundwater might first be encountered when drilling a bore. The depth can vary from year to year, and from place to place and may vary significantly from that indicated in this report.

### Beneficial use table

Salinity	Benefici	al Use as desc	ribed by Stat	e Environment	Protection P	olicy (Ground	waters of Victo	ria) s160
Range (mg/L TDS)	Potable Water - Preferred	Potable Water - Acceptable	Potable Mineral Water	Irrigation	Stock Water	Industry	Ecosystem Protection	Buildings and Structures
<500	✓	✓	<b>✓</b>	✓	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>
501-1000		✓	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>	✓	✓
1001-3500			✓	✓	<b>✓</b>	<b>✓</b>	1	1
3501-13000					<b>✓</b>	✓	<b>✓</b>	<b>✓</b>
13001+						<b>*</b>	<b>~</b>	<b>~</b>

#### Accessibility

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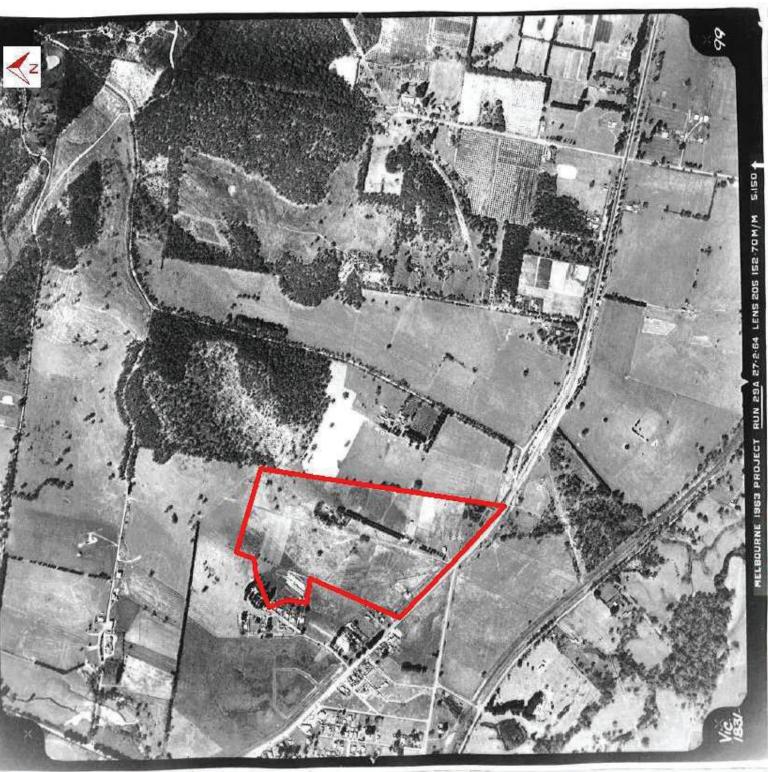


APPENDIX D

HISTORICAL AERIAL PHOTOGRAPHS & MAPS



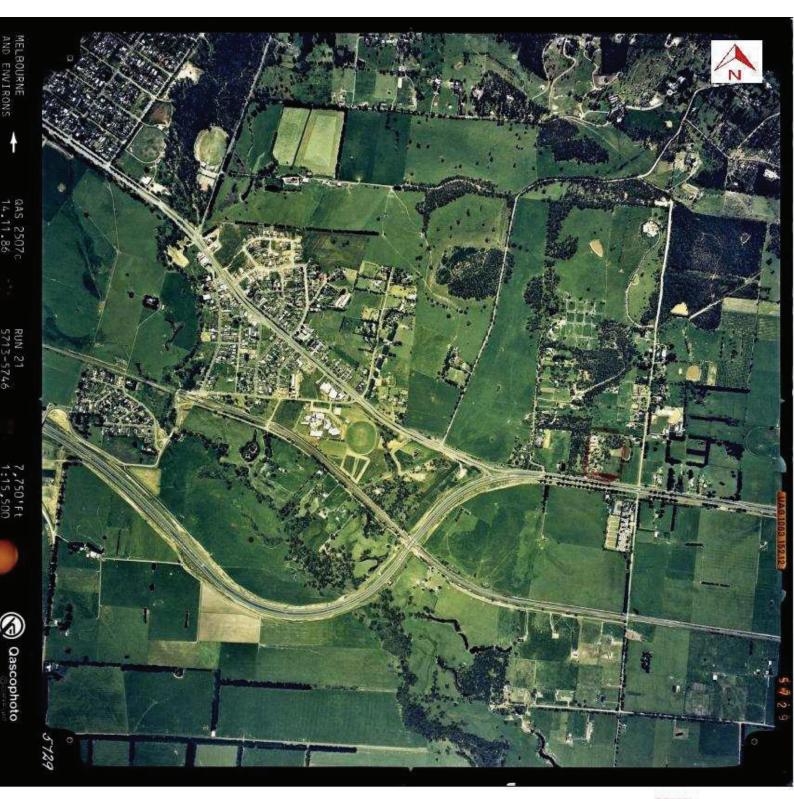
Historical Aerial Photography Glismann Road

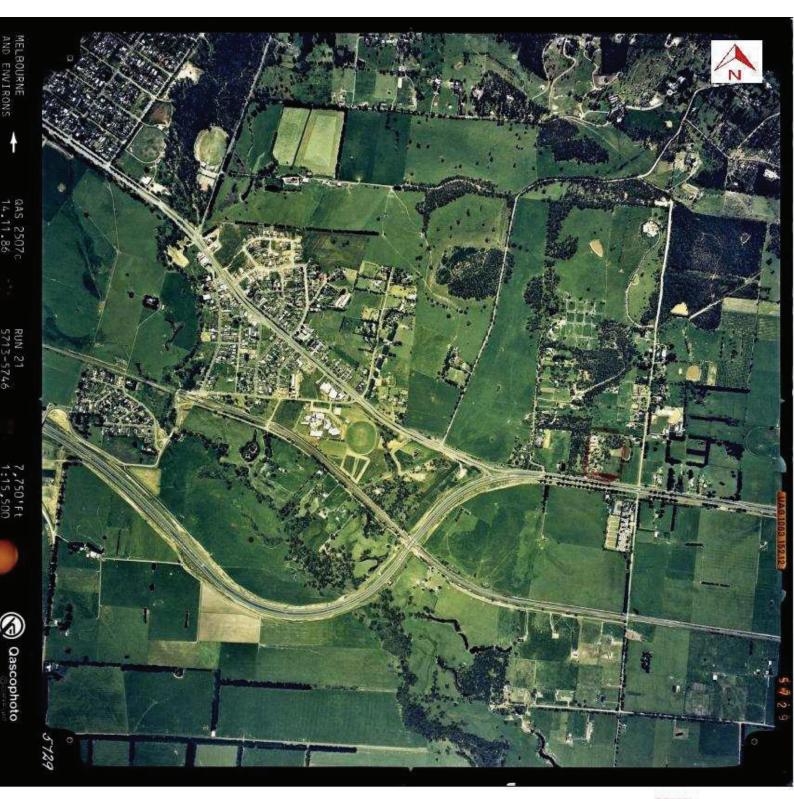












































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MMBW Beaconsfield Township Plan - 1880

MMBW Beaconsfield Township Plan 1880



MMBW Beaconsfield Township Plan - 1881



## TOWNSHIP OF BEACONSFIELD,

Being Sub-division of the Panty Gurn Gurn Estate, Crown Portion 1A, Parish of Pakenham,

The Property of Charles Souter, Esq.,

To be Sold by Auction, at the GIPPSLAND HOTEL, which is portion of the Property, by J. B. PATTERSON, Auctioneer, 6 Collins Street East, at One o'Clock, on SATURDAY, 14th May, 1881.

To be offered at the same time, Five Allotments, being Sub-division of Crown Portion 34 & 54.

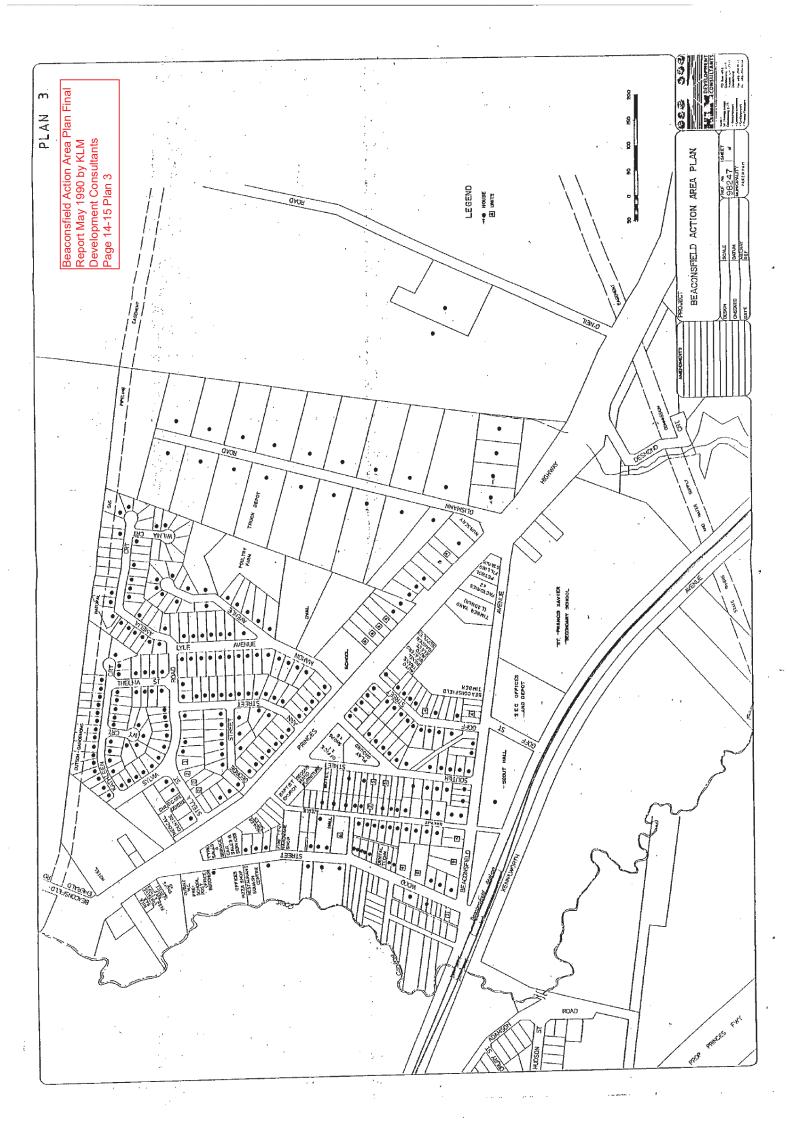
ROAD TO BEACONSFIELD

Highrs, Godfrey & Bullon, Goliutors 2 29 Collins St. West2

A. W. Robinson, C. E., Surveyor,



Beaconsfield Action Area Plan - Historic Land Use & Soil Contamination - 1990





APPENDIX E	STAKEHOLDER CORRESPONDENCE
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E-mail correspondence between Cardinia Council and Property Owners has been removed to protect private information.



APPENDIX F CONTAMINATED LAND STUDY – ADDENDUM 2018

MEIN-ARDT

8 November 2018

Lorna Lablache Cardinia Shire Council PO Box 7, Henty Way PAKENHAM VIC 3810

Meinhardt reference: 120139-L-01

Meinhardt Infrastructure & Environment Pty Ltd A.B.N. 52 100 868 979

Level 11, 501 Swanston Street Melbourne, VIC Australia 3000

T: +61 3 8676 1200 F: +61 3 8676 1201

contact@meinhardtgroup.com www.meinhardtgroup.com

Cardinia Shire Council - Glismann Road Development Plan Contaminated Land Study - Addendum 2018

Dear Lorna,

#### 1 Introduction

Meinhardt Infrastructure & Environment Pty Ltd (**Meinhardt**) was contacted by Cardinia Shire Council (**Council**) to assess the suitability to use a 2015 Meinhardt Contaminated Land Study<sup>1</sup> (Meinhardt 2015) to inform a discussion about proceedings in relation to a planning scheme amendment of the properties in the Glismann Road area of Beaconsfield, VIC 3807. A site location plan is included as *Figure 1* in *Attachment A*.

Council were in the process of applying conditions to the development of individual lots based on the findings of the Meinhardt 2015 report and Potential for Contamination (**PFC**) rankings contained therein. The rankings were assigned based on known use of the land historically from a range of searches including aerial imagery, historical Titles searches, historic maps, heritage studies, as well as historical reports and documents pertaining to the land. The results of the information searches led to the assignment of a high, medium or low risk ranking of a total of 22 properties within the development area, including two high PFC risk properties:

- 12 Glismann Road noted to be historically used for farming and cattle grazing as well as use of heavy farming equipment. A historical land use map listed the property as being as a truck depot with potential underground fuel storage tanks.
- **11 Mahon Avenue** site historically used for farming and cattle grazing as well as use of heavy farming equipment. A historical land use map listed the property as being a poultry farm.

As part of the planning scheme amendment, Council proposed to apply an Environmental Audit Overlay (**EAO**) on the two (2) properties and requested Meinhardt to provide advice in regard to the risk rankings assigned and their current validity, three (3) years after the preparation of the Meinhardt 2015 report.

This Addendum has been produced to provide comment on the validity of the Meinhardt 2015 risk rankings for the aforementioned high-risk properties. As such, this Addendum is not a standalone report and should only be read in conjunction with the original Meinhardt 2015 report.

## 2 Objective and Purpose

The objective of preparing this addendum is:

• To re-assess the findings of the Meinhardt 2015 report with respect to the contamination potential of the land at 12 Glismann Road and 11 Mahon Avenue, Beaconsfield VIC 3807.

<sup>&</sup>lt;sup>1</sup> Meinhardt, Glismann Road Development Plan: Contaminated Land Study, March 2015.



The purpose of this work is:

To provide Council with sufficient information about the two (2) high PFC risk properties to allow a
decision to be made on how to address contamination concerns, whether that be via an EAO or a
Development Plan Overlay.

### 3 Scope of Works

To assist Council in assessing the contamination potential of the 12 Glismann Road and 11 Mahon Avenue properties, Meinhardt completed the following scope of works:

- An assessment of historical aerial photography for the high risk properties, including photography taken after the date of the Meinhardt 2015 report to present day;
- Inspections of the two (2) properties which included discussions with the property owners about the known uses of the properties historically and condition of the land generally and historically when the properties came into their possession; and
- Completion of an assessment of potentially contaminated land at the two properties in accordance
  with the Department of Sustainability and Environment(DSE) (now Department of Environment,
  Land, Water and Planning (DELWP)), Potentially Contaminated Land General Practice Note, June
  2005 (DSE 2005).
- Preparation of this addendum with a description of the works completed and Meinhardt's findings based on these works, including an updated PFC risk ranking for each property.

# 4 Review of Historical Aerial Imagery

Meinhardt obtained historical aerial imagery for the two (2) properties using LotSearch Spatial Mapping tools. Observations pertaining to the land at 12 Glismann Avenue and 11 Mahon Avenue historically and in more recent times (obtained using Google Earth Pro software) are summarised in *Table 1*.

Table 1 Aerial Photography Review

Image Year	Property	Observations	
1939	12 Glismann Road	The site appears vacant with the exception of perhaps a few tree that may have existed near the location of Glismann Road.	
	11 Mahon Avenue	The property appears to house part of a homestead, surrounded by trees or other vegetation, however due to the quality of the image, no further details can be ascertained.	
1960	12 Glismann Road	There does not appear to be any change from the 1939 image reviewed.	
	11 Mahon Avenue	The imagery indicates that a homestead and some sheds exist on the property and/or on the property to the north. The homestead is surrounded by numerous trees. Homes to the south of the property at 11 Mahon Avenue appear to extend into part of the 11 Mahon Avenue site, with unsealed roads or driveways observable in the imagery.	
1962 12 Glismann There does reviewed.		There does not appear to be any change from the 1960 image reviewed.	
	11 Mahon Avenue	There does not appear to be any significant change from the 1960 image reviewed with the exception of buildings that appear to have been built at the rear of the properties south of the site that extend onto the site.	

Continued over page...



Image Year	Property	Observations
1968	12 Glismann Road	There does not appear to be any change from the 1962 image reviewed.
	11 Mahon Avenue	The homestead in the northern portion of the site remains present at the site. Two (2) large sheds appear to have been built in the southern portion of the site. Large areas of disturbed or exposed soils appear to be present to the north of these buildings. Furthermore, a total of at least seven (7) square structures appear to be present in the southwestern corner of the site, with an unsealed track in between them. These may be sheds, shelters or enclosures. Large areas of vegetation appear to be present along the southern boundary and some vegetation also exists along the western boundary of the site.
1972	12 Glismann Road	There does not appear to be any significant change from the 1968 image reviewed with the exception of what appears to be sediment run-off from the 11 Mahon Avenue site along the shared boundary between the two properties.
	11 Mahon Avenue	There does not appear to be a significant change from the 1968 image with the exception of the clearance of some trees from around the homestead in the northern portion of the property. Furthermore, the area in the south-western corner of the site appears to have changed in configuration (the seven (7) structures previously observed are not distinctly observable) and run-off of sediment from the exposed soil north of the two site sheds/ buildings appears to have spread to the 12 Glismann Road property, east of the site.
1974	12 Glismann Road	There does not appear to be any change from the 1972 image reviewed.
	11 Mahon Avenue	There does not appear to be any change from the 1972 image reviewed.
1979	There does not appear to be any change from the 19 reviewed. Construction appears to have commenced on the to the south of 12 Glismann Road.	
	11 Mahon Avenue	There does not appear to be any change from the 1974 image reviewed. Mahon Avenue and the streets to the west of the site appear to have been sealed and footpaths created.
1985	12 Glismann Road	There does not appear to be any change from the 1979 image reviewed.
	11 Mahon Avenue	There does not appear to be any change from the 1979 image reviewed.
1989	12 Glismann Road	The property appears to have been split into three (3) distinct areas including an area to the east that contains a residential building and a large shed. This portion of the property appears to be completely stripped or filled as exposed soils are visible at the surface. The other two areas of the site appear to be paddocks of varying vegetation levels and a linear structure (possible fence or service alignment) making its way through the two paddocks.
Continued over page	11 Mahon Avenue	There does not appear to be any change from the 1985 image. The homestead to the north of the site appears to have been extended.

Continued over page...



Image Year	Property	Observations		
1991	12 Glismann Road	The site does not appear to have changed with the exception of there being more vegetation around the house on this site.		
	11 Mahon Avenue	There does not appear to be any change from the 1985 imagery with the exception of a significantly greater amount of vegetation across the site including on previously observable tracks. It appears that the unsealed tracks may have become overgrown during this time.		
2004	12 Glismann Road	The site appears to be more heavily vegetated around the house and a small vegetated garden appears to have been created to the west of the house.  The site has had at least one residential dwelling built on it with a second building immediately adjacent to it (to the north). Both were connected by what appears to be an unsealed driveway to the south of the buildings. The two large sheds and associated infrastructure is no longer on the site and in their place, a large pond/dam appears to have been constructed in its place. A large area of land appears to have been cleared to the east of the two buildings at the end of a track that runs to the boundary between the property and 12 Glismann Road.		
	11 Mahon Avenue			
2016	12 Glismann Road	There does not appear to be any change from the 2004 image reviewed.		
The site does not appear to have changed significantly observed between the 2016 imagery and the 2004 in the construction of a shed in the cleared area near between the site and 12 Glismann Road and the driv the two (presumed residential) buildings on site being				
2017 (18 October)	12 Glismann Road	There does not appear to be any change from the 2016 image reviewed.		
	11 Mahon Avenue	There does not appear to be any change from the 2016 image reviewed.		
2018 12 Glismann There does not appear to be any change from reviewed.		There does not appear to be any change from the 2017 image reviewed.		
	There does not appear to be any change from the 2017 image reviewed.			

## 5 Site Inspection

An experienced Meinhardt Field Scientist attended the properties at 12 Glismann Road and 11 Mahon Avenue on 19 October 2018 to conduct an inspection of the sites and interview the property owners about the history of each of the properties.

#### 5.1 12 Glismann Road

Meinhardt attended the 12 Glismann Road site and observed that the it was a residential property with associated sheds used for storage of garden tools and equipment. The large shed on the property (observable in aerial imagery) was also used to store a range of household items and paintings. Based on conversations with the property owner, it is understood that the shed is used as an area to create artworks using paints and epoxy resins. A range of paints, paint brushes and household chemicals were observed to be stored within the shed. The shed slab was in good condition with an area in the south eastern part of the shed showing indications of staining. Based on conversations with the owner, that portion of the shed slab is slightly lower than its surrounds and water pools within the shed during times of heavy rainfall. Rainwater from the roof of the shed is captured in a water storage tank on the western side of the shed.



Site drainage is understood to be relatively good, with most drains being observed to be clear of blockages and anecdotal evidence suggesting that surface water runoff during heavy rainfall events flows to the fields to the west of the dwelling on the site.

A small vegetable/ garden was located to the west of the house and used as a hobby garden (non-commercial vegetable production). The site was well vegetated and all plants appeared to be in healthy condition.

The paddocks on the site appear to be used for grazing by sheep owned by one of the neighbours of the site. Two open fronted wooden farm sheds with wooden fencing exist on the southern boundary of the property, however the current owners do not own any farm animals and this structure may be from historical presence of domesticated farm animals at the site.

A discussion with the owner about the historical use of the site provided more information on why the property was historically listed as a truck stop. The current owner indicated that the site was previously owned by a trucker who used to own at least one (1) truck. He used to park his truck in the shed and the vehicle was used to make a living. When the site changed hands to the current owners, they did not see evidence of any bowsers or bulk fuel storage tanks and the site inspection conducted also confirmed this.

#### 5.2 11 Mahon Avenue

The land at 11 Mahon Avenue is used by the owner for residential purposes and also for the storage of tools and supplies for a concreting business that the land owner runs. The buildings in the north west of the site are used for residential purposes and comprise of living areas, bedrooms, swimming pool and garages. The topography of the site means that these areas are elevated relative to other parts of the site. The home is approximately 16 years old and was built from scratch on the site.

A driveway to the south of the two residential buildings led down to a large open shed and shipping container where wooden frames, steel grids, Styrofoam and other products in concreting were observed stored neatly in areas within and outside the large shed. Tools and chemicals used in the concreting process and fuels for the operation of generators and other machinery were observed to be stored in a separate enclosed area within the shed, and the concrete in this room was not stained and there were no indications of chemical spills across this area of the site.

A small area of burn residue and ash was observed adjacent to a gate that led to the pond. The site owner indicated that he often burns cardboard and paper waste (from around the house and packaging of products used in his business) there. The pond appeared to be in good condition and water appeared to be clear and free of visible indicators of impact. The soils around the pond were well covered by grass and sheep were observed to be grazing on this portion of the site. The owner indicated that the sheep were owned by a neighbour and the sheep grazed on his property occasionally as they were able to crawl under a fence to access his property.

The land owner indicated that when he purchased the property, it was severely overgrown and there was a steep drop from where his home is currently built and his current shed. Furthermore, the owner indicated that the buildings that were present on the site (the two sheds observed in the aerial imagery) were filled with old hospital beds and hospital furniture which was disposed of prior to the demolition of the sheds. During the demolition of the sheds, the owner engaged A-Class Asbestos Removalists to remove all asbestos-containing materials from the sheds before they were dismantled. A cattle yard-like fence installation in the south western corner of the site, adjacent to the primary school to the south of the south was also removed and taken from the site. Subsequent to this, the owner engaged a contractor to construct a pond on the site which was built within a portion of the footprint of the former sheds. During this work, no significant quantities of waste or other malodorous or impacted material was excavated, and all soils appeared to be natural soils as expected across the general locale. The only non-soil items excavated were some minor fragments of timber, likely from the foundations or structures associated with the former sheds.

To reduce the grade of the steep drop between the residence and the location of the current shed used by the land owner, an earthworks contracting company was engaged to source clean fill which was used to build a slope between the residence and the lower lying area to the east. This was overseen by the owner and the soils were considered to be clean fill soils suitable for his property.



Based on the information gained during the site inspection, discussions with the land owner and the information in the Meinhardt 2015 report, it is possible that the two sheds that were historically at the site were used for some form of farming practice, such as a chicken farm, however anecdotal evidence from the site owner suggests that there were no significant impacts from farming operations noted in the soils beneath the footprint of the sheds (excavated during the construction of the pond) and much of the remainder of the site was historically vacant.

## **6 Updated Potential for Contamination Rankings**

The information obtained from the aerial photography review and site inspection was collated to provide an updated assessment of the PFC at each property, in accordance with the DSE 2005 guidance. A 'traffic light' system (**Green = Low**, **Orange = Medium** and **Red = High**) was used in the PFC assessment of each of the properties investigated. The PFC assessment also identified potential contamination sources and Contaminants of Potential Contamination (CoPC) which may not fall completely within the remit of the DSE 2005 guidance but which may nonetheless pose a potential risk to the future development of a property.

#### 6.1 12 Glismann Road

The land at 12 Glismann Road did not appear to have been developed until some time between 1985 and 1989. It may have been used for grazing, however no built structures appeared on aerial imagery of the site until 1989. After this time, a single dwelling and associated garage or shed was constructed on the property. The site appears to always have been used primarily as a house with associated buildings (sheds) and today also houses a vegetable garden. While historical land use information (Council Land Use Map 1990²) has suggested the property was used as a truck stop, evidence from the walkover suggests that this is not the case and that the property may have housed trucks owned by the previous occupier of the site who was a trucker.

The only areas of concern at the site currently would be the large shed, which is used to store paints, solvents, petrol and other chemicals used on the property for recreational (painting) and site maintenance (mowing) purposes.

#### 6.2 11 Mahon Avenue

The land at Mahon Avenue appears to have historically been used for farming/ agricultural purposes until it was purchased and developed into a residence with an area also used for the storage of tools and materials in a concreting business. When the site was redeveloped, the land owner engaged contractors to remove the former sheds, cattle yard fencing and their contents. These items were either disposed of or salvaged by the demolition contractors. All asbestos-containing building materials were removed by A-Class Removalists. Following the dismantlement/ demolition of the sheds, the land owner engaged a contractor to construct a pond beneath the footprint of the former sheds. During this process, soils were excavated and no evidence of impact were noted by the contractor.

While the description of the works performed on the site to transform it into its current state indicated no impacts to the land from a visual and olfactory standpoint, no chemical information on the condition of soils or groundwater is available to confirm that historical activities had little to no impact on the condition of the site.

The current use of the site largely does not appear to have caused any significant impacts to the site, with the exception of localised areas of incineration where Polycyclic Aromatic Hydrocarbons (PAH) may have been generated. These impacts are unlikely to be extensive and unlikely to have a significant detrimental impact on the land at the site.

# 6.3 Summary of Potential for Contamination

Based on the information contained within this report, Meinhardt believes that the risk rankings presented in the Meinhardt 2015 report for 12 Glismann Road and 11 Mahon Avenue should be downgraded to low and medium PFC rankings, respectively, as detailed in *Table 2*.

<sup>&</sup>lt;sup>2</sup> Extract from KLM Development Consultants, Beaconsfield Action Area Plan Final Report, 1990, obtained from Council.



Table 2 Revised Potential for Contamination Ranking

Property	Potential Contaminating Activity	Contaminants of Potential Concern	Revised PFC Ranking	Comment
12 Glismann Road	Potential historical farming/ agricultural activities	Heavy metals, pesticides, herbicides, fertilisers, total recoverable hydrocarbons, PAH, faecal coliforms	Low	Risk ranking has been downgraded from High to Low due to insufficient evidence of the site being used as a truck stop. It is believed that the former owner of the site owned a truck(s) but no evidence of bulk fuel storage was observed.
	Equipment storage and maintenance	Heavy metals, TRH, BTEXN, PAH and VOC		
11 Mahon Avenue	Known historical farming/ agricultural activities	Heavy metals, pesticides, herbicides, fertilisers, total recoverable hydrocarbons, PAH, faecal coliforms	Medium	While the site has historically been used for farming or agricultural purposes, the risk ranking has been downgraded due to the observed condition of the site at present and information provided by the land
	Equipment storage and maintenance	Heavy metals, TRH, BTEXN, PAH and VOC		owner about site condition during removal of former sheds and other above ground structures.

#### Notes:

PAH = Polycyclic Aromatic Hydrocarbons
BTEXN = Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene

TRH = Total Recoverable Hydrocarbons VOC = Volatile Organic Compounds

#### 7 Limitations

The assessment in this report was restricted to the agreed scope of works and is subject to the limitations set out below or elsewhere within this report.

The assessment has been undertaken and performed in a professional manner consistent with the skill and care ordinarily exercised by reputable consultants under similar circumstances. No other warranty, expressed or implied, is given.

Where Meinhardt Infrastructure & Environment Pty Ltd (Meinhardt) has relied on verbal information and/or documentation provided by the client and/or third parties, Meinhardt did not attempt to independently verify the accuracy or completeness of that information. To the extent that the conclusions or recommendations in this report are based in whole or in part on such information, they are contingent on its validity. Meinhardt assume no responsibility for any consequences arising from any information or condition that was inaccurate, concealed, withheld, misrepresented, or otherwise not fully disclosed or made available to Meinhardt.

Other than the visual observations and analytical data as stated in this report, no representations or warranties are made concerning the nature or quality of the soil, groundwater, surface water and/or soil vapour on the site. On all sites varying degrees of non-uniformity of the vertical and horizontal, groundwater, surface water and/or soil vapour/landfill gas conditions are encountered. Hence no sampling technique can completely eliminate the possibility that samples are not totally representative of soil and/or groundwater conditions on a site.

It should also be recognised that site conditions, including contaminant extent and concentrations can change with time. Hence, the information in this report is only accurate as at the date of issue. If this report is used after a protracted delay, further investigation of the site may be necessary.

This report has been prepared on behalf of the client for the benefit of the client only (the authorised recipient).

The report and the information contained within it are solely for the use of the authorised recipients and it may not be used, copied or reproduced in whole or in part for any purpose other than that for which it



was supplied by Meinhardt. Meinhardt makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this report or the information contained within it

# 8 Closing

We trust that this addendum provides Cardinia Shire Council with sufficient information to make a decision on how best to address potential contamination concerns at the 12 Glismann Road and 11 Mahon Avenue properties using planning instruments including overlays.

Should you have any comments or queries regarding this report or any other projects please contact the undersigned on (03) 8676 1225 or via email at sid.paleri@meinhardtgroup.com.

Yours sincerely,

### Meinhardt Infrastructure & Environment Pty Ltd

Sid Paleri

Senior Environmental Scientist

Attachments:

Attachment A - Figures



Attachment A – Figures

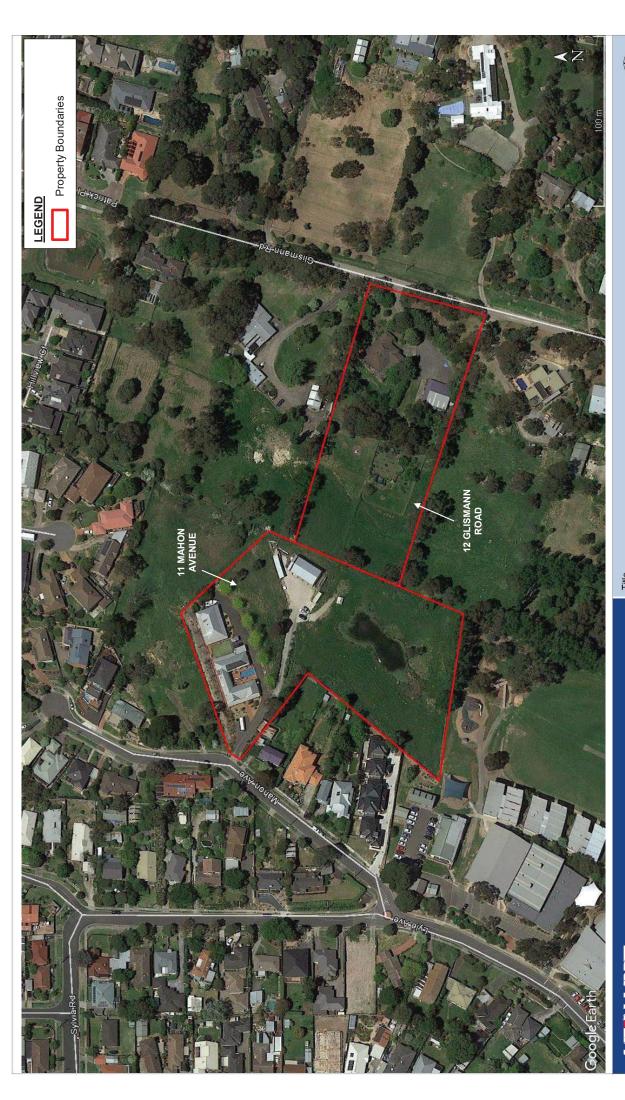




Figure 1 – Site Location Plan

Project CSC - Glismann Road Desktop Update

Client

Cardinia Shire Council

Project Number 120139

F01

Reference Number

DATA SOURCE: Aerial Imagery, Google Earth Pro, Image date: 18/10/2017, obtained 2018; Site Boundaries, Meinhardt, 2018. X/120139 - CSC. Glismann Road- Desktop Update) (6\_ENV4\_REPv2\_Working)

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**APPENDIX G** 

CONTAMINATED LAND STUDY REPORT JUSTIFICATION AND NEXT STEPS

19 March 2020

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Meinhardt reference: 120139-L-02

MEIN-ARDT

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Cardinia Shire Council - Glismann Road Development Plan Contaminated Land Study - Report Justification and Next Steps

Dear Lorna,

#### 1 Introduction

Meinhardt Infrastructure & Environment Pty Ltd (**Meinhardt**) was contacted by Cardinia Shire Council (**Council**) on 12 March 2020 to discuss a response by EPA Victoria (**EPA**) in relation to a planning scheme amendment for the Glismann Road Development project submitted by Council, which refers to the Meinhardt, *Glismann Road Development Plan: Contaminated Land Study*, November 2018 (Meinhardt 2018). EPA provided Council with comments on Council's proposal, noting that it had concerns about the methodology used in the Contaminated Land Study completed by Meinhardt.

Subsequent telephone conversations between Council, EPA and Meinhardt occurred to understand the concerns expressed by EPA and this letter aims to further explain the methodology Meinhardt adopted in the Meinhardt 2018 report and summarise the risk ratings prescribed by Meinhardt, including recommendations for further assessment.

## 2 Meinhardt 2018 Report - Discussion

The works completed for the Meinhardt 2018 report were initially conducted and issued to Council in 2014 and later updated in 2018 following site inspections conducted at two (2) properties within the Development Area initially rated as having a high potential for contamination (**PfC**) rating. In deriving risk ratings, Meinhardt adopted the recommendations in the Department of Sustainability and Environment, *Potentially Contaminated Land – General Practice Note*, June 2005 (**PPN30**) guidance document on identifying contaminated land potential based on historical land uses including adopting ratings based on Table 1 of PPN30 where appropriate. In assessing the PfC at the properties within the Glismann Road Development Area, Meinhardt noted that properties often did not fit well into any specific risk category (high, medium or low risk) based on historical use of the land. Nonetheless, Meinhardt initially assigned a risk rating to each property based on the guidance provided in PPN30, before fine tuning ratings based on experience with contaminated sites and the types of materials, chemicals and activities that may give rise to contaminated land issues.

As such, Meinhardt considers that the methodology adopted not only fulfils the standard set by PPN30, but exceeds it by assessing risk-based on factors other than current or historical use and providing a more robust assessment of individual properties. However, Meinhardt notes that in accordance with PPN30, that Council may be required to complete additional assessment of properties based on proposed future use of the land within the Development Area.

# 3 Summary of Risk Ratings and Actions

Meinhardt understands that Council intends on re-zoning the Glismann Road Development area from Rural Living Zone (RLZ) to Neighbourhood Residential zone for residential use. Based on this, and in accordance with Table 2 of PPN30, the PfC ratings for the properties within the Glismann Road Development Area are detailed in *Table 1*, along with any further actions required to be taken by Council.



Table 1 PfC Risk Ratings and Requirements for Further Action

Table 1	PfC Risk Ratings and Requirements for Further Action					
Property ID	Property Address	Historical Use	PPN30 PfC Risk Rating	Further Assessment Required?		
1	1 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – however, assigned a Medium PfC rating.	Yes – Further assessment may be warranted prior to making conclusion on need for Environmental Audit.		
2	2 Glismann Road	Farming activities, infilling.	Historical use not listed in PPN30 – however, assigned a Medium PfC rating.	Yes – Limited Soil Assessment may be warranted prior to making conclusion on need for Environmental Audit.		
3	3 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.		
4	4 Glismann Road	Farming activities	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.		
5	5 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.		
6	6 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.		
7	7 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.		
8	8 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – however, assigned a Medium PfC rating.	Yes – Further assessment may be warranted prior to making conclusion on need for Environmental Audit.		
9	9 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.		
10	10 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – however, assigned a Medium PfC rating.	Yes – Further assessment may be warranted prior to making conclusion on need for Environmental Audit.		
11	11 Glismann Road	Farming activities	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.		
12	12 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.		
13	13 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.		
14	14 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.		
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(Continued over page...)



Property ID	Property Address	Historical Use	PPN30 PfC Risk Rating	Further Assessment Required?
15	15 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.
16	16 Glismann Road	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.
17	11 Mahon Avenue	Farming/ agricultural activities, equipment storage and maintenance	Historical use not listed in PPN30 – however, assigned a Medium PfC rating.	Yes – Limited Soil Assessment may be warranted prior to making conclusion on need for Environmental Audit.
18	13-15 Mahon Avenue	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.
19	111-113 Old Princes Highway	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.
20	115-117 Old Princes Highway	Farming activities	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.
21	119-121 Old Princes Highway	Farming activities	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.
22	123-125 Old Princes Highway	Farming activities, equipment storage and maintenance	Historical use not listed in PPN30 – assigned a Low PfC rating.	No.

Meinhardt notes that a total of five (5) properties have been assigned a Medium PfC rating, which would translate into further assessment potentially being required on those properties to assess whether an Environmental Audit is appropriate. Meinhardt refers Council to Table 6-1 and Table 2 of the Addendum in Appendix F of the Meinhardt 2018 report for further information on the rationale behind the medium PfC ratings.

For properties 1, 8 and 10, the rating is based on the potential for storage of chemicals used in agriculture or other maintenance activities at those sites. Meinhardt has not inspected these properties and as such cannot exclude the possibility of this use of the properties without further inspection/ information.

At properties 2 and 17, the rating assigned is based on filling and improvement works conducted at these properties, where information about the materials within and/or chemical constituents of soils used to fill the sites is unknown.



# 4 Closing

We trust that this addendum provides Cardinia Shire Council with a summary of Meinhardt's position on the Meinhardt 2018 report and guidance on further works that may be required on how best to address potential contaminated land concerns within the Glismann Road Development area.

Should you have any comments or queries regarding this letter or any other projects please contact the undersigned on (03) 8676 1225 or via email at sid.paleri@meinhardtgroup.com.

Yours sincerely,

Meinhardt Infrastructure & Environment Pty Ltd

Sid Paleri

Associate - Environment