VICROADS

Mordialloc Bypass

PRELIMINARY GROUNDWATER IMPACT ASSESSMENT

2135645A-SE-26-WAT-REP-0002 RevB

CONFIDENTIAL

JUNE 2017

WSP | PARSONS BRINCKERHOFF

Mordialloc Bypass

PRELIMINARY GROUNDWATER IMPACT ASSESSMENT

VicRoads

Confidential

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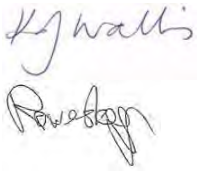
Prepared by:	Kelly-Jane Wallis, Pepijn Van Ravesteyn	Date: 26/06/2017	Signature:	
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GLOSSARY

Alluvium	General term for unconsolidated deposits of inorganic materials (clay, silt, sand, gravel, boulders) deposited by flowing water.
Aquifer	Rock or sediment in a formation, group of formations or part of a formation that is saturated and sufficiently permeable to transmit economic quantities of water to wells and springs.
Aquitard	Saturated geological unit with a relatively low permeability that can store large volumes of water but does not readily transmit or yield significant quantities of water to bores or springs. An aquitard can sometimes, if completely impermeable, be called an aquiclude.
Australian Height Datum (AHD)	A level datum, uniform throughout Australia, that generally approximates mean sea level.
Beneficial use	An alternative reuse for a material such as coal seam water or salt residues that changes the status of the material from a waste to a resource that can be used for a beneficial purpose.
Bore	Artificially constructed or improved groundwater cavity used for the purpose of accessing or recharging water from an aquifer. Interchangeable with borehole, piezometer.
Borehole	Includes a well, excavation, or other artificially constructed or improved groundwater cavity which can be used for the purpose of intercepting, collecting or storing water from an aquifer; observing or collecting data and information on water in an aquifer; or recharging an aquifer. Interchangeable with bores, wells, piezometers.
Clay	Deposit of particles with a diameter less than 0.002 mm, typically contain variable amounts of water within the mineral structure, and exhibit high plasticity.
Coal	Carbon-based sedimentary rock formed by the accumulation and decomposition of plant material in layers, which can be used as a combustible fuel. Main types, in order of highest rank to lowest rank, are black coal (anthracite, bituminous, sub-bituminous), brown coal (lignite) and peat (considered to be a precursor of coal).
Colluvium	Term for deposits or sediment which is deposited at the base of steep inclines by erosion and downslope creep.
Confined aquifer	An aquifer bounded above and below by impervious (confining) layers. In a confined aquifer, the water is under sufficient pressure so that when wells are drilled into the aquifer, measured water levels rise above the top of the aquifer.
Dewatering	Draining, permanently or temporarily, a wet area of land or an aquifer.
Dissolved solids	Minerals and organic matter dissolved in water; a measure of salinity.
Drawdown	The change in groundwater level in a bore, or the change in water table elevation in an unconfined groundwater system, due to the extraction of groundwater.

Ecosystem	An organic community of plants, animals and bacteria and the physical and chemical environment they inhabit.
Fault	Zone of displacement in rock formations resulting from forces of tension or compression in the earth's crust.
Formation	General term used to describe a sequence of rock layers.
Fracture	Break or defect in a rock including cracks, joints, and faults.
Groundwater	Water found in the subsurface in the saturated zone below the water table or piezometric surface i.e. the water table marks the upper surface of groundwater systems.
Groundwater flow	The movement of water through openings and pore spaces in rocks below the water table i.e. in the saturated zone.
Groundwater resource	Groundwater available for beneficial use, including human usage, aquatic ecosystems and the greater environment.
Hydraulic conductivity	Measure of the ease with which water will pass through earth material; defined as the rate of flow through a cross-section of one square metre under a unit hydraulic gradient at right angles to the direction of flow (metres per day).
Hydraulic gradient	Change in the hydraulic head over a certain distance.
(Hydraulic) head	Elevation to which water will rise in a borehole connected to a point in an aquifer.
Hydrogeology	The study of the interrelationships of geological materials and processes with water, especially groundwater.
Impact	An event that disrupts ecosystem, community, or population structure and alters the physical environment, directly or indirectly.
Infiltration	The downward movement of water from the atmosphere into the ground; not to be confused with percolation.
Lithology	The physical character of rocks.
Monitoring bore	A bore used to monitor groundwater levels or quality.
Permeability	The ease with which a fluid can pass through a porous medium and is defined as the volume of fluid discharged from a unit area of an aquifer under unit hydraulic gradient in unit time (metres per day).
pH	Absolute value of the decimal logarithm of the hydrogen-ion concentration (activity). Used as an indicator of acidity (pH < 7) or alkalinity (pH > 7).
Quartz	Quartz is a mineral composed of silicon and oxygen atoms in a continuous framework of SiO4 silicon–oxygen tetrahedra, with each oxygen being shared between two tetrahedra, giving an overall chemical formula of SiO2.

Recharge	Recharge is defined as the process by which water is added from outside to the zone of saturation of an aquifer, either directly into a formation, or indirectly by way of another formation.
Salinity	The concentration of dissolved salts in water, usually expressed in electrical conductivity (EC) units (µS/cm) or total dissolved solids (TDS) units (mg/L TDS).
Sediment	Particles derived from rocks or biological materials that have been transported by air or water.
Semi-confined aquifer	An aquifer that is partly confined by layers of lower permeability material through which recharge and discharge may occur, also referred to as a leaky aquifer.
Shale	Finely laminated and fissile sedimentary rock composed primarily of consolidated mud and clay.
Siltstone	Consolidated silt; fine-grained sedimentary rock.
Spring	Natural discharges of groundwater at the surface or within stream beds. Spring vents are a single point in the landscape where groundwater is discharged at the surface. Recharge (reject) springs occur where rates of recharge are greater than rates of water infiltration; thus, 'rejection' of water causes seepage of water at the surface from exposed formations. Recharge springs are commonly an ephemeral feature in a local aquifer and not necessarily connected to the water table aquifer. Discharge springs occur where faulting or rapid thinning occur against basement highs disrupting lateral through-flow of groundwater or where aquifers approach the ground surface and pressurised groundwater breaks through fractures in thin confining beds. Watercourse springs are a section of a watercourse where groundwater enters the stream from an aquifer through the streambed. These springs occur where an outcropping aquifer has been eroded to create a depression in the surface of sufficient depth to reach the water table.
Strata	Single bed of sedimentary rock, generally consisting of one kind of matter representing continuous deposition.
Stratigraphy	Branch of geology dealing with the classification, nomenclature, correlation, and interpretation of stratified rocks.
Water balance	An equation that expressed the conservation of mass of water, to account for inflows and outflows of a particular system.
Water table	The surface in an unconfined aquifer or confining bed at which the pore water pressure is atmospheric; it can be measured by installing shallow wells extending a few feet into the zone of saturation and then measuring the water level in those wells.
Watercourse	A river, creek or other stream, including a stream in the form of an anabranch or a tributary, in which water flows permanently or intermittently, regardless of the frequency of flow events: → in a natural channel, whether artificially modified or not → in an artificial channel that has changed the course of the stream. It also includes weirs, lakes and dams.

Well	A structure that is designed to bore through the earth's surface in order to extract resources.
Wetland	Numerous definitions of wetland exist. NSW Wetlands Policy wetlands are "areas of land that are wet by surface water or groundwater, or both, for long enough periods that the plants and animals in them are adapted to, and depend on, moist conditions for at least part of their lifecycle. They include areas that are inundated cyclically, intermittently or permanently with fresh, brackish or saline water, which is generally still or slow moving except in distributary channels such as tidal creeks which may have higher peak flows. Examples of wetlands include lakes, lagoons, estuaries, rivers, floodplains, swamps, bogs, billabongs, marshes, coral reefs and seagrass beds."
Yield	The quantity of water removed from a water resource e.g. yield of a borehole.

ABBREVIATIONS

AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resources Management Council of Australia and New Zealand
BOM	Bureau of Meteorology
CDFM	Cumulative deviation from mean
DELWP	Victoria Department of Environment, Land, Water & Planning
EC	Electrical conductivity
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
GDE	Groundwater dependent ecosystem
GMA	Groundwater Management Area
GMU	Groundwater Management Unit
km	kilometre
L/s	Litre per second
m	metre
mAHD	metres Australian Height Datum
mBGL	metres below ground level
mg/L	milligrams per litre
m/day	metres per day
ML	megalitre
NES	National Environmental Significance
NHMRC	National Health and Medical Research Council
OH&S	Occupational Health and Safety
PASS	Potential acid sulfate soils
SEPP	State Environment Protection Policy
TDS	Total dissolved solids
UA	Unincorporated area
WMIS	Water Measurement Information System
WSPA	Water Supply Protection Area

EXECUTIVE SUMMARY

WSP (formerly WSP | Parsons Brinckerhoff) has completed a preliminary groundwater desktop investigation of the Mordialloc Bypass project in Victoria. The scope of works at the project site includes the provision of a new road connection with a minimum of two lanes in each direction and potentially including grade separated interchanges. The key outcomes of this preliminary impact assessment are outlined below.

Conceptual hydrogeology

- The site is underlain by:
  - Quaternary (Alluvial deposits, unconsolidated)
  - Tertiary (Red Bluff Sandstone, Fyansford Formation and Werribee Formation, consolidated)
  - Mesozoic and Palaeozoic Bedrock (Murrindindi Supergroup).
- Geotechnical investigations at the Mordialloc Bypass project site encountered shallow groundwater levels less than 5 mBGL.
- Bore yields for bores within the 2 km buffer zone range from 0.06 to 19.00 L/s with an average of 1.89 L/s.
- Average pH and TDS for bores within the 2 km buffer is 6.4 and 998 mg/L, respectively.
- Major ion chemistry show that groundwater at the project site is dominated by the major ions sodium and chloride and to a lesser extent by bicarbonate.

Sensitive receptors

- 18 bores with beneficial groundwater uses occur within 500 m of the project site.
- Nine types of ecosystems that rely on the subsurface presence of groundwater with a moderate to high potential for groundwater interaction were identified within 2 km of the project site.
- Five ecosystems that rely on the surface expression of groundwater and have a high potential for groundwater interaction were identified within 2 km of the project site.

Potential impacts

- Groundwater quality affecting sensitive ecosystem.
- Groundwater quality affecting durability of structures - aggressive to concrete structures during the operational phase.
- Reduction in groundwater levels affecting existing users/sensitive receptors by changing the groundwater flow regime.
- Inflow of contaminated groundwater presenting OH&S.
- Groundwater quality impacts of discharge water on receiving environment.
- Accidental spills.

Further assessments including the installation of groundwater observation bores will be required to determine if any impacts will occur and their potential severity.

Recommendations

Based on the findings of this preliminary assessment it is recommended that further assessments are being carried out to:

- Determine if excavations will penetrate the water table and therefore experience groundwater inflows. Estimate the quantity of the groundwater inflows Test groundwater to evaluate risk to human health posed by inflows of contaminated groundwater to construction related excavations by installing and testing groundwater monitoring bore/s.
- Produce a dewatering management plan to safely manage inflows and minimise groundwater impacts.
- Determine if embankment structures proposed are sufficient to load and compress shallow unconsolidated aquifer/s and can induce changes in aquifer hydraulic conductivity and adversely

restrict or divert groundwater flow (changing flow directions and discharge zones) away from beneficial users of groundwater (groundwater bores with beneficial uses and GDEs). Install groundwater monitoring bores to monitor groundwater quality and quantity and protect environmental values.

- Install groundwater monitoring bores to test for the aggressivity of groundwater on structures.

1 INTRODUCTION

WSP (formerly WSP | Parsons Brinckerhoff) was commissioned by VicRoads to undertake a desktop level preliminary groundwater investigation at the Mordialloc Bypass site. WSP understands the preliminary groundwater assessment to be completed as a part of the development process.

This report details the preliminary groundwater investigation for Mordialloc Bypass project.

1.1 Project background and scope

Population and urban growth has outpaced road infrastructure capacity in many outer suburban areas of metropolitan Melbourne. The Victorian Government has made one of the biggest investments ever for outer suburban roads to cater for the rapid growth.

Details of the works are provided in Table 1.1 and in the sections below.

Table 1.1 Description of works

PROJECT LOCATION	DESCRIPTION
Mordialloc Bypass, from Springvale Road, Aspendale Gardens, to the newly constructed Dingley Bypass, Dingley Village	New 4 lane road potentially including grade separated interchange of Springvale Road (approximately 9.0 km)

1.1.1 Mordialloc Bypass: Dingley Village (Springvale Road to Dingley Bypass)

Melbourne's southern movement corridor connects the Mornington Peninsula and Southern and Bayside suburbs to the central city and to National Employment Clusters in Monash and Dandenong. In addition to enabling cross-city movements, the corridor provides road users with access to residential zones, recreation areas and employment and activity centres within the City of Kingston and adjacent municipalities, including the significant national employment cluster in the City of Monash. This project connects the Mornington Peninsula Freeway in the south to the Dingley Bypass to the north.

This upgrade includes:

- provision of a new road connection with a minimum of two lanes in each direction with a grade separated intersection at Springvale Road
- an elevated structure over Bowen Parkway, Mordialloc Creek and the adjacent wetlands, and critical utilities
- wherever practical, provisions for future grade separated interchanges are made
- a Shared Use Path crossing of the alignment south of Lower Dandenong Road along with a number of major culverts/small bridges at the key waterway crossings
- supporting upgrades of the crossroads, particularly where these interface with new interchanges on the Mordialloc Bypass.

1.2 Scope of works

A review of available geological and hydrogeological information for the Mordialloc Bypass was undertaken, including:

- a search of the Water Measurement Information System (WMIS) bore database (Victoria Department of Environment, Land, Water & Planning)
- a search of the Bureau of Meteorology (BOM) groundwater dependent ecosystems database
- review of readily available data/reports from previous and current studies in the project area.

Characterisation of the hydrogeological environment at the Mordialloc Bypass site, including:

- aquifer and aquitard layers
- groundwater flow paths
- groundwater quality and beneficial use
- sensitive receptors, including groundwater users and groundwater dependent ecosystems (GDEs).

The preliminary groundwater desktop assessment comprising the following:

- potential impacts on groundwater levels, quality and sensitive receptors were assessed in accordance with legislative and policy requirements. Direct and indirect impacts associated with the construction and operational phases of the project were considered
- practical measures to avoid or mitigate impacts were identified, and residual impacts on groundwater following implementation of these measures were assessed
- a program for ongoing monitoring and assessment where required.

2 GROUNDWATER LEGISLATION

2.1 State legislation

The framework for the management of groundwater in Victoria is established primarily through the:

- *Water Act 1989* – deals with the sustainable, efficient and equitable management and allocation of groundwater resources.
- *Environment Protection Act 1970* – empowers the Environment Protection Authority Victoria (EPA Victoria) to implement regulations, maintain State Environment Protection Policies (SEPPs), manage waste and protect the environment from pollution. The Act also regulates the discharge or emission of waste to water, land or air by a system of Works Approvals and licences.

A number of subordinate legislation and guidelines exist which further expand on the Water Act and the Environment Protection Act. SEPPs set out Victorian Government policies that control and reduce environmental pollution and have been formulated for discharges to land, water, atmosphere and noise emissions. These policies protect the environment and human activities (beneficial uses) from pollution caused by waste discharges and noise and are subordinate documents to the Environment Protection Act.

The State Environment Protection Policy (SEPP) (Groundwaters of Victoria) is part of *the Environment Protection Act 1970* and was developed in 1997 (latest amendment 2002) to meet community demands for an integrated framework of environment protection goals for groundwater. It aims to maintain and, where necessary, improve groundwater quality to a standard that protects existing and potential beneficial uses of groundwater. It sets a consistent approach to, and provides quality objectives for, groundwater protection throughout Victoria. This policy overrides all existing groundwater protection provisions in other SEPPs.

The policy provides that groundwater is categorised into segments, with each segment having particular identified uses. Groundwater with higher concentrations of salinity (measured as mg/L TDS) is deemed to have fewer beneficial uses. The segments and their beneficial uses are summarised in Tables 2.1 and 2.2.

Table 2.1 Segments (Government of Victoria, 1997)

SEGMENT	A1	A2	B	C	D
TDS range (mg/L)	0–500	501–1,000	1,001–3,500	3,501–13,000	Greater than 13,000

Table 2.2 Protected beneficial uses of the segments (Government of Victoria, 1997)

BENEFICIAL USES	SEGMENTS (MG/L TDS)				
	A1	A2	B	C	D
Maintenance of ecosystems	✓	✓	✓	✓	✓
Potable water supply (desirable)	✓				
Potable water supply (acceptable)		✓			
Potable mineral water supply	✓	✓	✓		
Agriculture, parks and gardens	✓	✓	✓		
Stock watering	✓	✓	✓	✓	
Industrial water use	✓	✓	✓	✓	✓
Primary contact recreation	✓	✓	✓	✓	
Buildings and structures	✓	✓	✓	✓	✓

EPA Victoria may determine these beneficial uses do not apply to groundwater where:

- there is insufficient aquifer yield to sustain the beneficial use
- the background level of a water quality indicator other than TDS may be detrimental to the beneficial use
- the beneficial use is impracticable due to one or more soil characteristics
- a polluted groundwater zone has been identified by the Authority.

SEPP (Groundwaters of Victoria) specifies groundwater investigation objectives for various beneficial uses. For the majority of beneficial uses, these objectives are those contained within the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000) and Australian Drinking Water Guidelines (NHMRC, 2011). For the protection of aquatic ecosystems, reference is made to SEPP (Waters of Victoria (EPA Victoria, 2003)).

SEPP (Groundwaters of Victoria) also requires that occupational health and safety, odour and amenity be considered, due to the fact that vapours sourced from impacted groundwater may present a potential risk to workers, and that odours or discolouration may result in degradation of overall beneficial use.

2.2 Commonwealth legislation

Commonwealth guidelines relevant to the management of groundwater include:

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC/ ARMCANZ, 2000). These guidelines provide for the sustainable use of Australia's water resources by protecting and enhancing quality, while maintaining economic and social development. These guidelines are used as groundwater quality criteria for assessing beneficial uses outlined in the SEPP (Groundwaters of Victoria).
- Australian Drinking Water Guidelines (NHMRC, 2011). These guidelines provide guidance to the Australian community and the water supply industry on what constitutes good quality drinking water. These guidelines are used as groundwater quality criteria for assessing beneficial uses outlined in the SEPP (Groundwaters of Victoria).

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) prescribes the Commonwealth's role in environmental assessment, biodiversity conservation and the management of protected areas and species, population and communities and heritage items.

Approval from the Commonwealth Minister for the Environment is required for:

- an action which has, would have, or is likely to have a significant impact on 'matters of National Environmental Significance' (NES matters). The current NES matters include:
  - World Heritage properties
  - National Heritage places
  - wetlands of international importance
  - listed threatened species and ecological communities
  - migratory species protected under international agreements
  - Commonwealth marine areas
  - The Great Barrier Reef Marine Park
  - nuclear actions (including uranium mines)
  - a water resource, in relation to coal seam gas development and large coal mining development
- an action by the Commonwealth or a Commonwealth agency which has, would have, or is likely to have a significant impact on the environment
- an action on Commonwealth land which has, would have, or is likely to have a significant impact on the environment
- an action which has, would have, or is likely to have a significant impact on the environment of Commonwealth land, no matter where it is to be carried out.

Impacts on NES matters are assessed through a referral process to the Commonwealth Department of the Environment. If the Commonwealth Minister for the Environment determines that a project is likely to have a significant impact on a NES matter, then the project becomes a controlled action and approval of the Commonwealth Minister for the Environment would be required before construction works can commence.

2.3 Groundwater licencing requirements

In Victoria, groundwater resource units are identified in Groundwater Management Areas (GMAs), Water Supply Protection Areas (WSPAs) or Unincorporated Areas (UAs). There are 40 GMAs in which groundwater has been extensively developed, or has the potential to be developed. They are geographically defined as such for the purposes of ongoing management of the aquifer and are carefully monitored via the Department of Environment, Land, Water and Planning (DELWP) State Observation Bore Network.

WSPAs are areas declared by the Minister for Water under the Act to protect stressed groundwater or surface water resources through the implementation of a statutory Groundwater Management Plan for the area. There are currently 16 WSPAs declared in Victoria. Collectively, these WSPAs and GMAs are referred to as Groundwater Management Units (GMUs).

Unincorporated Areas are areas where no significant development of the groundwater resource has occurred. This is usually because the resource is low yielding, or its quality has traditionally severely limited its use. They exist outside of GMU boundaries, although they will be defined within a GMU in the next few years.

Groundwater extraction is managed through licensing and is allocated under the *Water Act 1989*:

- to drill a bore a *Bore Construction License* is required under Section 67 of the Act for all persons
- to extract groundwater for commercial purposes (not including domestic and stock users) a *Take and Use Licence* is required under Section 51 of the Act.

Rural Water corporations are responsible for assessing licence applications, deciding whether to issue licences, and the terms and conditions on which the licence is issued. The licence will specify the exact location and depth from which groundwater can be extracted, the annual volume of water that can be pumped and the rate at which the pumping can occur (Southern Rural Water, 2017).

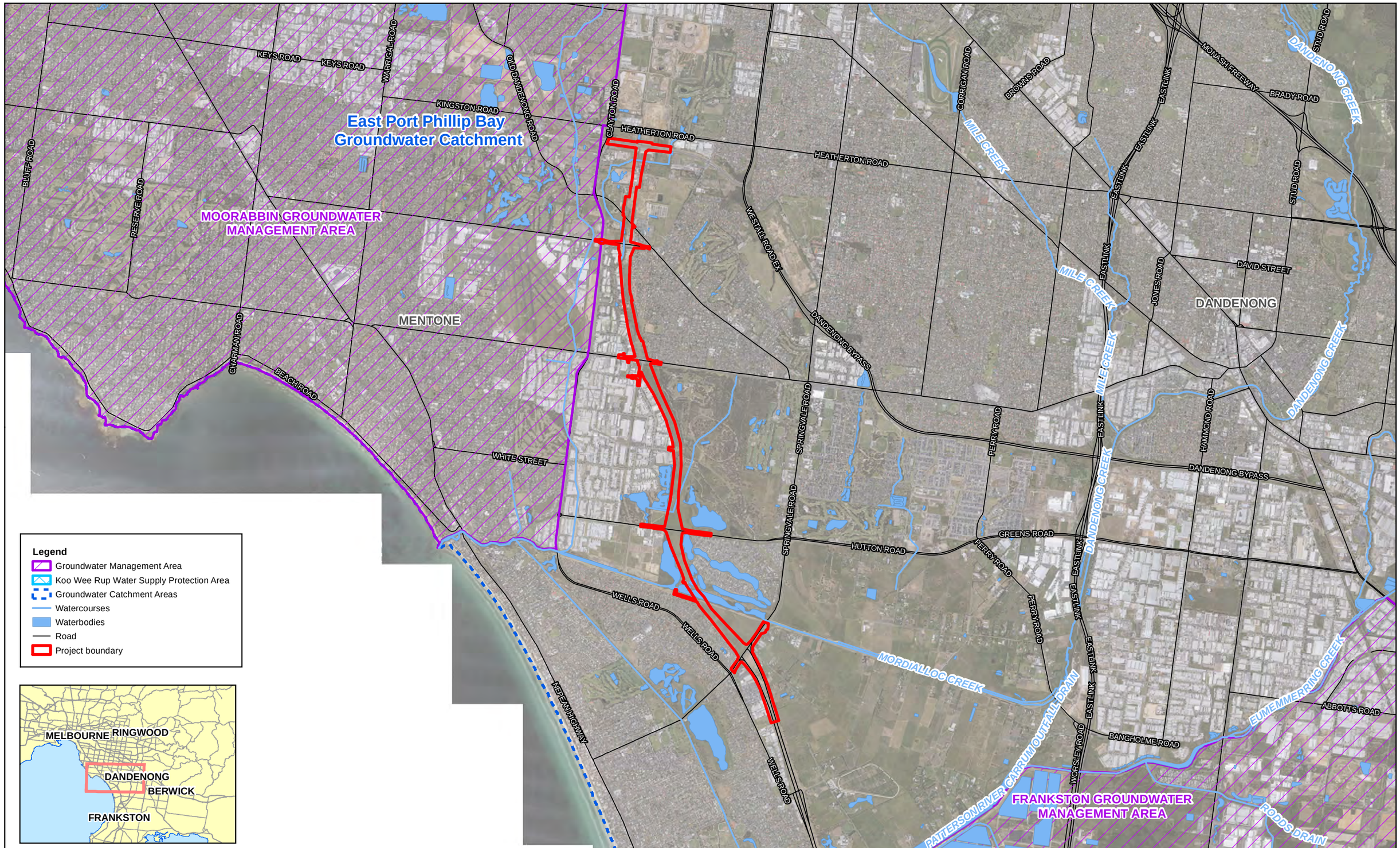
Permissible Consumptive Volumes (PCVs) have been set by the Minister for Water, which detail the maximum volume of water that can be allocated in an area for all geological formation below the surface. Many areas have been allocated to their PCV limit, meaning no new licences can be issued in these areas. The only way to acquire new groundwater in these areas is to trade with an existing groundwater licence holder. PCVs are imposed to protect the resource and prevent depletion. PCVs do not apply to UAs.

The objective of the management plan, as set out in the Water Act 1989, is to make sure that the water resources of the area are managed in an equitable manner so as to ensure the long-term sustainability of those resources. The management plan does not place restrictions on the taking of groundwater already held under licence through S51 of the Water Act, but does allow for the taking of water to be restricted in the future, if deemed necessary to ensure the sustainability of the resource.

Mordialloc Bypass site is immediately adjacent to the Moorabbin GMA, which has a PCV of 2,700 ML/yr with the northern end of the project site near Heatherton just inside the GMA boundary (Figure 2.1). Both GMAs are included in the East Phillip Bay Groundwater Catchment Statement (Southern Rural Water/DEPI, 2014).

Where excavations penetrate the water table and dewatering is required, a licence to take groundwater must be sought from Southern Rural Water. An analysis will need to be carried out to estimate the required dewatering rate and volume (Southern Rural Water, 2017).

The discharge of dewatered groundwater to the environment or to drainage infrastructure will need to be licensed by the relevant authority, water disposal to a licensed facility will not require a licence. An assessment of volume and water chemistry will need to be carried out to assess the most appropriate discharge method and obtain the relevant approvals.



Legend

- Groundwater Management Area
- Koo Wee Rup Water Supply Protection Area
- Groundwater Catchment Areas
- Watercourses
- Waterbodies
- Road
- Project boundary

Map: 2135645A_GIS_192_A	Author: MAB
Date: 26/06/2017	Approved by: EK

0 490 980 m

1:50,000

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A3

Data source: VicRoads. Copyright © The State of Victoria, Department of Environment, Land, Water & Planning 2016

Engineering and Technical Services for Mordialloc Bypass Report

Groundwater management areas at the Mordialloc Bypass project site

Figure 2.1

3 EXISTING ENVIRONMENT

3.1 Location, topography and drainage

The Mordialloc Bypass site is located 20 km south-east of Melbourne city centre, in Greater Dandenong City Council (Figure 3.1). The site is approximately 9 km in length over relatively flat topography. The Mordialloc Bypass consists of a new 4 lane road that connects Dingley Village (newly constructed Dingley Bypass, currently Heatherton Road) in the north to Springvale Road in the south.

The local topography gently slopes from 30 mAHD in the north to 2 mAHD in the south and is generally flat.

The Mordialloc Bypass crosses Mordialloc Creek and runs alongside several surface water bodies, these being Mordi Yallock Lagoon, Sunset Lagoon, Portland Lagoon, Westbridge Lagoon, Parkway Lagoon, Black Swan Lagoon, Waterways Lake and Pelican Lagoon. To the north of Governor Road there are four other surface water bodies, these being Woodlands Lake Numbers 1, 2 and 3 and an unnamed water body.

The Edithvale Wetlands are located approximately 700 m to the east of the project site and are of international importance listed under the Ramsar Convention and “A Directory of Important Wetlands in Australia” (listed Edithvale-Seaford Wetlands). The Edithvale-Seaford wetlands is known to provide habitat for:

- Sharp-tailed Sandpipers (EPBC-Act listed migratory species)
- Australasian Bittern (EPBC-Act listed species)
- high diversity of significant avifauna, in particular 20 species of waterbird listed under international migratory agreements.

Legend

- BOM weather Station
- Watercourses
- Waterbodies
- Road
- Project boundary

Map: 2135645A_GIS_184_A	Author: MAB		0 1,100 2,200 m 1:120,000 Coordinate system: GDA 1994 MGA Zone 55 Scale ratio correct when printed at A3
Date: 26/06/2017	Approved by: EK		

Data source: VicRoads. Copyright © The State of Victoria, Department of Environment, Land, Water & Planning 2016

Engineering and Technical Services for Mordialloc Bypass Report

Location of the Mordialloc Bypass site and BOM weather stations

Figure 3.1

3.2 Climate

Meteorological data were obtained from Bonbeach (86210), the closest BOM weather station shown on Figure 3.2. Most rainfall occurs from April to December whilst January to March have the lowest long-term monthly averages. Historical data shows that the coastal region at Bonbeach receives on average approximately 712 mm per year based on rainfall data from 1956 to 2016 (BOM, 2017a).

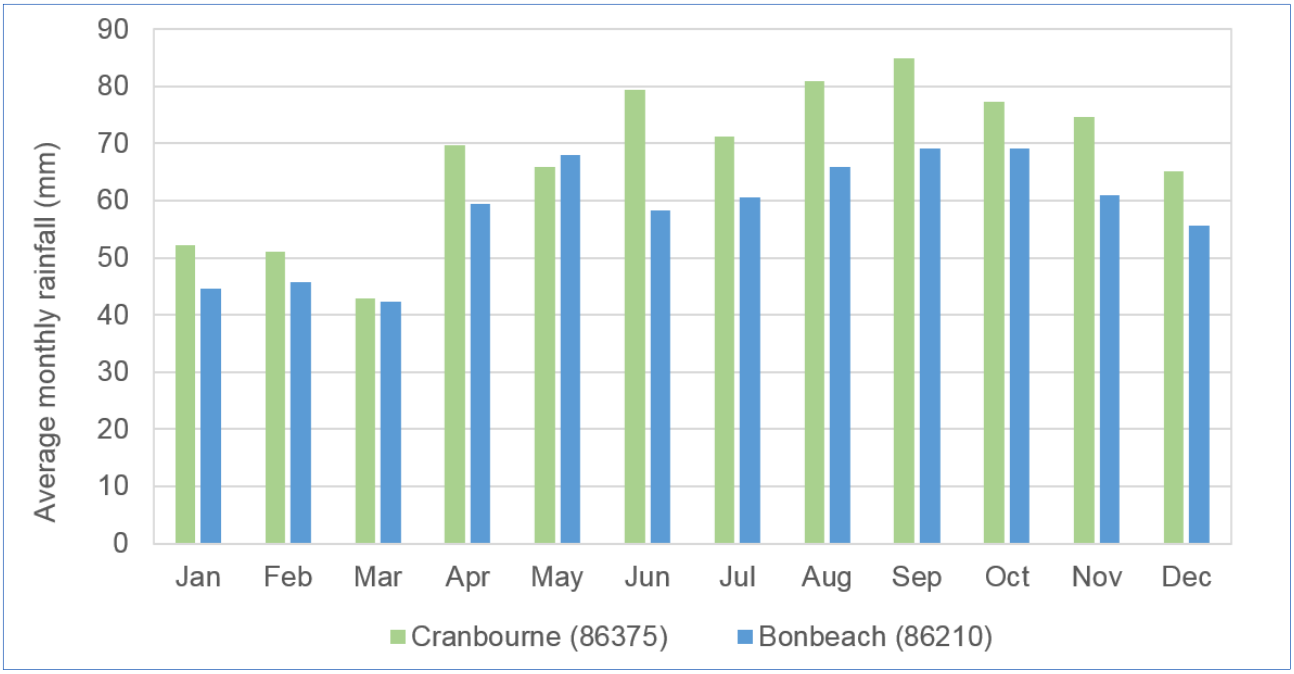


Figure 3.2 Average monthly rainfall (1955 to 2017 period for Bonbeach and 1991 to 2016 period for Cranbourne Botanic Gardens)

The long-term, annual cumulative deviation from mean (CDFM) rainfall for the 1956 to 2016 period at the Bonbeach station is plotted in Figure 3.3. Due to the data gaps, the CDFM for Cranbourne Botanic Gardens (86375) has also been added, data was available for the 1991 to 2016 period. The long-term cumulative rainfall residual plots provide an indication of the broad scale trends in rainfall pattern behaviour and are formulated by subtracting the average annual rainfall for the recorded period from the actual annual rainfall and then accumulating these residuals over the assessment period. Periods of below average rainfall are represented as downward trending slopes while periods of above average rainfall are represented as upward trending slopes.

The cumulative deviation plot shows a general upward sloping cumulative deviation trend from 1956 to 1974, followed by a downward sloping trend until 1986. The record over the next 10 years shows an upward sloping trend, indicating above average rainfall conditions. Data over the last 20 years to the present day is sparse.

The mean daily evaporation data available from the BOM weather station at Cranbourne Botanic Gardens (86375, shown on Figure 3.1) is for the 1990 to 2016 period. Mean daily evaporation ranged from 1.7 mm in June to 6.2 mm in January. Average annual evaporation for the 18 year monitoring period was 1,342 mm per year, which is almost two times the long-term rainfall average.

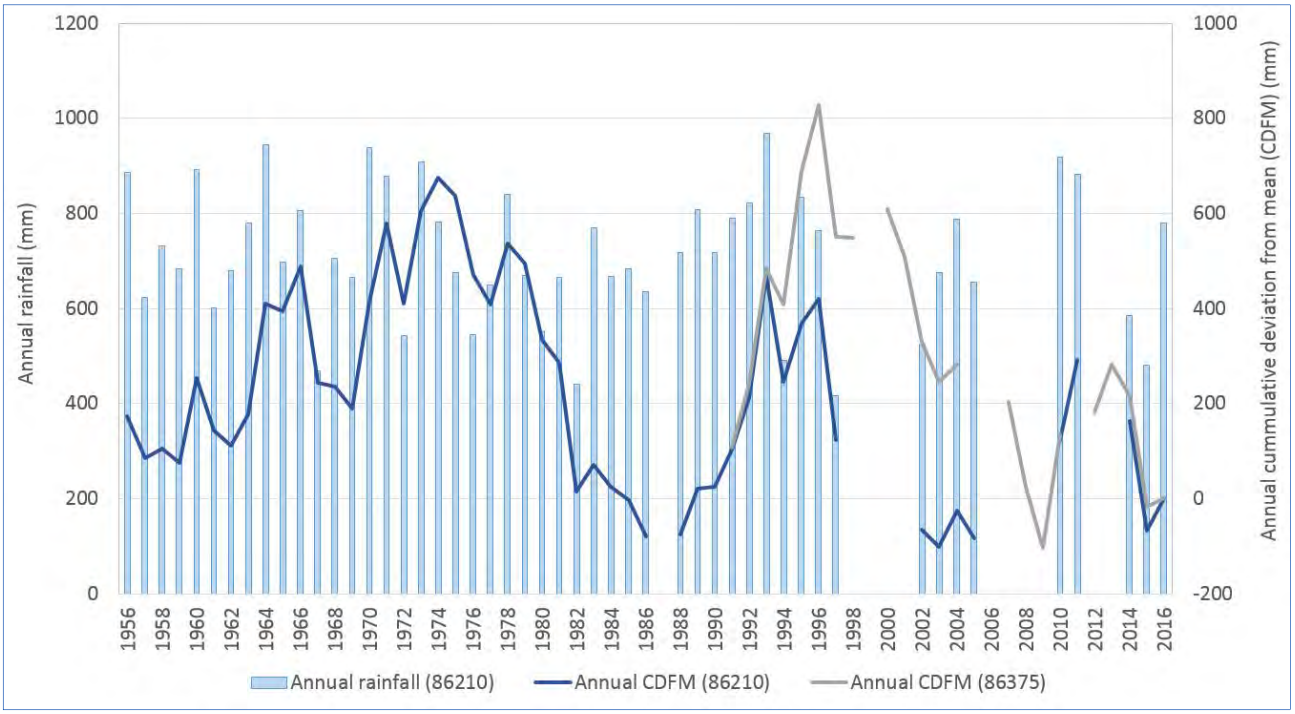


Figure 3.3 Long-term annual rainfall (Bonbeach) and CDFM curve (Bonbeach – 86210 and Cranbourne Botanic Gardens – 86375)

3.3 Geology

3.3.1 Regional geology

The 1:250,000 geology map (Department of Economic Development, Jobs, Transport and Resources, 2010) identifies the following geology at Mordialloc, listed in youngest to oldest order (refer to Figure 3.4):

- Coastal and inland dune deposits (Qdl1 and Qd1)
- Coastal lagoon deposits (Qg)
- Swamp and lake deposits (Qm1).

Pleistocene to Holocene deposits of coastal and inland dune comprising of sand, silt, clay exist at Mordialloc Bypass. Deposits are friable to consolidated and well sorted, and include both lunate deposits and longitudinal dunes.

Coastal lagoon deposits, comprising of dark grey to black silt and clay, are variably consolidated.

Pleistocene to Holocene swamp and lake deposits comprise grey to black carbonaceous mud, silt, clay, and minor peat.

Tertiary sediments of the *Fyansford Formation* underlie the Quaternary and Late Tertiary deposits. Sediments of the *Werribee Formation* underlie these younger deposits. The stratigraphic relationships between the geological units encountered within and in the vicinity of Mordialloc Bypass are summarised in Table 3.1.

Table 3.1 Stratigraphy for Mordialloc Bypass

AGE	FORMATION	LITHOLOGY
Quaternary	Alluvium	Poorly sorted gravel, sand and silty sand
	Coastal dune deposits	Sand, silt, clay: well sorted, poorly consolidated; coastal dune and beach deposits, some swamp deposits
	Inland dune deposits	Sand, silt, clay: friable to consolidated; well sorted; includes both lunette deposits and deposits of longitudinal dunes
	Coastal lagoon deposits	Silt, clay: dark grey to black; variably consolidated
	Swamp and lake deposits	Grey to black carbonaceous mud, silt, clay, minor peat: generally unconsolidated
	Colluvium	Quartz and feldspar sand: well sorted, fine to medium grained; derived from granite
Tertiary	Red Bluff Sandstone (part of the Brighton Group)	Sandstone, conglomerate: pale yellow and brown; fine to coarse-grained, massive to well-bedded; cross-bedded; local ironstone
	Fyansford Formation	Clayey silt, clay to sandy silt and silty sand of marine origin
	Werribee Formation	Sand, sandy and silty clay with pyritic and lignitic bands. These sediments were deposited in alluvial, lacustrine, and peat swamp environments between Eocene and early Miocene (Douglas & Ferguson, 1988). Basalt: alkali olivine basalt; black, fine grained, vesicular, with small olivine phenocrysts. Lava flows: nepheline basanite, alkali olivine basalt; interflow sediments, mudstone. Plugs and dykes: also include phonolite

3.3.2 Site geology

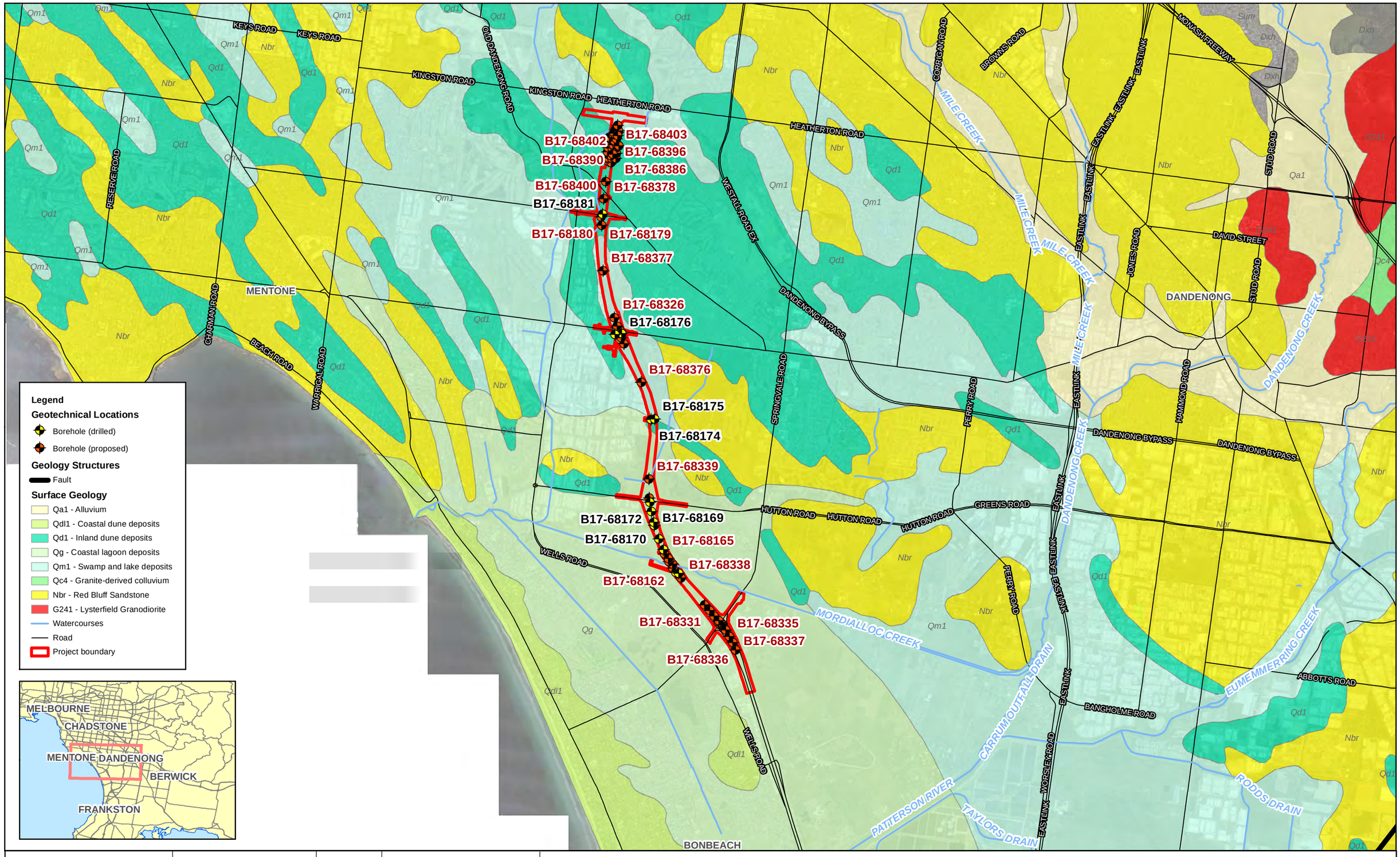
As part of geotechnical investigations, several boreholes were drilled to gain a better understanding of the site geology (Table 3.2).

Table 3.2 Geotechnical boreholes for project site

BOREHOLES*	MAXIMUM DEPTH (m)	LITHOLOGY	GEOLOGY	GROUNDWATER ENCOUNTERED
B17-68159 B17-68160	15.45	Alluvial deposits consisting of dark grey, silty clay to 3.2 m, followed by grey brown silty clay, sand deposits of the Red Bluff Sandstone to a depth of 15.45 m.	Coastal lagoon deposits Red Bluff Sandstone	2.5 m
B17-68168	24.45	Alluvial deposits consisting of dark grey, silty clay to 4 m, followed by grey brown silty clay, sand deposits of the Red Bluff Sandstone to a depth of 22 m, followed by high plasticity, dark green/grey silty clay of the Fyansford Formation.	Coastal lagoon deposits Red Bluff Sandstone Fyansford Formation	2.7 m
B17-68169	26.95	Alluvial deposits consisting of dark grey, silty clay to 4 m, followed by grey brown silty clay, sand deposits of the Red Bluff Sandstone to a depth of 26.4 m, followed by high plasticity, dark green/grey silty clay of the Fyansford Formation.	Coastal lagoon deposits Red Bluff Sandstone Fyansford Formation	2.3 m

BOREHOLES*	MAXIMUM DEPTH (m)	LITHOLOGY	GEOLOGY	GROUNDWATER ENCOUNTERED
B17-68172	24.45	Alluvial deposits consisting of dark grey, silty clay to 3 m, followed by grey brown silty clay, sand deposits of the Red Bluff Sandstone to a depth of 18 m, followed by high plasticity, dark green/grey silty clay of the Fyansford Formation.	Coastal lagoon deposits Red Bluff Sandstone Fyansford Formation	2.6 m
B17-68177	10.45	Alluvial deposits consisting of pale grey, silty sand to 3.3 m followed by grey brown silty clay, sand deposits of the Red Bluff Sandstone to a depth of 10.45 m.	Coastal lagoon deposits Red Bluff Sandstone	3.2 m

*Selected boreholes are presented



Legend

Geotechnical Locations

- Borehole (drilled)
- Borehole (proposed)

Geology Structures

- Fault

Surface Geology

- Qa1 - Alluvium
- Qdl1 - Coastal dune deposits
- Qd1 - Inland dune deposits
- Qg - Coastal lagoon deposits
- Qm1 - Swamp and lake deposits
- Qc4 - Granite-derived colluvium
- Nbr - Red Bluff Sandstone
- G241 - Lysterfield Granodiorite
- Watercourses
- Road
- Project boundary

Map: 2135645A_GIS_185_A	Author: MAB
Date: 26/06/2017	Approved by: EK

0 490 980 m

1:50,000

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A3

Data source: VicRoads. Copyright © The State of Victoria, Department of Environment, Land, Water & Planning 2016. Department of Economic Development, Jobs, Transport and Resources

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Geology map for the Mordialloc Bypass project site

Figure 3.4

3.4 Potential acid sulfate soils

Potential acid sulfate soils (PASS) underlie large areas of Australia's coastline, riverine, lakeside and other inland environments. These soils were formed long ago, underwater, when the ocean and/or lake levels were much higher. As the water levels receded, these soils remained and today can be found under low-lying areas like coastal plains, wetlands and mangroves. In an undisturbed and waterlogged state these soils are relatively harmless, but when disturbed and exposed to oxygen through drainage or excavation, these soils may produce sulphuric acid leachate in volumes sufficient to degrade waterways, vegetation and infrastructure (Southern Rural Water, 2010).

After rain and particularly following prolonged dry periods, the built up sulphuric acid in these soils may be released. As the acid moves through the soil profile it may mobilise concentrations of metals in the soil. This combined acid and dissolved metal mix may eventually flow into surrounding waterways. "Slugs" of concentrated acid runoff can flow into estuaries impacting water quality and the ecosystems that are within them (Southern Rural Water, 2010).

Potential coastal acid sulfate soils (PASS) have been identified within the road alignment and project site buffer of Mordialloc Bypass. In December 2016, VicRoads Geotechnical Services (VRGS) sampled 8 sites along the proposed alignment of Mordialloc Bypass and performed preliminary screening tests which included in-situ PASS testing and Laboratory PASS testing (VRGS, 2016). VRGS concluded that there are no ASS found in the samples collected and that an acid sulfate soil management plan is not required.

4 HYDROGEOLOGY

4.1 Groundwater resource units

The groundwater resource units present at Mordialloc Bypass have been identified using the Department of Environment, Land, Water and Planning (DELWP)'s interactive online map and groundwater resource reports are provided in Appendix A. All identified units are presented in Table 4.1 and discussed in more detail below. The site is located in the East Port Phillip Bay groundwater catchment, which is located in the Westernport groundwater catchment (refer to Figure 2.1).

Table 4.1 Groundwater resource units present at Mordialloc Bypass (DELWP, 2017a)

GROUNDWATER RESOURCE UNIT (GEOLOGY UNIT)	ESTIMATED DEPTH BELOW SURFACE (m)	GROUNDWATER SALINITY (mg/L)	CHARACTERISTICS
Quaternary Aquifer (QA) – sand, gravels, clay, silt	0–3	1,001–3,500 (Segment B, refer Table 2.2)	Unconfined to semi-unconfined water bearing zones.
Upper Tertiary Aquifer (UTAF) (fluvial) – sand, gravel and clay (Red Bluff Sandstone, Brighton Group)	3–16	501–1,000 (N) 1,001--3,500 (S)	Mostly confined by overlying clay, silt and basalt deposits. Completely eroded in some areas. Low productivity.
Upper-Mid Tertiary Aquitard (UMTD) – clay, silt, marl (fractured rock) and minor sand (Fyansford Formation)	16–47	Unknown	Widespread subsurface aquitard with low yields and poor water quality.
Lower Tertiary Aquifer (LTA) - sand, gravel, clay and silt, minor coal (Werribee Formation)	47–53	1,001–3,500	Extensive semi-confined to confined fractured rock water bearing zones.
Mesozoic and Palaeozoic Bedrock (BSE) – basement sedimentary (fractured rock): sandstone, siltstone, mudstone, shale, igneous (fractured rock), includes volcanics, granites, granodiorites Murrindindi Supergroup	53–253	<500 (S) 501–1,000 (N)	Widespread subsurface aquitard, generally with low yields and poor water quality.

4.1.1 Residual soils deposits

Residual soils deposits occur with thicknesses up to 29.5 m at the project site and comprise derivatives from the underlying weathered rock of the Red Bluff Sandstone. These residual soils are not a significant groundwater resource unit at the site. They can act as a water bearing unit supporting perched water systems but with very high variability and unpredictability. This is usually an unconfined surface water bearing zone, recharged by local rainfall, which is susceptible to groundwater contamination.

4.1.2 Quaternary aquifer

Minor deposits (<6 m) of Quaternary aquifer groundwater resource occurs at Mordialloc Bypass. The aquifer mainly exists as a thin layer of aeolian sand, swamp and lagoonal deposits. The Carrum Swamp exists

between Mordialloc and Frankston (refer to Figure 3.1), comprising thin sequence of black clay, silt and minor shell beds. They reflect a swampy lagoonal environment with few layers of marine sediment (Leonard, 1979).

Many shallow bores (<10 m deep) have been installed in the coastal dune sand between Mordialloc, immediately west of Mordialloc, and Frankston. Yields are often small (<0.15 L/s) and groundwater quality is good. Recharge is via direct rainfall infiltration and aquifer storage is limited. The groundwater is mainly used for domestic purposes (Leonard, 1979).

Local unconsolidated quaternary alluvium materials, associated with natural drainage features such as creeks and rivers, occupy topographic depressions in the underlying bedrock surface. The alluvial water bearing zones generally have highly variable hydraulic conductivities, exhibiting higher flows in water bearing zones dominated by sand and gravel and lower flows in zones with high clay content.

The Mordialloc Bypass project site is immediately adjacent to the Moorabbin GMA.

4.1.3 Upper Tertiary Aquifer (Red Bluff Sandstone) and Upper-Mid Tertiary Aquitard (Fyansford Formation)

The Brighton Group and Fyansford Formation are regularly considered a single hydrostratigraphic unit. The combined aquifer covers an area of about 550 km^2 extending from St. Kilda to south of Mornington and inland to the Dandenong-Cranbourne area. The Brighton Group sediments are usually fine grained and have low hydraulic conductivity but horizons of higher hydraulic conductivity occur as coarse sand or fine gravel lenses near the base of the upper terrestrial sediments. The groundwater in this unit varies from unconfined to semi-confined. Transmissivities for the coarser facies are in the range 20 m^2/day to 30 m^2/day (Leonard, 1992) and yields from the Brighton Group are generally around 0.6 L/sec but higher yields (4 L/sec) have been recorded (Leonard, 2006).

To the south-east of Melbourne near Mordialloc Bypass, the coarse sand, sandy limestone and gravel lenses which occur towards the base of the Fyansford Formation are important water bearing zones that are generally 30–50 m below ground level (mBGL) and 2–5 m thick. They are regarded as semi-confined (Shugg, 1975). Yields from the Fyansford Formation are typically <2.6 L/sec although yields up to 18 L/sec have been reported (Leonard, 2006).

Groundwater salinity in the Fyansford Formation-Brighton Group is extremely variable ranging from <300 mg/L to >6,000 mg/L TDS with an average of about 1,500 mg/L TDS. The salinity of the groundwater in the Fyansford Formation is generally several hundred mg/L higher in TDS than that in the shallower Brighton Group. Towards Frankston, the salinity is generally <1,000 mg/L TDS. Groundwater of higher salinity occurs around the margins of the aquifer system, including the Brighton-Moorabbin area.

The pH varies from very acidic (4.38) up to moderately alkaline (8.62) but is mostly only slightly alkaline (average 7.37). The low pH water particularly in the Clayton South area, just north Mordialloc Bypass, tends to have high concentrations of heavy metals particularly iron, zinc and nickel, and moderate sulfate levels. The acidic pH and high iron content are considered to arise from chemical reactions associated with oxidation of pyrite in the Brighton Group sediments and the high levels of zinc and nickel are due to their increased mobility in low pH groundwater (Shugg, 1982). Some sulfate may also be derived from oxidation of the pyrite (Leonard, 2006).

4.1.4 Mesozoic and Palaeozoic Bedrock (Murrindindi Supergroup)

Pre-Tertiary sandstone, siltstone, mudstone and shale, and isolated granites outcrop in the Melbourne area and occur at depth under the Cainozoic sequence in the Port Phillip Basin. The basement rocks are fractured rock type aquifers and underlie the site. Where the Palaeozoic rocks outcrop the groundwater occurs mainly in an unconfined state. Elsewhere it tends to be confined by overlying Cainozoic rocks. The depth of weathering is highly variable ranging from a few metres to more than 50 m. Aquifer hydraulic characteristics are not well known. Hancock (1992) reported hydraulic conductivity values between 0.001 m/day and 0.3 m/day along the Melbourne Warp.

Yields from bores are generally less than 0.6 L/sec. Higher yields are obtained where the rocks are highly fractured and/or deeply weathered. Yields of up to 6.0 L/sec have been obtained from bedrock underlying the Tertiary sediments underlying the south-eastern suburbs of Melbourne. Salinities vary widely, ranging from less than 100 mg/L to over 11,000 mg/L TDS. Sodium chloride predominates in the shallower waters, but in deeper waters magnesium chloride is frequently the major salt. Unweathered Palaeozoic rocks can contain pyritic minerals (Hancock, 1992).

The primary porosity (intergranular void space) of the strata is generally low as the sediments are fully lithified leading to very low hydraulic conductivities in the matrix where there is minimal fracturing. However, the flow of groundwater is usually dominated by the secondary porosity, and as such highly variable and dependant on the distribution of structural defects including fractures, joints and bedding planes.

Outcrops are generally too weathered for the fractures to be interconnected, as weathering can further reduce the storage capacity by infilling joints with decomposition products and yields low (generally less than 0.6 L/s) (Leonard, 1979). The depth of weathering is highly variable ranging from a few metres to more than 50 m.

Where the unit outcrops, groundwater is mainly unconfined. Salinities vary widely ranging from 100 to 11,000 mg/L TDS. Sodium chloride predominates the shallow groundwater (Leonard, 2006).

4.2 Groundwater levels and flow direction

Groundwater bores within 2 km of Mordialloc Bypass were identified through a Lotsearch report (Appendix B). Groundwater levels of bores within 2 km of Mordialloc Bypass were sourced from the Water Measurement Information System (WMIS) (DELWP, 2017b). Details of these are presented in Table 4.2. All available water level data is presented in Appendix C.

Table 4.2 Summary of groundwater levels of bores within 2 km of Mordialloc Bypass

DEPTH TO WATER[1]	SHALLOWEST WATER LEVEL (mBGL)[2]	AVERAGE WATER LEVEL (mBGL)[2]	NO. OBSERVATIONS[2]	DEPTH TO WATER (SITE INVESTIGATIONS)
<5 m	0.05	4.75	1,326	2.3–3.2 m

(1) Source: DELWP (2017a)

(2) Source: DELWP (2017b).

The local groundwater flow direction at the project site is predicted to be towards surface water features whilst the regional groundwater flow direction is generally expected to follow the topography.

Shallow groundwater levels were recorded in WMIS at Mordialloc Bypass. The shallowest groundwater level was recorded at a depth of 0.05 mBGL at bore 125274. Site investigations recorded groundwater levels between 2.3 and 3.2 mBGL. Groundwater flow is expected to be towards Woodlands Wetlands Lakes, Waterways Lakes and Lagoons and Mordialloc Creek with the regional flow towards Port Phillip Bay in the south/south-east.

4.3 Hydraulic properties

Bore yields in the bores within the 2 km buffer zone of Mordialloc Bypass range from 0.06 to 19.00 L/s (Table 4.3). All available bore yield data is presented in Appendix C.

Bore yields are often small (<0.15 L/s) at shallow bores (<10 m) installed in the coastal dune sand at Mordialloc (Leonard, 1979). Bore yields from the Brighton Group (including the Red Bluff Sandstone) are generally around 0.6 L/sec but higher yields (4 L/sec) have been recorded (Leonard, 2006).

Table 4.3 Bore yields (L/s) for groundwater bores within 2 km of Mordialloc Bypass (Source: DELWP, 2017b)

MINIMUM	MAXIMUM	AVERAGE	NO. OBSERVATIONS
0.06	19.00	1.89	57

4.4 Groundwater quality

The available field pH and the laboratory electrical conductivity (EC) data for groundwater samples collected at bores within 2 km of Mordialloc Bypass are provided in Tables 4.4 and 4.5 respectively. All available water quality data is presented in Appendix C. EC values have been converted to TDS concentrations to determine the beneficial use category.

Table 4.4 Field pH for bores within 2 km of Mordialloc Bypass (Source: DELWP, 2017b)

MINIMUM	MAXIMUM	AVERAGE	NO. OBSERVATIONS
4.1	8.3	6.4	38

Table 4.5 Laboratory electrical conductivity (µS/cm) (and calculated TDS in mg/L) for bores within 2 km of Mordialloc Bypass (Source: DELWP, 2017b)

MINIMUM	MAXIMUM	AVERAGE	NO. OBSERVATIONS	BENEFICIAL USE SEGMENT (REFER TABLE 2.2)
270 (176)	3,450 (2,243)	1,535 (998)	14	A1, A2, B

* TDS = EC*0.65 (Australian Water Resources Council, 1988)

Based on the TDS ranges, the groundwater is defined as segment A1, A2 and B and covers all beneficial use categories. This is generally consistent with the groundwater resource reports that classify the salinity as segment B for the upper aquifer.

The major ion characteristics of groundwater samples collected at bores within 2 km of Mordialloc Bypass are shown on the piper diagram in Figure 4.1. A piper diagram is a graphical representation of the relative concentrations of major ions (Ca^{2+}, Mg^{2+}, Na^{+}, K^{+}, Cl^{-}, HCO_3^{-} and SO_4^{2-}), and is used to distinguish the chemical profile of major water types. Groundwater is dominated by the major ions sodium and chloride and to a lesser extent by bicarbonate.

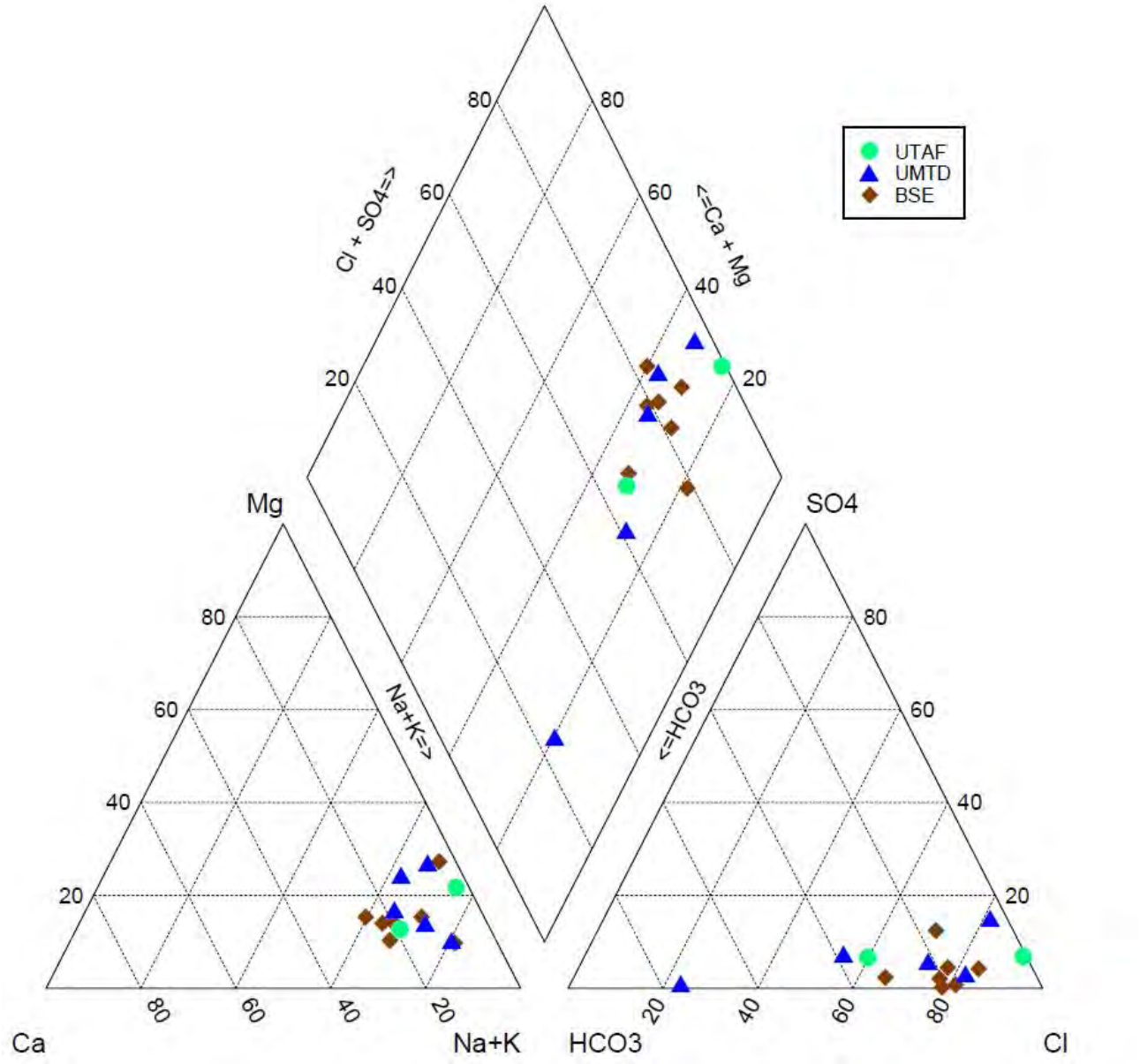


Figure 4.1 **Piper diagram of groundwater samples taken at bores within 2 km of the groundwater resource units and project site (See Table 4.1 for explanation on groundwater resource units)**

4.5 Recharge and discharge

The primary recharge mechanism to the groundwater systems is considered to be direct rainfall infiltration. The proportion of net rainfall recharging the groundwater systems depends largely on the characteristics of the surface geology, soils, the land use and depth to the water table. Recharge is expected to be lower in areas where the surface is covered by residual clayey soils and colluvium with a low hydraulic conductivity and specific yield.

Recharge to the residual clayey soils is a predominantly recharge-in/recharge-out process, associated with rainfall infiltration which typically characterise the behaviour of shallow perched water systems and limited vertical infiltration from the perched, shallow system down to the deeper regional Older Volcanics/Red Bluff bedrock system.

Recharge occurs via leakage from surface water features in areas where the groundwater table is below the stream water level. Recharge rates will largely depend on the river stage and hydraulic characteristics of the river bed material and underlying geology.

The lower aquifers are recharged locally where they outcrop and by vertical leakage from the upper aquifers in places where the hydraulic head of the upper aquifer is above that of the lower aquifer, mostly where low permeability units are absent.

Groundwater can discharge from shallow perched aquifers into creeks or drains via seepage depending on the porosity of the geological units in the aquifer. Groundwater in lower aquifers moves by subsurface flow discharging into surface streams providing baseflow to streams or discharging directly into Port Phillip Bay and Westernport Bay.

Extraction of groundwater through the use of existing bores in the project areas is also be considered a mechanism of discharge from the groundwater systems. Evapotranspiration from the water table is another mechanism of groundwater discharge. The evapotranspiration rate depends on land use and depth to groundwater. In areas where the water table is shallow and within the rooting depth of vegetation evapotranspiration can be a significant component of the water balance.

4.6 Sensitive receptors

4.6.1 Groundwater users

Registered groundwater bores located within a 2 km radius of the project site were identified using WMIS and information provided by Lotsearch (Appendix B). A total of 357 registered groundwater bores located within a 2 km radius of the Mordialloc Bypass project site. The location of the groundwater bores are shown on Figure 4.2.

Of these 357 bores, 98 have beneficial uses of groundwater that are broken down in the following way:

- 69 stock and domestic
- 29 irrigation.

The remaining 259 bores are used for groundwater monitoring (173) or have no information available (86).

Of the 98 groundwater bores with beneficial uses, 18 are located within 500 m of the project site and are detailed in Table 4.6.

Table 4.6 Groundwater bore details (within 500 m of site boundary)

BORE ID	DISTANCE FROM SITE (m)	BENEFICIAL USE	DEPTH (m)	GEOLOGY	DATE INSTALLED
WRK039072	0	Stock and domestic	24.38	Sand	9/01/1986
76479	20	Stock and domestic	24.38	Sand	11/01/1986
WRK055858	61	Irrigation	Unknown	Unknown	Unknown
81729	87	Stock and domestic	49.38	Sand	23/12/1982
76306	136	Stock and domestic	24.38	Sand	13/01/1986
81737	152	Stock and domestic	86.00	Mudstone	2/12/1983
76456	226	Stock and domestic	22.25	Sand	23/11/1983
81716	241	Stock and domestic	10.00	Sand	12/06/1983
81710	251	Irrigation	152.50	Clay	12/01/1979
76514	275	Stock and domestic	20.00	Sand	27/02/1990
WRK071605	306	Irrigation	122.00	Unknown	2/10/2012
WRK039215	319	Irrigation	40.02	Sand	20/02/1990

BORE ID	DISTANCE FROM SITE (m)	BENEFICIAL USE	DEPTH (m)	GEOLOGY	DATE INSTALLED
81736	363	Stock and domestic	24.38	Clay	10/08/1983
WRK963362	370	Stock and domestic	5.50	Unknown	7/11/2005
WRK986702	371	Stock and domestic	10.80	Sand	17/06/2008
76462	392	Stock and domestic	21.34	Sand	27/12/1982
81662	431	Stock and domestic	24.30	Unknown	31/12/1970
WRK057334	457	Stock and domestic	68.00	Siltstone	2/06/2010

4.6.2 Groundwater dependent ecosystems

Groundwater dependent ecosystems (GDE) are communities of plants, animals and other organisms that depend on groundwater for survival (Department of Land and Water Conservation, 2002). A GDE may be either entirely dependent on groundwater for survival, or may use groundwater opportunistically or for a supplementary source of water (Hatton and Evans, 1998).

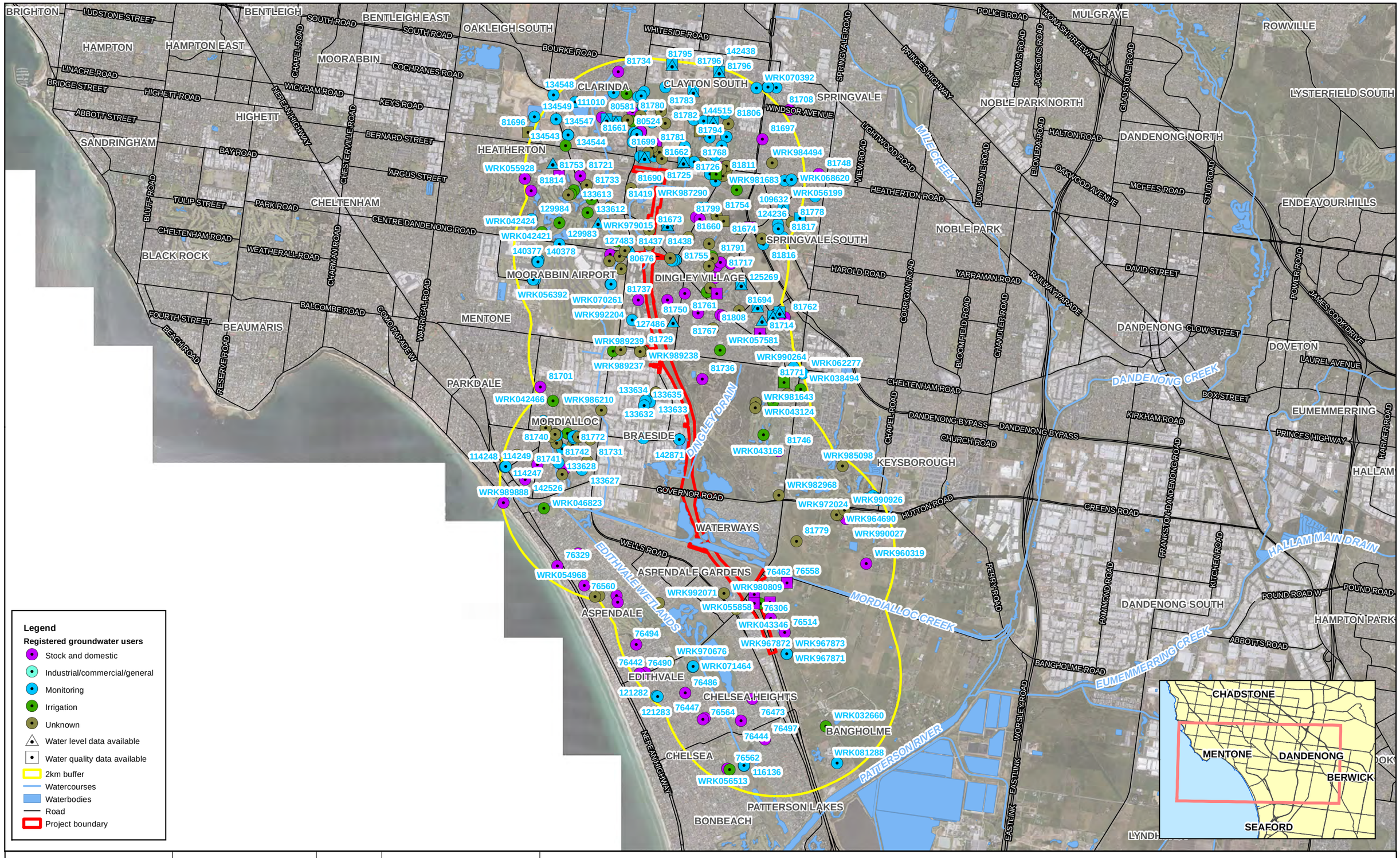
GDEs include wetlands, vegetation, mound springs, river base flows, cave ecosystems, playa lakes and saline discharges, springs, mangroves, river pools, billabongs and hanging swamps and near-shore marine ecosystems. The GDE Atlas (BOM, 2017b) categorises GDEs into three classes:

- Ecosystems that rely on the surface expression of groundwater – this includes all the surface water ecosystems which may have a groundwater component, such as rivers, wetlands and springs.
- Ecosystems that rely on the subsurface presence of groundwater – this includes all vegetation ecosystems.
- Subterranean ecosystems – this includes cave and aquifer ecosystems.

Groundwater discharge can be important in maintaining baseflow in rivers and streams, and ecosystems associated with these discharge areas may have a high dependency on groundwater for their water requirements. It should be noted however that some of these ecosystems rely on perched aquifer systems that are shallow, surficial and are largely not connected to the deep regional groundwater system, and, as such, will not be additionally interfered with by construction works (beyond that impacted by typical urban development disturbance). That is, these ecosystems are largely sustained by recharge-in/recharge-out processes associated with rainfall infiltration which typically characterise the behaviour of shallow perched water systems.

All identified GDEs within the vicinity of the Mordialloc Bypass project site are identified on Figure 4.3. Within a 2 km buffer of the project site, nine ecosystems have been identified that rely on the subsurface presence of groundwater. The following GDEs have been identified: Coast Banksia Woodland; Coastal Dune Scrub; Creekline Grassy Woodland; Damp Sand Herb-rich Woodland; Grassy Woodland; Heathy Woodland; Plains Grassy Wetland; Plains Grassy Woodland; Swap Scrub (mosaic). These GDEs have a moderate to high potential for groundwater interaction.

A search of the GDE atlas also identified five GDEs within the 2 km buffer of the Mordialloc Bypass project site that rely on the surface expression of groundwater. Carrum Swamp; Clayton South Drain; Edithvale Wetlands (Ramsar Convention); Mordialloc Creek; Mordialloc Settlement Drain were identified GDEs that rely on the surface expression of groundwater. All of the five GDEs have a high potential for groundwater interaction.

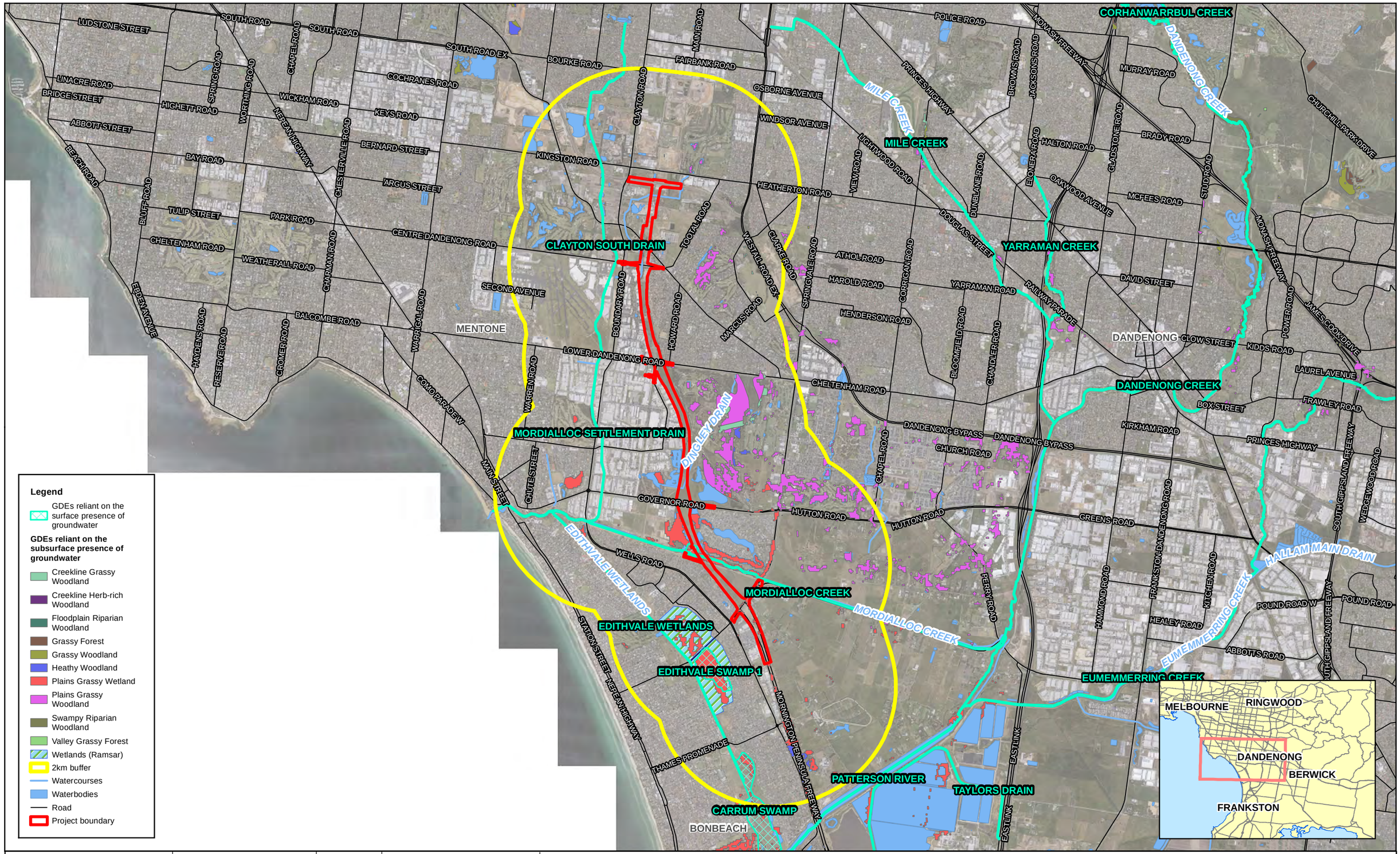


Map: 2135645A_GIS_191_A	Author: MAB		1:60,000
Date: 26/06/2017	Approved by: EK		Coordinate system: GDA 1994 MGA Zone 55
Data source: VicRoads. Copyright © The State of Victoria, Department of Environment, Land, Water & Planning 2016			Scale ratio correct when printed at A3

Engineering and Technical Services for Mordialloc Bypass Report

Registered groundwater users within 2 km of Mordialloc Bypass

Figure 4.2



Legend

GDEs reliant on the surface presence of groundwater

GDEs reliant on the subsurface presence of groundwater

- Creekline Grassy Woodland
- Creekline Herb-rich Woodland
- Floodplain Riparian Woodland
- Grassy Forest
- Grassy Woodland
- Heathy Woodland
- Plains Grassy Wetland
- Plains Grassy Woodland
- Swampy Riparian Woodland
- Valley Grassy Forest
- Wetlands (Ramsar)
- 2km buffer
- Watercourses
- Waterbodies
- Road
- Project boundary

Map: 2135645A_GIS_448_A	Author: MAB
Date: 26/06/2017	Approved by: EK

0 590 1,180 m

1:60,000

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A3

Data source: VicRoads. Copyright © The State of Victoria, Department of Environment, Land, Water & Planning 2016

vicroads

wsp

Engineering and Technical Services for Mordialloc Bypass Report

GDEs at Mordialloc Bypass

Figure 4.3

5 IMPACT ASSESSMENT

5.1 Potential impacts

The construction and operation of the project has the potential to result in the following groundwater related impacts:

- Reduction in groundwater levels and/or change of aquifer flow characteristics, reducing water availability for existing groundwater users, GDEs and surface waters.
- Inflow of contaminated groundwater to working areas presenting Occupational Health and Safety (OH&S) issues.
- Presence of groundwater that may be aggressive to concrete (e.g. low pH/saline groundwater).
- Discharge of dewatered inflows to the environment (for saline, nutrient rich, and/or contaminated groundwater).
- Accidental spills through the operation and maintenance of vehicles and equipment.

5.1.1 Reduction in groundwater levels and/or change of aquifer flow characteristics

Minor quantities of groundwater may be required to be extracted during construction works where excavations below the water table require dewatering (for bridge and ramp structures) and in the localised circumstances where construction works intersect major defect zones, namely, faults, fracture, and other zones of higher permeability. Impacts relating to excavations that penetrate the water table have the potential to occur at the site given that groundwater levels have been observed (at surrounding bores or in-situ investigations) or estimated (by DELWP, 2017a) to be less than 5 mBGL. In addition to this, minor perched or localised sources of groundwater may be present at site.

The magnitude of groundwater drawdown will depend on the depth of the excavation compared to the water table and the lateral distance that the drawdown will extend to will depend on the hydraulic properties of the formation and the duration over which the dewatering occurs. It is thought likely that the effect on the groundwater system due to the planned construction activities will be minimal and confined to the immediate vicinity of the construction site.

Such quantities can be estimated using analytical methods based on the details of the construction activities and site specific details of the groundwater system.

Impacts relating to embankment structures placed on the existing land surface that are sufficient to load and compress shallow unconsolidated aquifer/s can induce changes in aquifer hydraulic conductivity and, as a result, groundwater flow is restricted or diverted (changing flow directions and discharge zones) away from vulnerable GDEs, depriving them from sustaining water supplies.

The following describes the potential impacts of groundwater take (direct or passive) on existing users (registered bore owners), GDEs and surface water (through surface-groundwater connectivity).

5.1.1.1 Groundwater users

There are 18 registered groundwater bores with beneficial uses within 500 m of the project site. In the case that dewatering activities occur, there is the potential for this to result in the reduction of water level within bores, which may affect bore yields and water quality. In turn, these activities have the potential to change the beneficial use category of that groundwater.

5.1.1.2 GDEs

There are several GDEs that rely on the surface expression of the regional groundwater within 2 km of the site. Drawdown effects due to dewatering can reduce or eliminate such surface expressions and hence impact the associated GDEs. GDEs may also be affected by compression of shallow unconsolidated aquifers from the loading weight of embankment structures. There is the potential for this to occur at project site

where compression of the shallow unconsolidated aquifer may change the flow characteristics of the surficial aquifer. This has the potential to reduce groundwater flows to the Edithvale component of the Edithvale-Seaford Wetlands Ramsar site.

Some GDEs identified within 2 km of the project site may be sustained by shallow, perched groundwater systems. Such systems exist as shallow, discrete aquifers that are not connected to the regional groundwater system, and are typically characterised by recharge-in/recharge-out processes associated with rainfall infiltration. As such, these perched systems will not be affected by the dewatering associated with the proposed road construction, however they could be affected if excavations intersect the perched system or associated zones of rainfall recharge.

5.1.1.3 Surface water

Where groundwater discharges to surface water features, the quantity of groundwater discharge is dependent on the groundwater level. As such, groundwater drawdown (dewatering) as a result of construction works and ongoing operation may impact water levels and potentially water quality in surface water bodies.

5.1.2 Groundwater quality

5.1.2.1 OH&S issues due to groundwater contamination

Where groundwater contamination is present, the inflow of contaminated groundwater to working areas presenting potential Occupational Health and Safety (OH&S) issues.

5.1.2.2 Aggressivity

Longer term impacts during the operational phase can occur due to the presence of low pH and/or saline groundwater leading to corrosion or weakening of concrete structures.

5.1.3 Discharges to the environment

5.1.3.1 Dewatered groundwater

Where dewatering is required, the surplus water will need to be disposed of via discharge to the environment (with or without water treatment), discharge to stormwater drainage or sewerage infrastructure, or disposal at a licensed facility. Where discharges occur to the environment there is the potential for the groundwater quality to impact the receiving environment should there be sediment load, nutrient-rich, low/high pH, salinity or contamination present.

5.1.3.2 Accidental spills

The construction and operation of the project has the potential to impact groundwater quality. Fuel and chemicals spills from vehicles and equipment used onsite may occur and lead to groundwater contamination. This risk will be mitigated by the VicRoads environmental management procedures (VicRoads, 2016).

5.2 Groundwater monitoring recommendations

Groundwater monitoring enables a better understanding of groundwater level trends in particular the response to rainfall and seasonal fluctuations and groundwater quality to inform on adverse environmental effects as well as construction design, construction and operation constraints and their management. Excavation works for any underground structures (such as bridge pilings) can result in groundwater inflow of potential acid sulfate soils contaminated, saline or nutrient-rich groundwater presenting occupational health and safety risks and disposal issues as well as the potential of groundwater to be aggressive to concrete. Soil/aquifer loading effects (e.g. where embankments are proposed) can be readily monitored and impacts assessed and mitigated.

The recommendation to install groundwater observation bores at the Mordialloc Bypass project site has been assessed and is detailed in Table 5.1. The reasonable assumption was made that where there is already an existing structure that is being duplicated, there will be no meaningful impact to groundwater. The purpose of proposed monitoring bores is for the following reasons:

- to protect human health against inflows of potentially contaminated groundwater
- to protect environmental values (groundwater dependent ecosystems and water users), and/or
- to test for the aggressivity of groundwater on structures.

Establishment of a groundwater monitoring network is typically undertaken at the commencement of a project to enable sufficient time for appropriate baseline data to be collected.

Table 5.1 Recommendations for groundwater observation bores

PROPOSED LOCATION	OBSERVATION BORES PROPOSED	RISK TRIGGER
Bridge structure proposed through greenfield	1	Aggressivity to structures
Potential deep cut, shallow water table	2	Human health; disposal/re-use of water
Bridge structure proposed through wetlands, piers at interchange, shallow water table	8	Environmental values; aggressivity to structures
Embankments	4	Environmental values

The proposed bores will require a *licence to construct an observation bore* with Southern Rural Water (SRW).

To assess groundwater conditions the activities presented in Table 5.2 are to be completed at the indicated sampling frequency after the installation of the groundwater monitoring bores.

Table 5.2 Groundwater quality sampling plan

RISK TRIGGER	SAMPLING FREQUENCY	GUIDELINE	WATER QUALITY ANALYSIS SUITE
Human health, disposal/re-use of water	Once	ANZECC 2000 Primary contact (recreational use)	Field parameters, EC, major ions, heavy metals, nutrients, microbiological parameters, hydrocarbons, oil and grease
Environmental values	Quarterly for a minimum of 12 months	ANZECC 2000 (FW 95%)	Field parameters, EC, major ions, heavy metals, hydrocarbons, nutrients, oil and grease
Aggressivity to structures	Once	AS (2009) Piling-Design and Installation	Field parameters, EC and major ions

Groundwater level and depth is to be gauged with an electronic dipper prior to water quality sampling campaigns. Environmental values are of concern, selected bores are to be continually monitored for water levels/pressure using installed automated data loggers.

5.3 Mitigation measures

Mitigation measures for the potential impacts associated with the project are provided in Table 5.3.

Table 5.3 Summary of potential impacts and proposed mitigation measures

POTENTIAL IMPACTS	PROPOSED MITIGATION MEASURES	POTENTIAL IMPACT ON ROAD DESIGN
Groundwater quality affecting sensitive ecosystem	→ Install groundwater monitoring bore to test water quality and collect baseline data. → Treat and/or divert identified contaminated water.	No material impact on road design/ construction
Groundwater quality affecting durability of structures - aggressive to concrete structures during the operational phase	→ Install groundwater monitoring bore to test water quality and assess risk. → Installation of low permeability barriers to minimise contact with groundwater. → Selection of appropriate construction materials to minimise risk of corrosion.	Potential changes to construction methods/materials
Reduction in groundwater levels affecting existing users/sensitive receptors by changing the groundwater flow regime *Existing users are registered and unregistered groundwater bores, GDEs (including Ramsar convention wetlands) and surface waters*	→ Install groundwater monitoring bores to continually monitor groundwater levels, collect baseline data and assess risk. → Estimate magnitude of impacts using analytical methods. → Grouting or sheet piling excavations to reduce groundwater inflows. → 'Make-good' provisions by providing alternative water supplies if required and artificial recharge affected GDE areas. Active make-good measures are advised in the event that passive make-good engineering controls are not able to solve a problem and there is a non-compliance with guidelines. Passive make-good engineering controls include, but not limited to: artificial recharge to depleting aquifers, run-off re-infiltration or groundwater circumvention and diversion. Depending of the change in groundwater level and groundwater quality, or the use of the water by the beneficial groundwater user, active make-good measures can include: Bore enhancement, such as: ▪ deepening the bore ▪ undertaking additional and more intensive study, monitoring and implementation of management measures ▪ constructing a new bore ▪ providing an alternate water supply (to users of GDE's meaningfully impacted) ▪ monetary or non-monetary compensation to users.	Potential material impact on road design/ construction
Inflow of contaminated groundwater presenting OH&S	→ Assess risk during initial site investigations. Determine if excavations will penetrate the water table and therefore experience groundwater inflows. → Install groundwater monitoring bore to test water quality. → Grouting or sheet piling excavations to reduce groundwater inflows.	No material impact on road design/ construction

POTENTIAL IMPACTS	PROPOSED MITIGATION MEASURES	POTENTIAL IMPACT ON ROAD DESIGN
Groundwater quality impacts of discharge water on receiving environment	→ Assess required dewatering/discharge rate and water quality during initial site investigations. → Use drainage and diversion to minimise the risk of groundwater quality deterioration as a result of inflowing to the excavation. → Discharge to drainage/sewerage infrastructure or to a licensed facility. → Test water and treat prior to discharge if required.	No material impacts on road design/construction
Accidental spills	Mitigation measures shall comply with VicRoads environmental management procedures (VicRoads, 2016) which include: → nominated fuel and chemical storage areas → nominated points for the refuelling and fluid top up of vehicles and plant → spill kits for cleaning up chemical, oil and fuel spillages → personnel purpose trained.	No material impact on road design or construction

6 CONCLUSIONS

The following key conclusions are drawn from the preliminary groundwater impact assessment.

6.1 Conceptual hydrogeology

Sites considered in the groundwater impact assessment can be characterised by the following key hydrogeological characteristics:

- The site is underlain by:
  - Quaternary (Alluvial deposits, unconsolidated)
  - Tertiary (Red Bluff Sandstone, Fyansford Formation and Werribee Formation, consolidated) and
  - Mesozoic and Palaeozoic Bedrock (Murrindindi Supergroup).
- Geotechnical investigations at the Mordialloc Bypass project site encountered shallow groundwater levels less than 5 mBGL.
- Bore yields for bores within the 2 km buffer zone range from 0.06 to 19.00 L/s
- Based on TDS ranges, the beneficial used groundwater is defined as segment A1, A2 and B and covers all beneficial use categories.
- Major ion chemistry show that groundwater at the project site is dominated by the major ions sodium and chloride and to a lesser extent by bicarbonate.

Table 6.1 Summary of groundwater information within 2 km of the project site (Source: DELWP, 2017b)

GEOTECHNICAL INVESTIGATION WATER LEVEL	SHALLOWEST WATER LEVEL (mBGL) (WMIS)	DEPTH TO WATER (DELWP, 2017A)	AVERAGE BORE YIELD (L/S)	AVERAGE PH	AVERAGE EC (TDS mg/L)^)	BENEFICIAL USE SEGMENT (REFER TABLE 2.2)
2.3 to 3.2 mBGL	0.05	<5 m	1.89	6.4	1,535 (998)	A1, A2, B

^TDS = EC*0.65 (Australian Water Resources Council, 1988)

6.2 Sensitive receptors

The following potential sensitive receptors have been identified at Mordialloc Bypass:

- 18 bores with beneficial groundwater uses occur within 500 m of the project site.
- Nine types of ecosystems that rely on the subsurface presence of groundwater with a moderate to high potential for groundwater interaction, and five ecosystems that rely on the surface expression of groundwater and have a high potential for groundwater interaction were identified within 2 km of the project site, and notably include:
  - The Edithvale component of the Edithvale-Seaford Wetlands, listed under the Ramsar Convention, are a GDE identified within 2 km of the project site. Although the project area does not intersect this wetland (it is 700 m away), it *may* be hydrogeologically connected and be impacted by a reduction in groundwater flow to the wetlands.

6.3 Potential impacts and mitigation

Based on the data available to this investigation, the potential groundwater related impacts and mitigation measures have been assessed and are summarised in Table 5.3. In order to determine if any impacts will occur and their severity, further assessments including the installation of groundwater observation bores will be required.

7 RECOMMENDATIONS

Based on the findings of this preliminary assessment, there is the potential for the construction and operational phase of the Mordialloc Bypass project to lead to groundwater related impacts (either temporary or permanent). It is therefore recommended that further assessments be carried out to (refer Section 6):

- Determine if excavations will penetrate the water table and therefore experience groundwater inflows. Estimate the quantity of the groundwater inflows Test groundwater to evaluate risk to human health posed by inflows of contaminated groundwater to construction related excavations by installing and testing groundwater monitoring bore/s.
- Produce a dewatering management plan to safely manage inflows and minimise groundwater impacts.
- Determine if embankment structures proposed are sufficient to load and compress shallow unconsolidated aquifer/s and can induce changes in aquifer hydraulic conductivity and adversely restrict or divert groundwater flow (changing flow directions and discharge zones) away from beneficial users of groundwater (groundwater bores with beneficial uses and GDEs). Install groundwater monitoring bores to monitor groundwater quality and quantity and protect environmental values.
- Install groundwater monitoring bores to test for the aggressivity of groundwater on structures.

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Appendix A

GROUNDWATER RESOURCE REPORTS

Groundwater Resource Report

South

Groundwater catchment : East Port Phillip Bay **VICGRID94 Easting:** 2509104 **Northing:** 2387603

Depth to Water Table: < 5m **Water Table Salinity (mg/L):** 1001-3500

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 3	1001-3500	Unincorporated Area		
UTAF Upper Tertiary Aquifer (fluvial) sand, gravel and clay	3 13	1001-3500	Unincorporated Area		
UMTD Upper Mid-Tertiary Aquitard clay, silt, marl (fractured rock) and minor sand	13 62	Unknown	Unincorporated Area		
LTA Lower Tertiary Aquifer sand, gravel, clay and silt, minor coal	62 66	1001-3500	Unincorporated Area		
BSE Mesozoic and Palaeozoic Bedrock (basement) sedimentary (fractured rock): Sandstone, siltstone, mudstone, shale. Igneous (fractured rock): includes volcanics, granites, granodiorites.	66 266	<500	Unincorporated Area		

For further information about this report contact:
Department of Environment, Land, Water & Planning
Email: ground.water@delwp.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

Printed: 31 Jan 2017
Date Updated: 31 May 2014

Department of Environment, Land, Water & Planning
State Government Victoria

Groundwater Resource Report

North

Groundwater catchment : East Port Phillip Bay **VICGRID94 Easting:** 2509779 **Northing:** 2391890

Depth to Water Table: < 5m **Water Table Salinity (mg/L):** 1001-3500

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 3	1001-3500	Moorabbin GMA Top	0	2,700
UTAF Upper Tertiary Aquifer (fluvial) sand, gravel and clay	3 16	501-1000			
UMTD Upper Mid-Tertiary Aquitard clay, silt, marl (fractured rock) and minor sand	16 47	Unknown			
LTA Lower Tertiary Aquifer sand, gravel, clay and silt, minor coal	47 53	1001-3500			
BSE Mesozoic and Palaeozoic Bedrock (basement) sedimentary (fractured rock): Sandstone, siltstone, mudstone, shale. Igneous (fractured rock): includes volcanics, granites, granodiorites.	53 253	501-1000	Moorabbin GMA Bottom	253	

For further information about this report contact:
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Website: www.srw.com.au

Printed: 31 Jan 2017
Date Updated: 31 May 2014

Department of Environment, Land, Water & Planning
State Government Victoria

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 VICGRID 94 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 Range (mg/L TDS)	Beneficial Use as described by State Environment Protection Policy (Groundwaters of Victoria) s160							
	Potable Water - Preferred	Potable Water - Acceptable	Potable Mineral Water	Irrigation	Stock Water	Industry	Ecosystem Protection	Buildings and Structures
<500	✓	✓	✓	✓	✓	✓	✓	✓
501-1000		✓	✓	✓	✓	✓	✓	✓
1001-3500			✓	✓	✓	✓	✓	✓
3501-13000					✓	✓	✓	✓
13001+						✓	✓	✓

Department of Environment, Land, Water & Planning
State Government Victoria

Appendix B

LOTSEARCH REPORTS

Lotsearch

Environmental Risk and Planning Report

Proposed Road Alignments - Mordialloc Bypass (Section 1)

Report Buffer: 150m

Report Date: 09 Feb 2017 08:55:56

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Location Confidences

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

LC Code	Location Confidence
1	Georeferenced to the site location / premise or part of site
2	Georeferenced with the confidence of the general/approximate area
3	Georeferenced to the road or rail
4	Georeferenced to the road intersection
5	Feature is a buffered point
6	Land adjacent to Georeferenced Site
7	Georeferenced to a network of features

Dataset Listing

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

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Topographic and Cadastre data	State Government Victoria - Department of Environment, Land, Water & Planning	06/02/2017	06/02/2017	Quarterly	-	-	-
Current Priority Sites	Environment Protection Authority (Vic)	06/02/2017	31/12/2016	Monthly	1	1	1
Former Priority Sites & other Pollution Notices	Environment Protection Authority (Vic)	06/02/2017	05/01/2017	Monthly	11	11	11
EPA Environmental Audit Reports	Environment Protection Authority (Vic)	06/02/2017	24/11/2016	Monthly	1	1	1
Groundwater Zones with Restricted Uses	Environment Protection Authority (Vic)	06/02/2017	27/01/2017	Monthly	0	0	0
Licensed Activities	Environment Protection Authority (Vic)	06/02/2017	29/01/2017	Monthly	1	1	1
Former Licensed Activities	Environment Protection Authority (Vic)	06/02/2017	29/01/2017	Monthly	1	1	1
Works Approvals	Environment Protection Authority (Vic)	06/02/2017	06/02/2017	Monthly	0	0	0
National Waste Management Site Database	Geoscience Australia	06/02/2017	15/11/2012	Quarterly	1	2	2
Statewide Waste and Resource Recovery Infrastructure Plan Facilities	State Government Victoria - Department of Sustainability	27/11/2014	31/12/2012	None planned	4	4	4
EPA Prescribed Industrial Waste	Environment Protection Authority (Vic)	04/01/2017	04/01/2017	Quarterly	3	3	3
UBD Business to Business Directory 1991	Hardie Grant			Not required	0	1	8
UBD Business to Business Directory 1991 - Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1980	Hardie Grant			Not required	1	1	7
UBD Business Directory 1980 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1960 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1950	Hardie Grant			Not required	0	0	0
UBD Business Directory 1950 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
Features of Interest	State Government Victoria - Department of Environment, Land, Water & Planning	03/02/2017	27/01/2017	Quarterly	1	1	2
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1	1	1
Groundwater Salinity	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	2	-	-
Depth to Watertable	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	2	-	-
Surface Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	1	-	-
Basement Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	1	-	-
Groundwater Boreholes WMIS	State Government Victoria - Department of Environment, Land, Water & Planning	29/04/2016	28/04/2016	Annually	2	2	221
Groundwater Boreholes Earth Resources Database	The State of Victoria, Department of Economic Development, Jobs, Transport and Resources	29/04/2016	17/02/2010	As required	1	1	35
Groundwater Boreholes Fed Uni	Federation University Australia	29/04/2016	07/01/2014	As required	0	0	0
Geological Units 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	2	-	2
Geological Structures 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	-	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Dykes and Marker Beds 50k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	0	0
Shear zones 250k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	-	0
Coastal Acid Sulfate Soils	The State of Victoria, Department of Economic Development, Jobs, Transport and Resources	15/07/2016	30/03/2011	None planned	0	0	0
Planning Scheme Zones	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	2	6	8
Planning Scheme Overlay	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	2	3	4
Cultural Heritage Sensitivity	State Government Victoria - Department of Planning and Community Development	03/02/2017	27/01/2017	Quarterly	0	0	0
Bushfire Prone Area	State Government Victoria - Department of Transport, Planning and Local Infrastructure	27/01/2017	27/01/2017	Quarterly	0	0	0
Fire History	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	0	0	0
Flood - 1 in 100 Year Modelled Flood Extent	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	0	0	0
Native Vegetation (Modelled 2005 Ecological Vegetation Classes)	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	31/12/2005	None planned	0	2	4
RAMSAR Wetlands	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	24/06/2013	None planned	0	0	0

Aerial Imagery 2016

OSAR Proposed Road Alignments - Site 26 (Section 1)

Scale:
0 100 200 400
Meters

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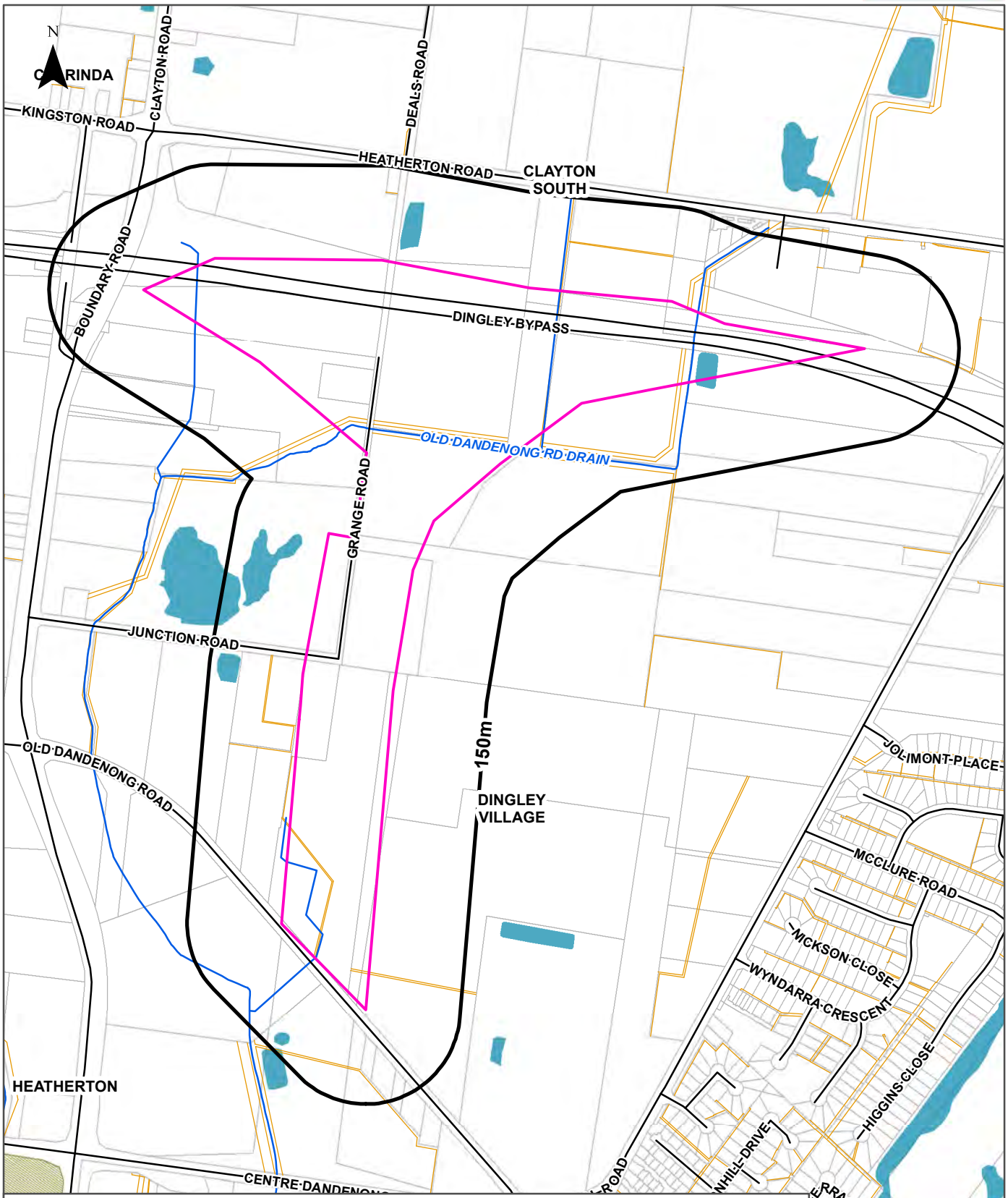
Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February, 2017

Topographic Data

OSAR Proposed Road Alignments - Site 26 (Section 1)



Legend

Site Boundary	Water Area	Major Road	Railway	Watercourse
Report Buffer	Crown or Commonwealth Land	Road	Light Rail	Easement
Property Boundaries	Statewide Forest	Track/Pathway	Rail - Underground/Tunnel	

Scale: 0 50 100 200 Meters

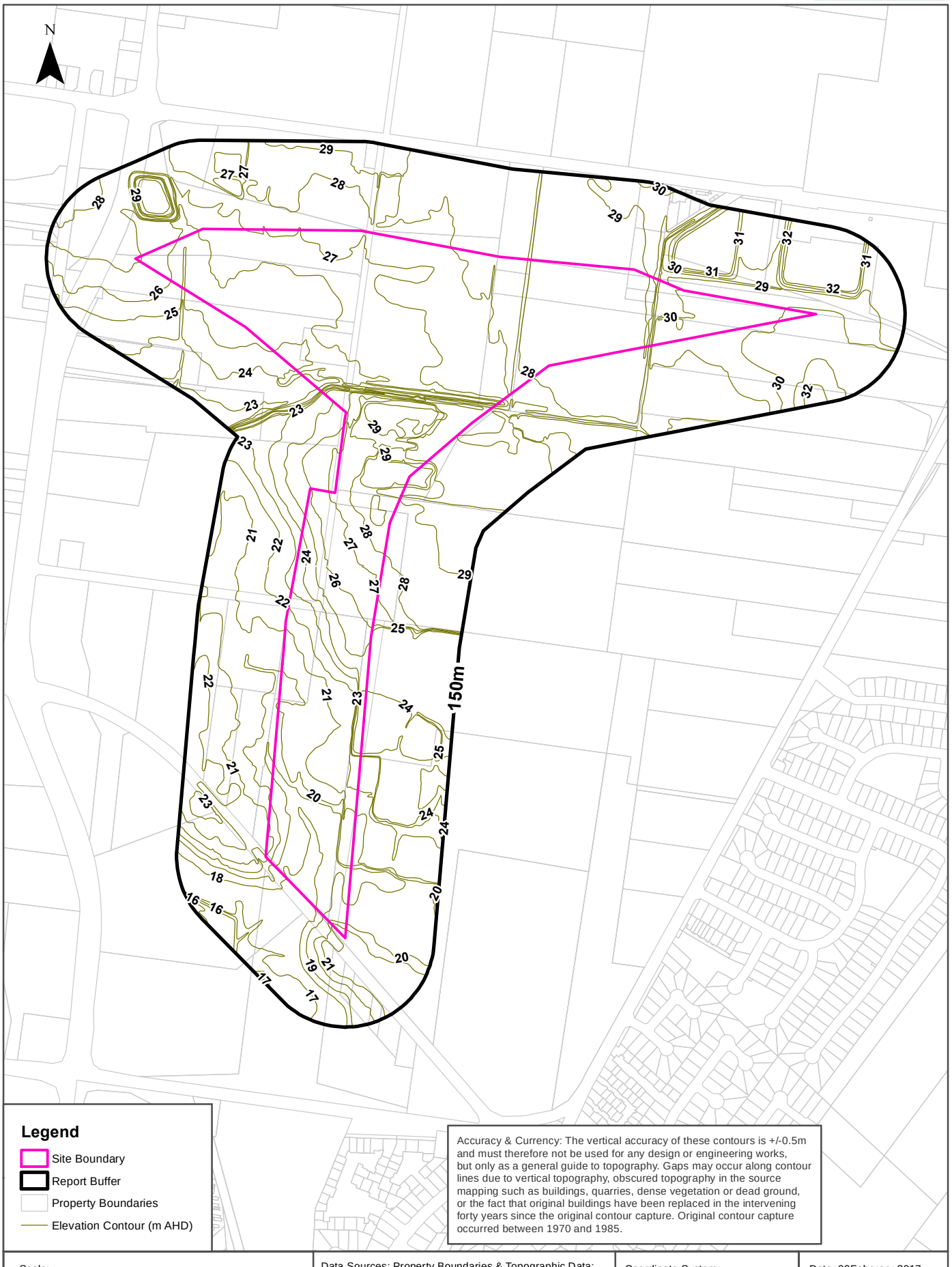
Data Sources: Property Boundaries & Topographic Data: State of Victoria - Department of Environment and Primary Industries

Coordinate System: GDA 1994 MGA Zone 55

Date: 09February 2017

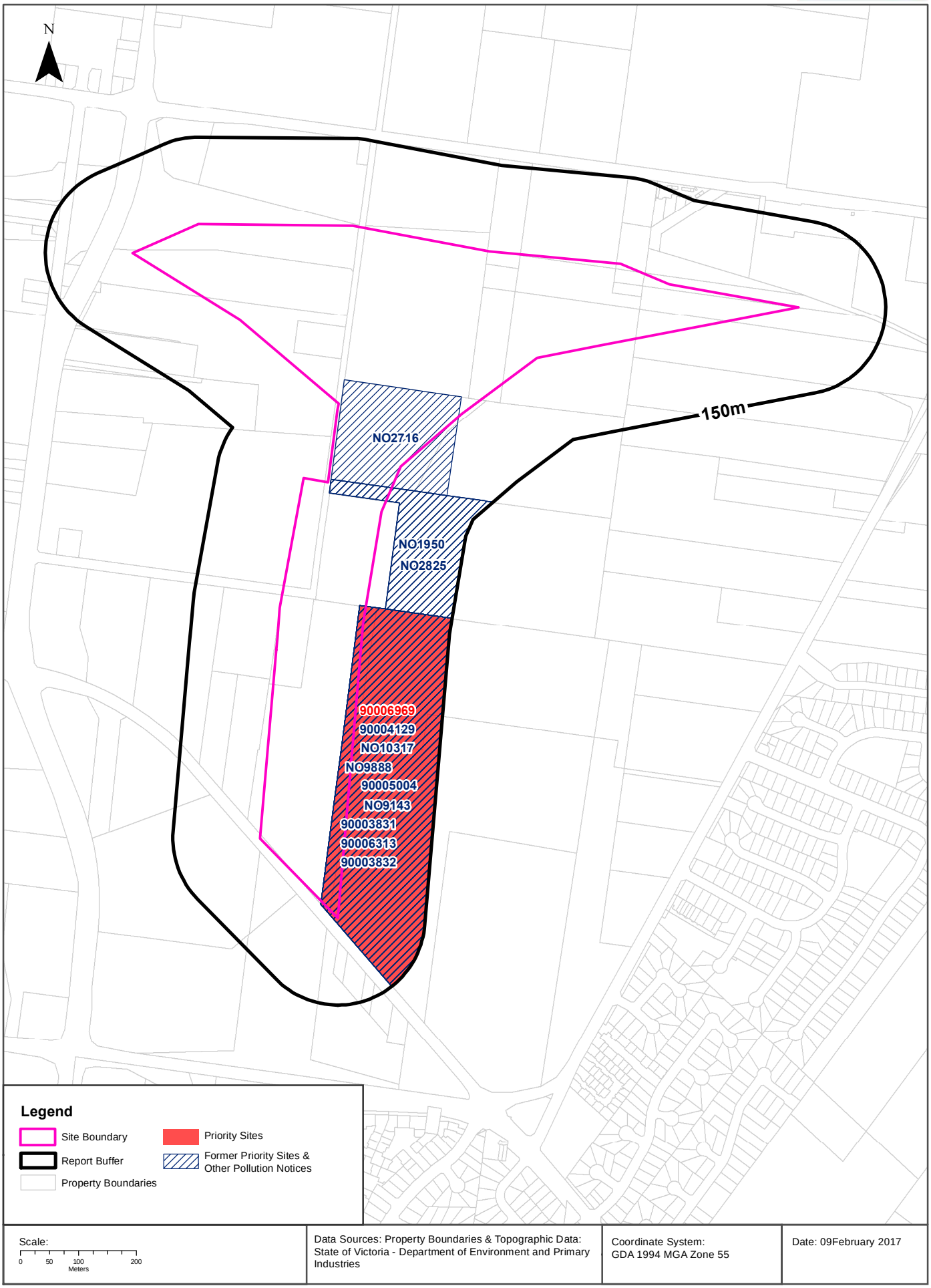
Elevation Contours (m AHD)

OSAR Proposed Road Alignments - Site 26 (Section 1)



EPA Records - Priority Sites & Pollution Notices

OSAR Proposed Road Alignments - Site 26 (Section 1)



EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 1)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
90006969	370 Old Dandenong RD	DINGLEY VILLAGE		Premise Match	0m	Onsite

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

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

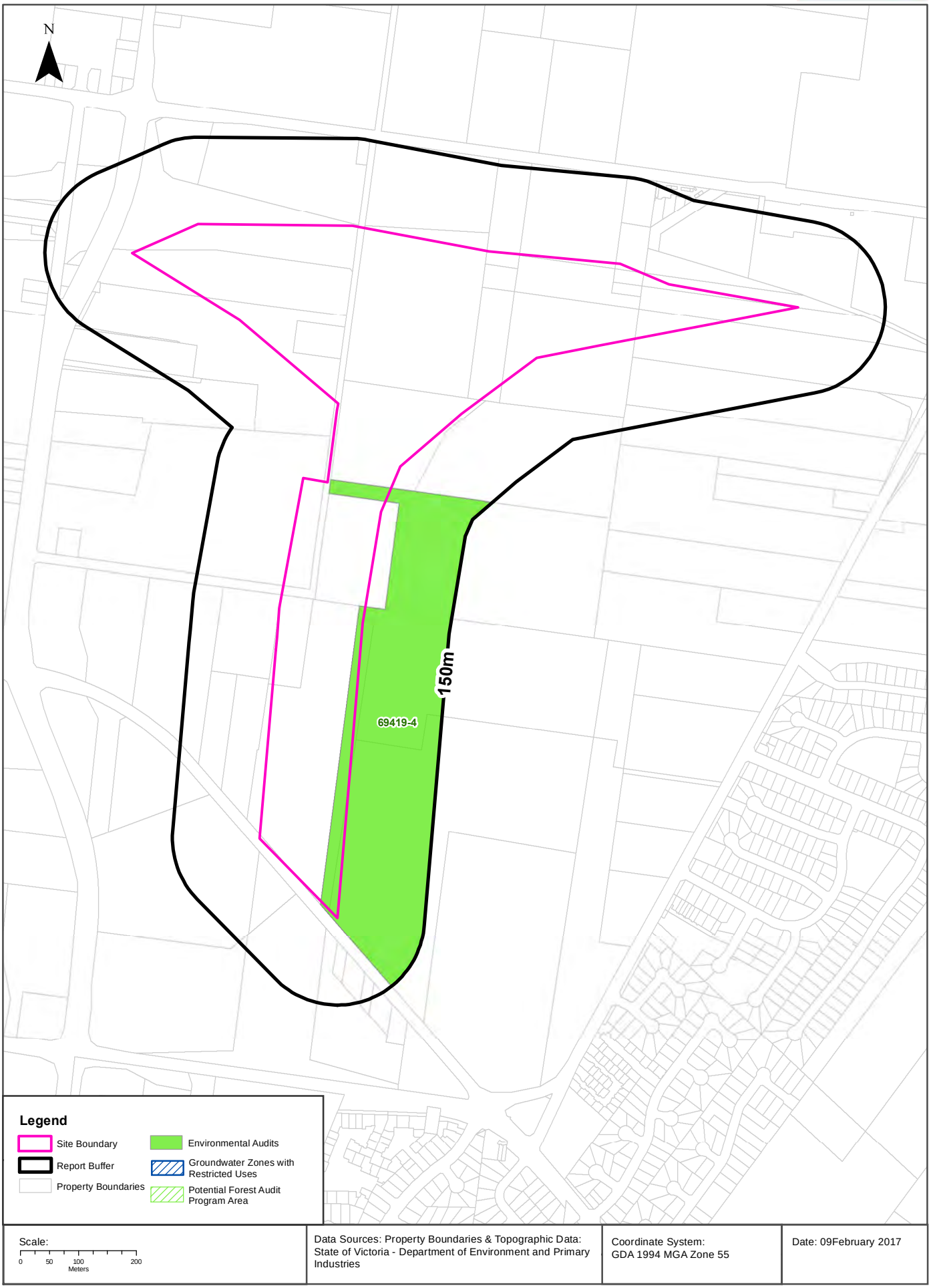
Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
NO2716	31A(1)	AGJ CARTAGE CONTRACTORS P/L	LOT 2 GRANGE RD	DINGLEY	Legacy EPA Database Pollution Notice		09/03/2001	Premise Match	0m	Onsite
NO9888	62A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires assessment and/or clean up.	10/10/2011	Premise Match	0m	Onsite
NO9143	62A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires ongoing management.	24/02/2011	Premise Match	0m	Onsite
NO10317	31A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires ongoing management.	03/04/2012	Premise Match	0m	Onsite
90006313	Pollution Abatement Notice	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice	AIR QUALITY - CONTAMINATION (LEGACY)	20/08/2015	Premise Match	0m	Onsite
90005004	Pollution Abatement Notice	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice		11/09/2014	Premise Match	0m	Onsite
90004129	Hydrogeological Assessment PAN	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice	LIQUID - CONTAMINATION (LEGACY)	25/09/2015	Premise Match	0m	Onsite
90003832	Previous Priority Notice, Monitoring, Rehab' & Aftercare PAN	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Priority Notice	Former Landfill. Requires ongoing management	27/11/2014	Premise Match	0m	Onsite

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
90003831	Previous Priority Notice, Hydrogeological Assessment PAN	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Priority Notice	Former Landfill. Requires ongoing management	17/07/2014	Premise Match	0m	Onsite
NO1950	31A(1)	STINO NOMINEES P/L	LOT 1 GRANGE RD	SPRINGVALE SOUTH	Legacy EPA Database Pollution Notice		04/04/1990	Premise Match	0m	Onsite
NO2825	31A(1)	SUPER SOIL P/L	LOT 1 GRANGE RD	DINGLEY	Legacy EPA Database Pollution Notice		28/09/2001	Premise Match	0m	Onsite

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

EPA Records - Audit Reports & GQRUZ

OSAR Proposed Road Alignments - Site 26 (Section 1)



Data Sources: Property Boundaries & Topographic Data: State of Victoria - Department of Environment and Primary Industries

Coordinate System: GDA 1994 MGA Zone 55

Date: 09February 2017

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 1)

EPA Environmental Audits

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

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
69419-4	8004942	370-418 OLD DANDENONG RD, DINGLEY VILLAG 370 -418 OLD DANDENONG RD	370-418 OLD DANDENONG RD, DINGLEY VILLAG 370-418 OLD DANDENONG RD	DINGLEY VILLAGE	22/07/2016	Premise Match	0m	Onsite

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

EPA Groundwater Zones with Restricted Uses

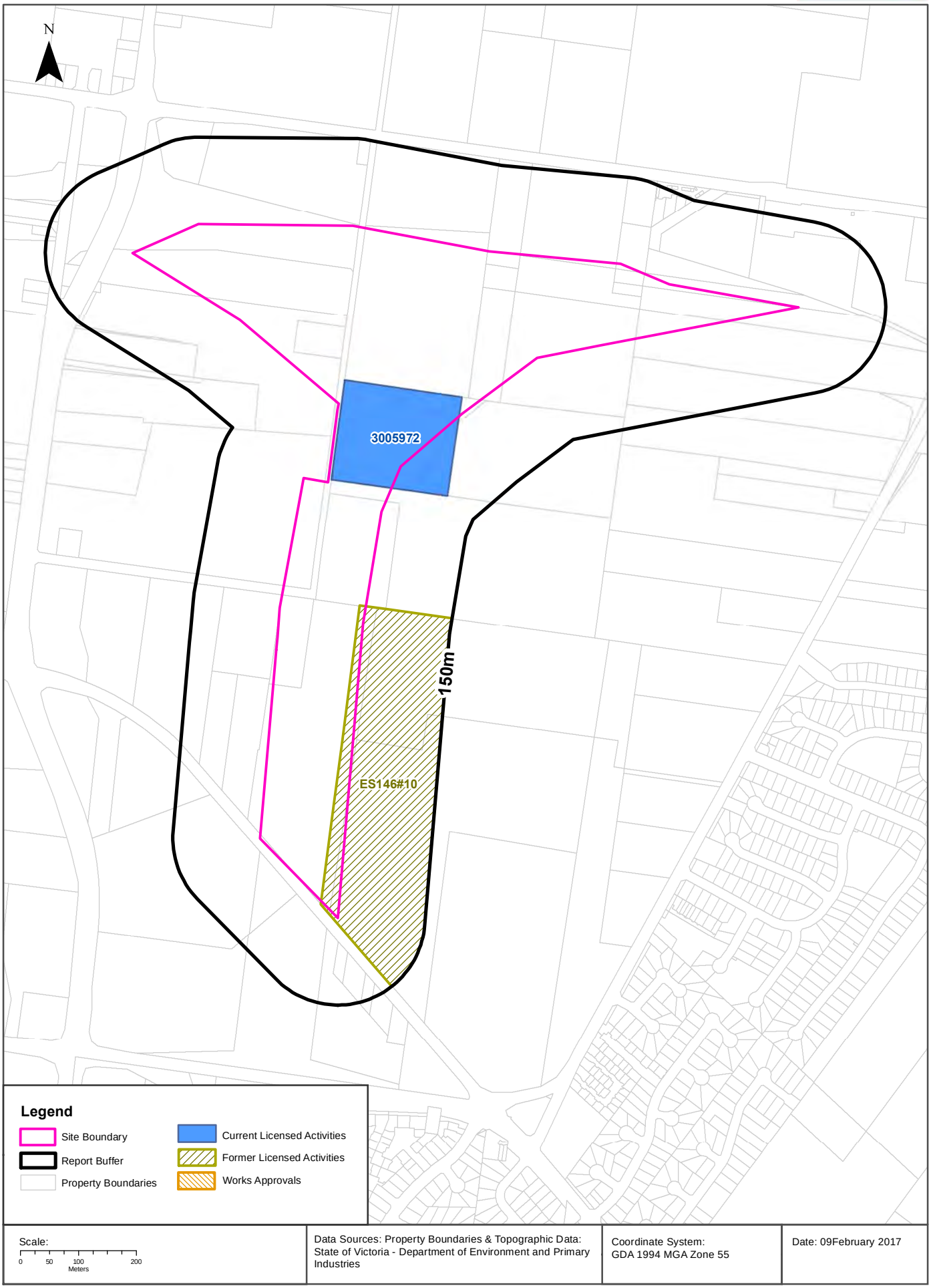
What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

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

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

EPA Records - Licensed Activities & Works Approvals

OSAR Proposed Road Alignments - Site 26 (Section 1)



Data Sources: Property Boundaries & Topographic Data: State of Victoria - Department of Environment and Primary Industries

Coordinate System: GDA 1994 MGA Zone 55

Date: 09February 2017

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 1)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
3005972	EA63780 #6	Licence	ENVIROMIX PTY LTD		LOT 2 GRANGE RD	DINGLEY VILLAGE VIC 3172	A07 Composting	Premise Match	0m	Onsite

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

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
ES146#10	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370-418 Old Dandenong Rd	DINGLEY VILLAGE VIC 3172	A05 Landfills	Premise Match	0m	Onsite

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

EPA Works Approvals

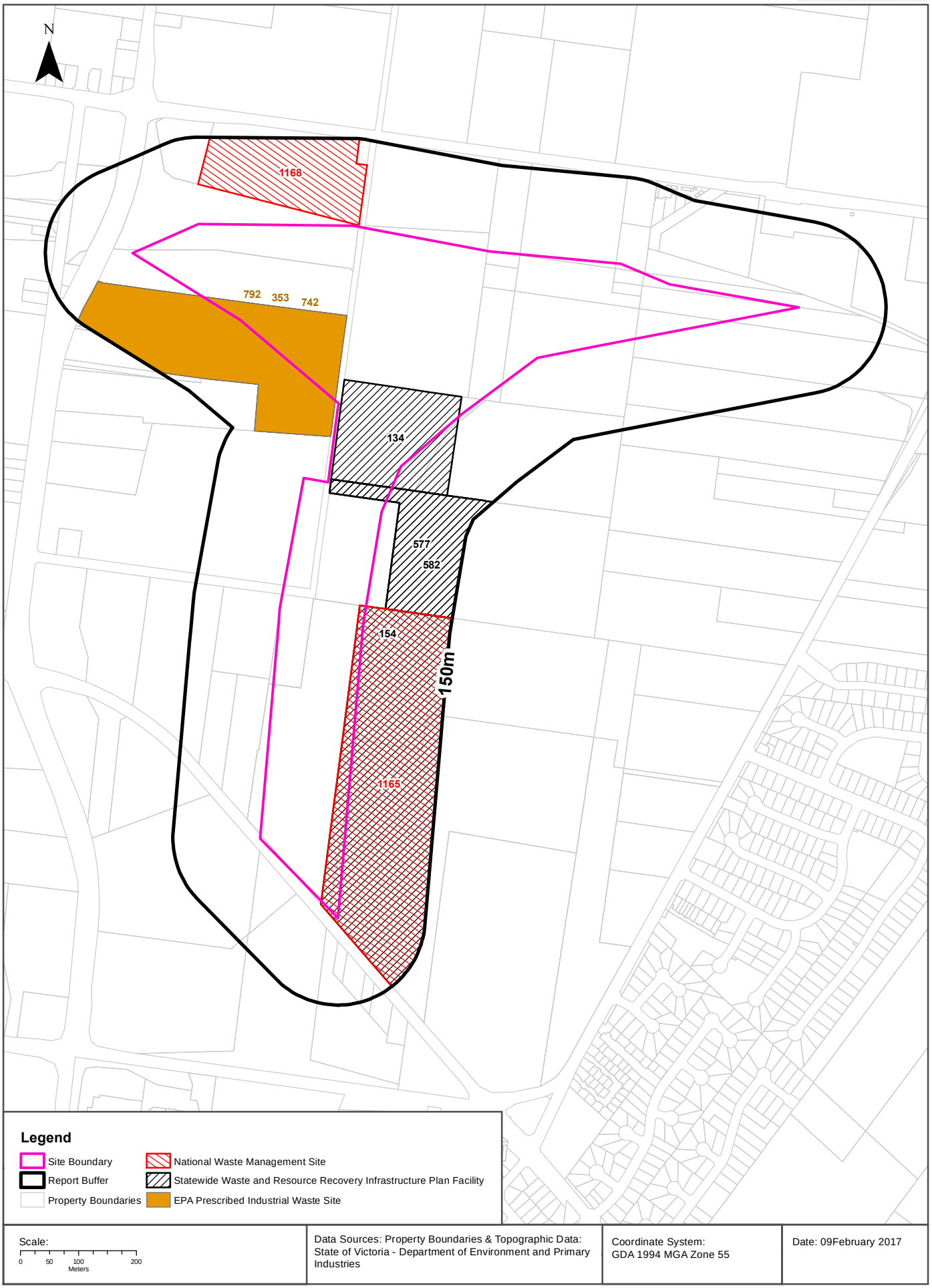
What EPA works approvals exist within the report buffer?

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

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

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 1)



Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 1)

National Waste Management Site Database

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

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
1165	Kingston Council	Ernest Smith Contractors Pty Ltd	Tootal Road	Dingley Village	3172	Operating	Not Applicable	Not Applicable	Premise Match	0m	Onsite
1168	Kingston Council	Vidotta	Corner Grange Road & Heatherton Road	Clayton South	3169	Operating	Not Applicable	Not Applicable	Premise Match	3m	North

Waste Management Facilities Data Source: Australian Government Geoscience Australia

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

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

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
134	Vic roads	Enviromix	Lot 2, Grange Road	DINGLEY VILLAGE	Organics	Garden Waste	Premise Match	0m	Onsite
154		Ernest Smith Contractors (ES 146)	370-418 Old Dandenong Rd	Dingley Village	Landfill	Landfill	Premise Match	0m	Onsite
582		Transpacific Industries (Dingley Soils)	Lot 1 Grange Rd	Dingley Village	Organics	Garden Waste	Premise Match	0m	Onsite
577		Transpacific Industries	Lot 1 Grange Rd	Dingley Village	Commercial & Industrial	C&I Recovery	Premise Match	0m	Onsite

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

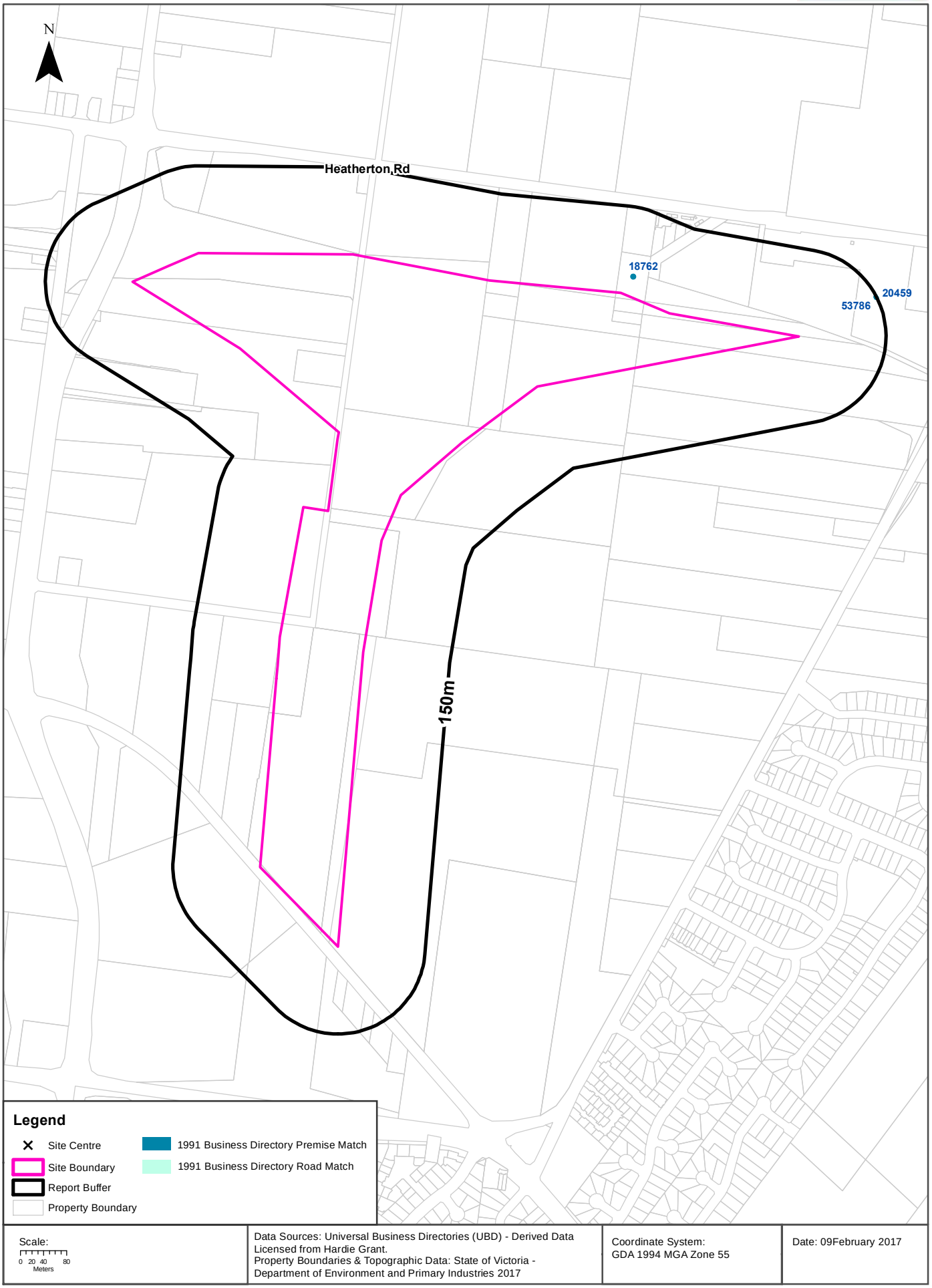
EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
353	KS ENVIRONMENTAL PTY LTD	544 BOUNDARY RD	HEATHERTON VIC 3202	No	Yes	Yes	Current EPA List	Premise Match	0m	Onsite
742	PADGET PTY LTD	544-554 BOUNDARY RD	DINGLEY VILLAGE VIC 3172	No	Yes	Yes	Current EPA List	Premise Match	0m	Onsite
792	PADGET PTY LTD [DINGLEY VILLAGE]	544-554 BOUNDARY RD	DINGLEY VILLAGE VIC 3172	No	Yes	Yes	Previous EPA List	Premise Match	0m	Onsite

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Historical Business to Business Directory Activity 1991

OSAR Proposed Road Alignments - Site 26 (Section 1)



Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 1)

1991 Business to Business Directory Records

1991 UBD Business Directory Records within 150m of the site:

Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
Nurserymens Supplies.	Fernwoeld,	572 Heatherton Rd.. Clayton South. 3169	18762	Premise Match	32m	North East
Motor Accessories Mfrs &/or Imps &/or W/salers	Kitten Products	622 Heatherton Rd., Clayton South. 3169	10799	Premise Match	148m	East
Motor Accessories Mfrs &/or Imps &/or W/salers	Kitten Products	622 Heatherton Rd., Clayton South. 3169	10800	Premise Match	148m	East
Polish Mfrs. &/or Dists	Kiwi, Nicholas Pty. Ltd..	622 Heatherton Rd., Clayton South. 3169	10801	Premise Match	148m	East
Boot &/or Shoe Polish Mfrs &/or Dists	Kiwl Nichols pty l;td	622 Heatherton Rd., Clayton South. 3169	53786	Premise Match	148m	East
Cosmetic Mfrs &/or W/salers	Richford cinta pty ltd	622 Heatherton Rd., Clayton South. 3169	20459	Premise Match	148m	East
Seed Merchants	Baguley F & I Flower & Plant Growers	Heatherton Rd Clayton South 3169	26770	Road Match	149m	North East
Florists - Wholesale	F & I Flower & Plant Growers	Heatherton Rd Clayton South 3169	3228	Road Match	149m	North East

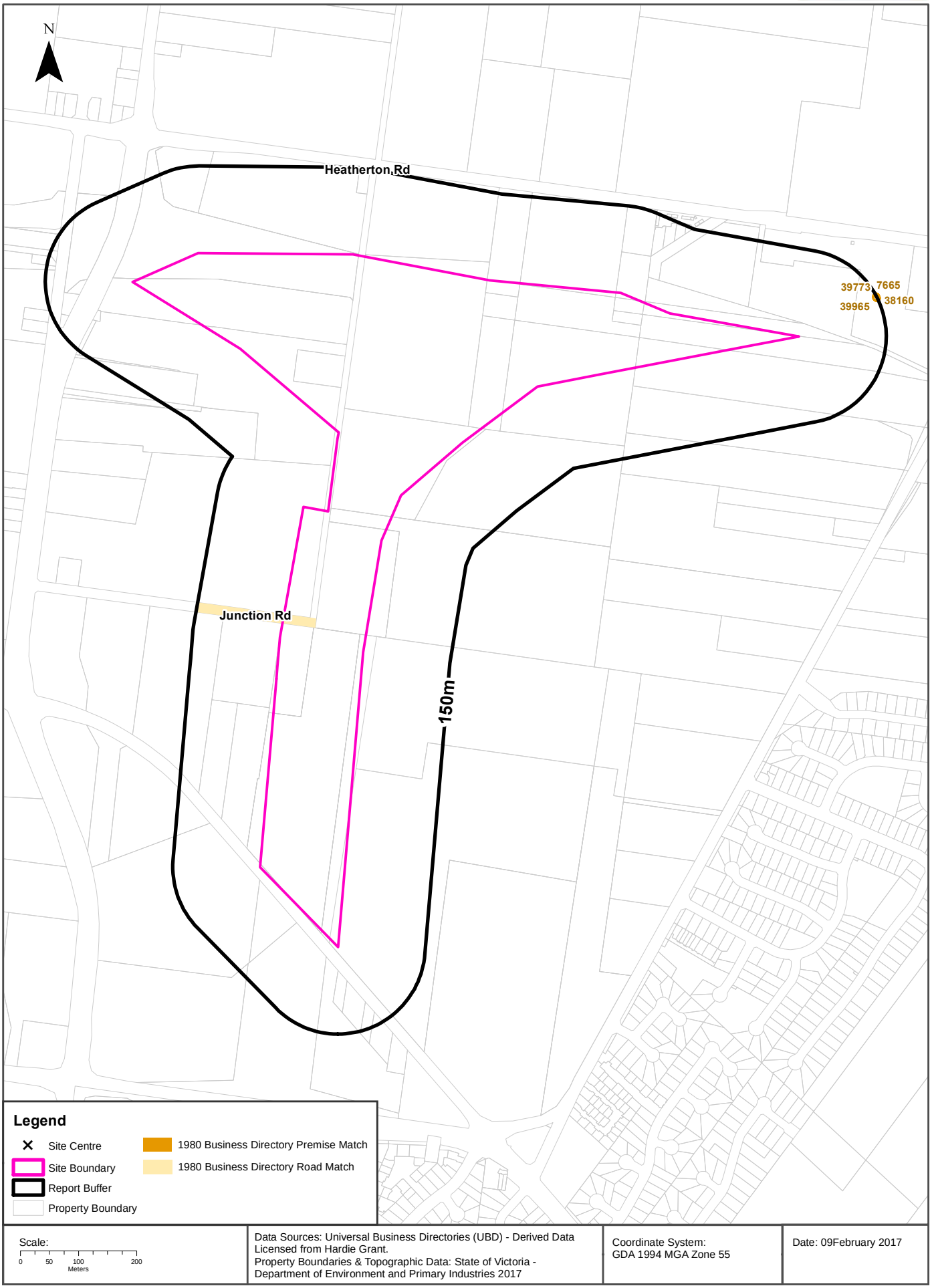
1991 Business to Business Directory Garages & Service Stations

1991 UBD Business Directory Garages & Service Stations within 1km of the site:

Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer					

Historical Business Directory Activity 1980

OSAR Proposed Road Alignments - Site 26 (Section 1)



Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 1)

1980 Business Directory Records

1980 UBD Business Directory Records within 150m of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
BUILDERS & ALLIED TRADES.	Benedek, J., 2 Junction Rd., Heatherton.	9820	Road Match	0m	-
MOTOR SPARE PARTS MFRS. &/OR W/SALERS.	Kitten Products Pty, Ltd., 622 Heatherton Rd., Clayton South.	39965	Premise Match	148m	East
MOTOR ACCESSORY MFRS.&/OR WHOLESALERS.	Kitten Products Pty. Ltd., 622 Heatherton Rd., Clayton South.	38160	Premise Match	148m	East
MOTOR PANEL BEATERS SUPPLIES.	Kitten Products Pty. Ltd., 622 Heatherton Rd., Clayton South.	39773	Premise Match	148m	East
BOOT &/OR SHOE POLISH MFRS.	Kiwi Polish Co. Pty. Ltd., 622 Heatherton Rd., Clayton South.	7665	Premise Match	148m	East
SEEDSMEN & NURSERYMEN.	Baguley, F. & I., Heatherton Rd., Clayton South.	49426	Road Match	149m	North East
FLORISTS-WHOLESALE.	Baguley, F. & I., Heatherton Rd., Clayton South.	24400	Road Match	149m	North East

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1980 Business Directory Drycleaners, Garages & Service Stations

Drycleaners, Garages & Service Stations from the 1980 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 1)

1960 Business Directory Drycleaners, Garages & Service Stations

Drycleaners, Garages & Service Stations from the 1960 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Business Directory Records

1950 UBD Business Directory Records within 150m of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Business Directory Drycleaners, Garages & Service Stations

Drycleaners, Garages & Service Stations from the 1950 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Aerial Imagery 2009

OSAR Proposed Road Alignments - Site 26 (Section 1)

Scale:
0 100 200 400
Meters

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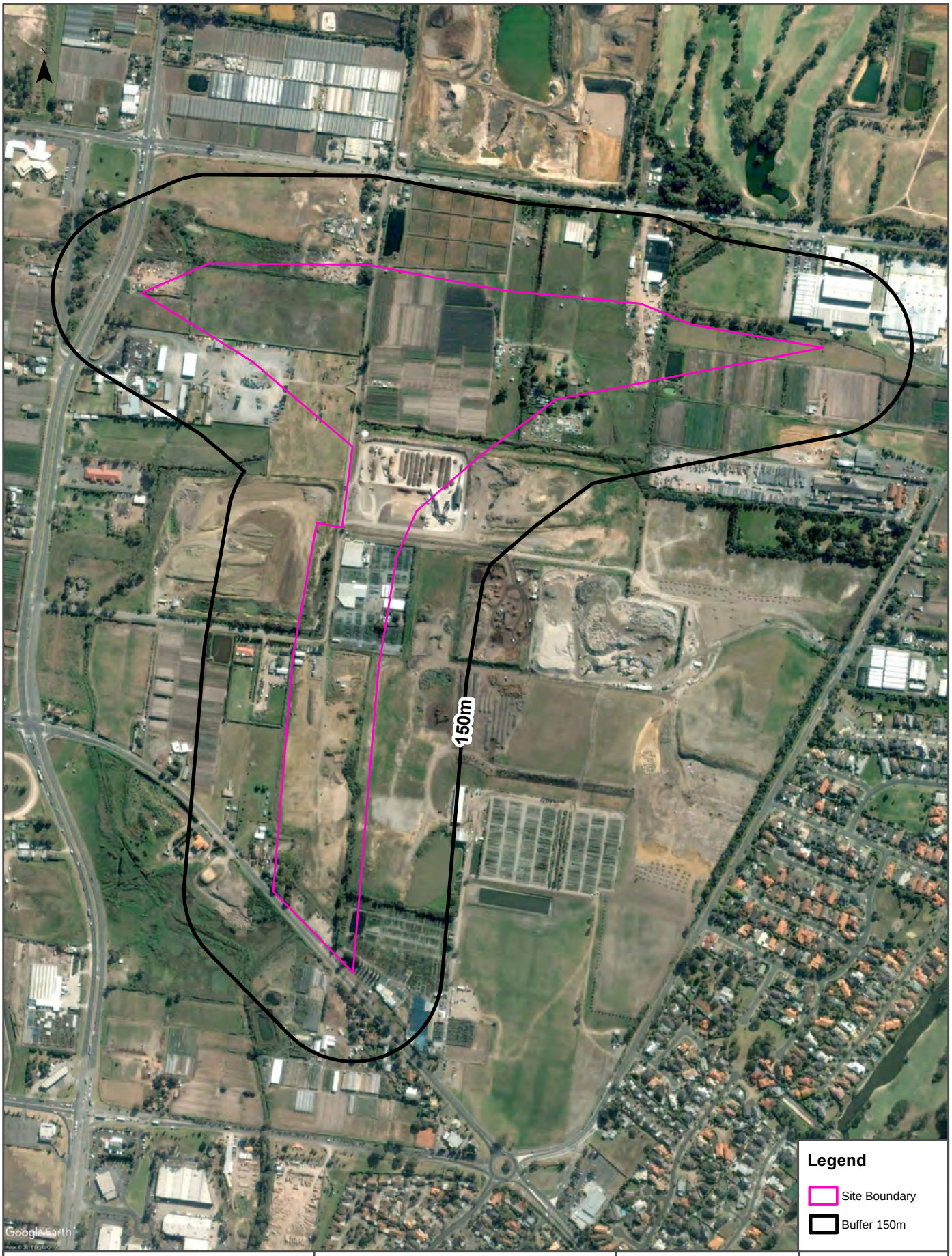
Aerial Imagery 2005

OSAR Proposed Road Alignments - Site 26 (Section 1)



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Meters

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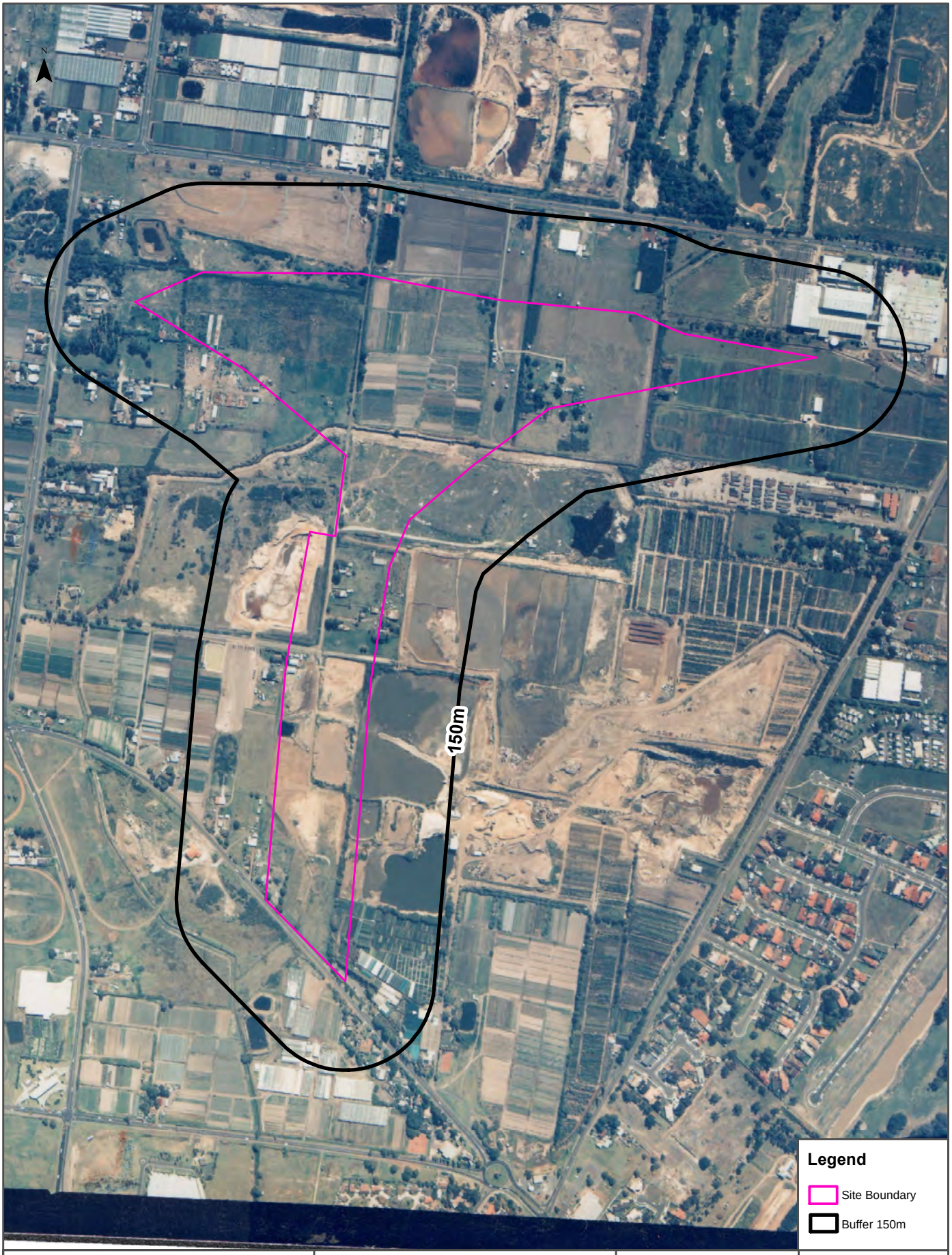
Date: 08February, 2017

Aerial Imagery 1991

OSAR Proposed Road Alignments - Site 26 (Section 1)



Scale:	Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)	Coordinate System: GDA 1994 MGA Zone 55	Date: 08February 2017

0 100 200 400
Meters

Aerial Imagery 1982

OSAR Proposed Road Alignments - Site 26 (Section 1)

Aerial Imagery 1981

OSAR Proposed Road Alignments - Site 26 (Section 1)

Legend

Site Boundary

Buffer 150m

Scale:
0 100 200 400
Meters

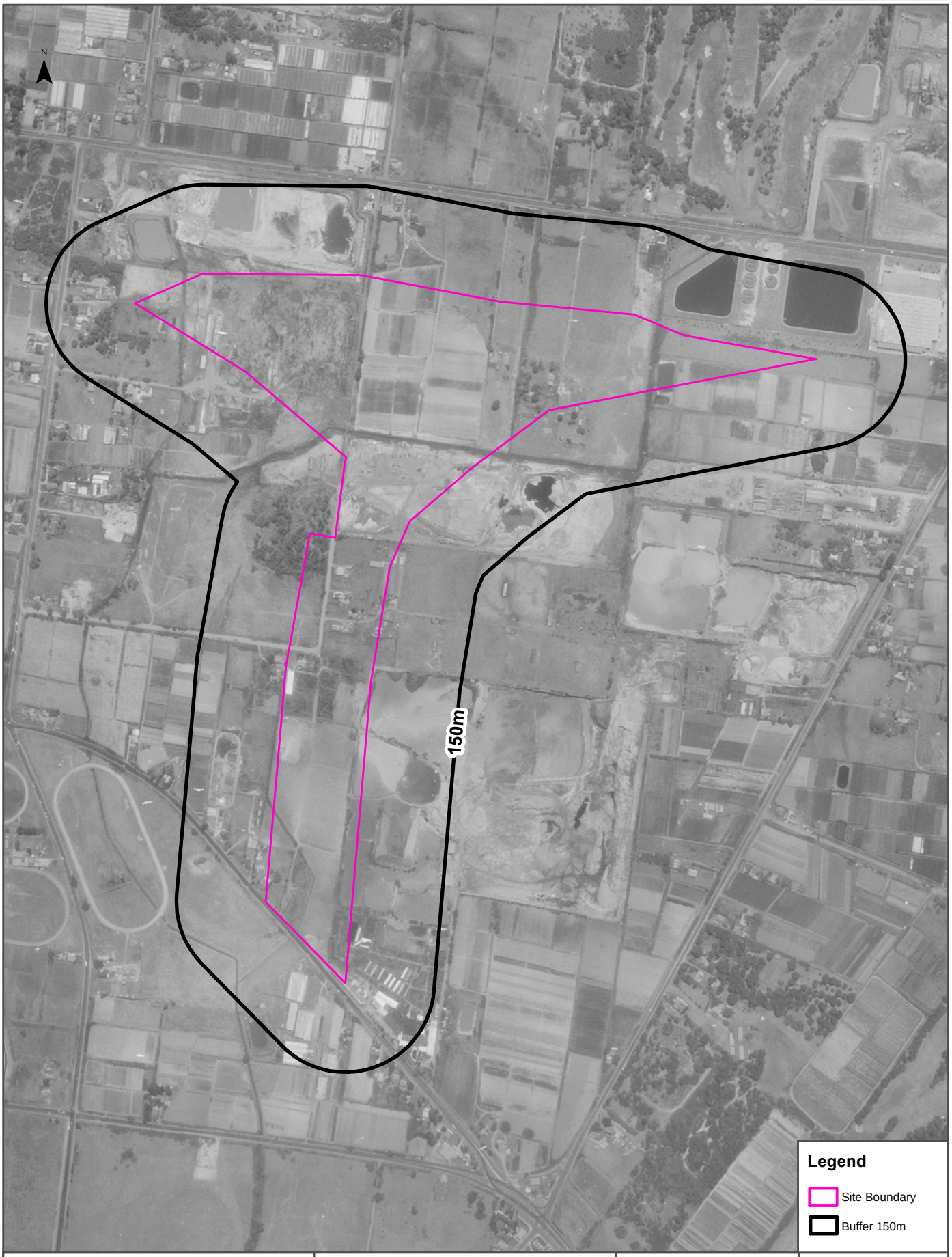
Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)

Coordinate System: GDA 1994 MGA Zone 55

Date: 08February 2017

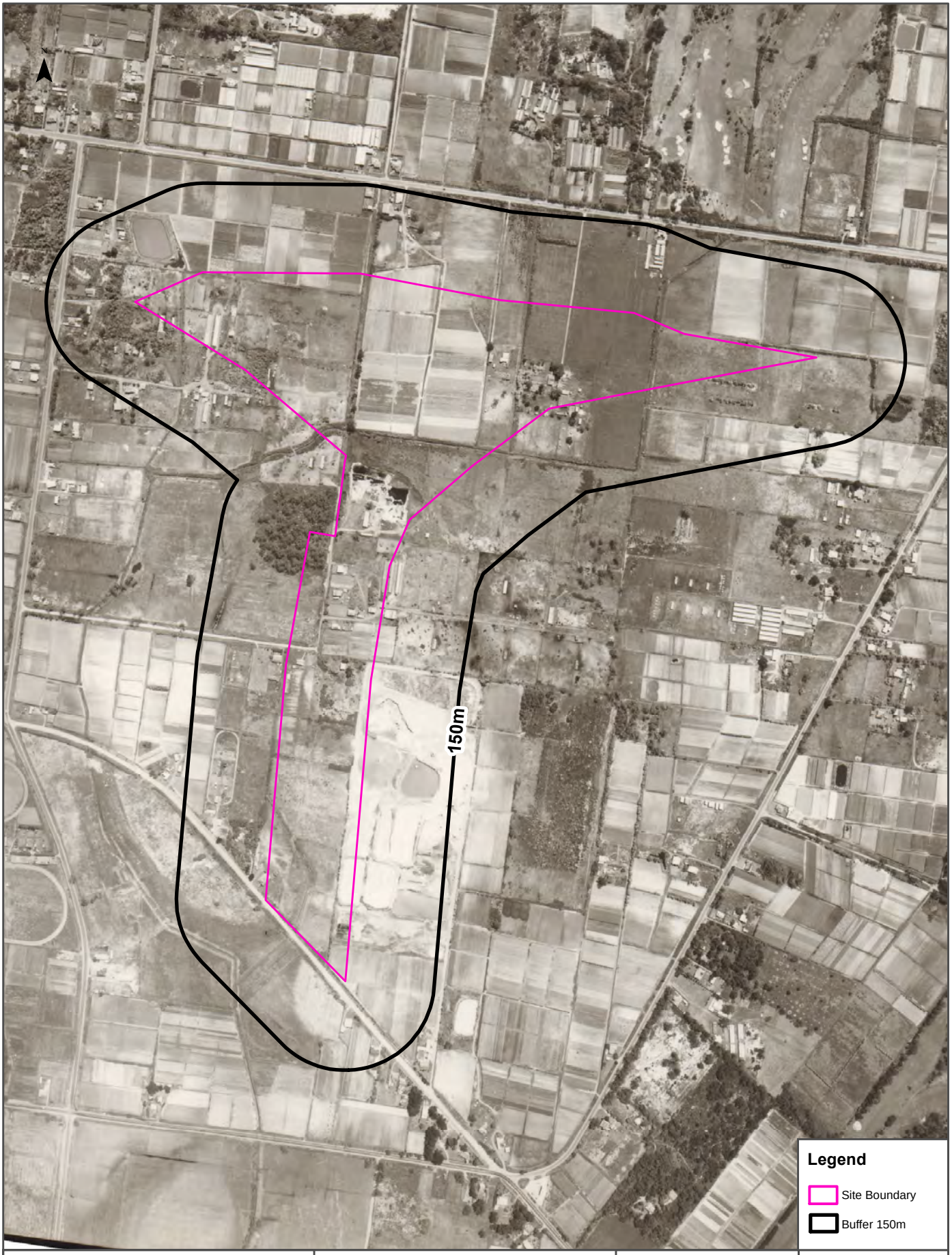
Aerial Imagery 1974

OSAR Proposed Road Alignments - Site 26 (Section 1)



Aerial Imagery 1963

OSAR Proposed Road Alignments - Site 26 (Section 1)



Scale:
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Meters

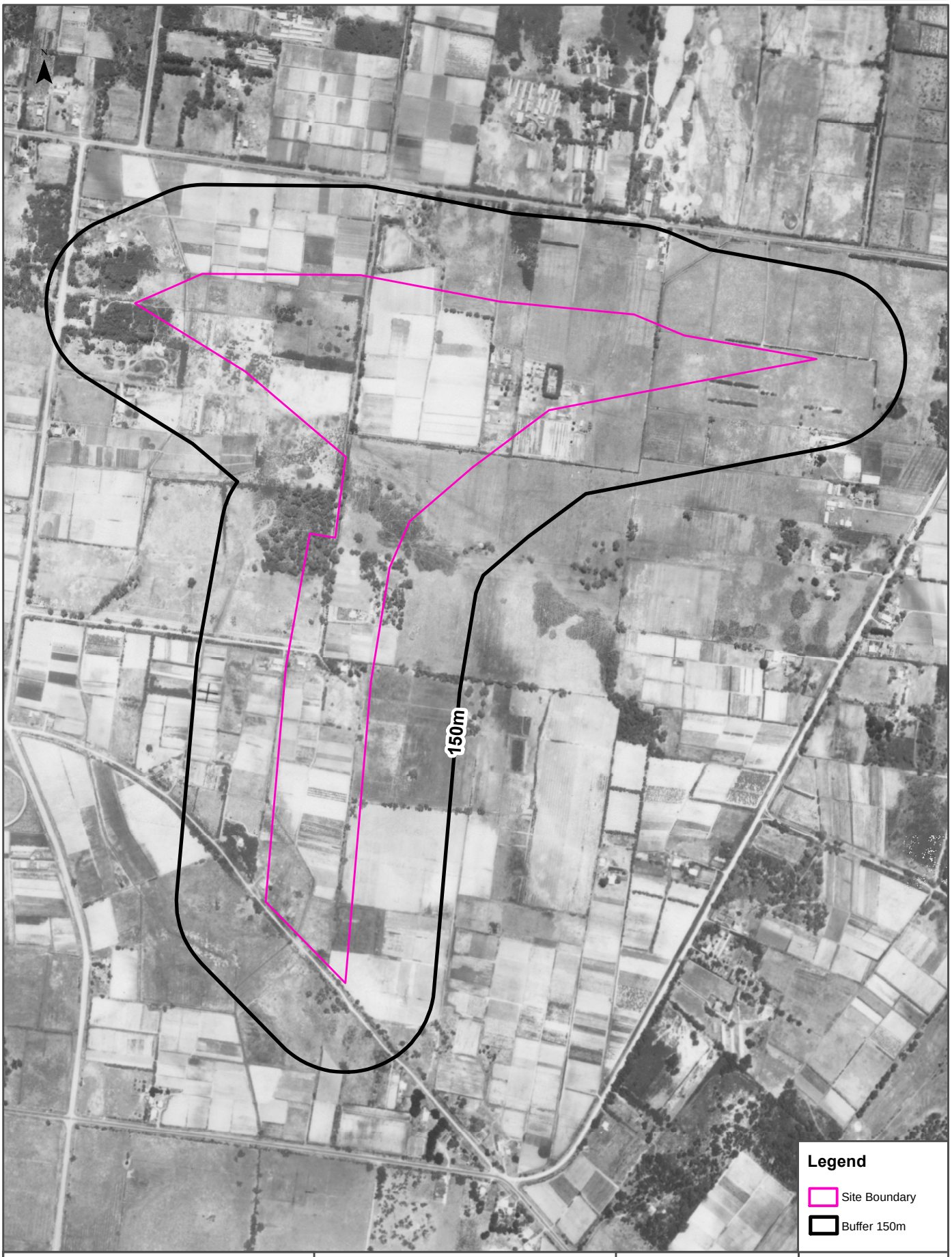
Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)

Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February 2017

Aerial Imagery 1951

OSAR Proposed Road Alignments - Site 26 (Section 1)



Scale:
0 100 200 400
Meters

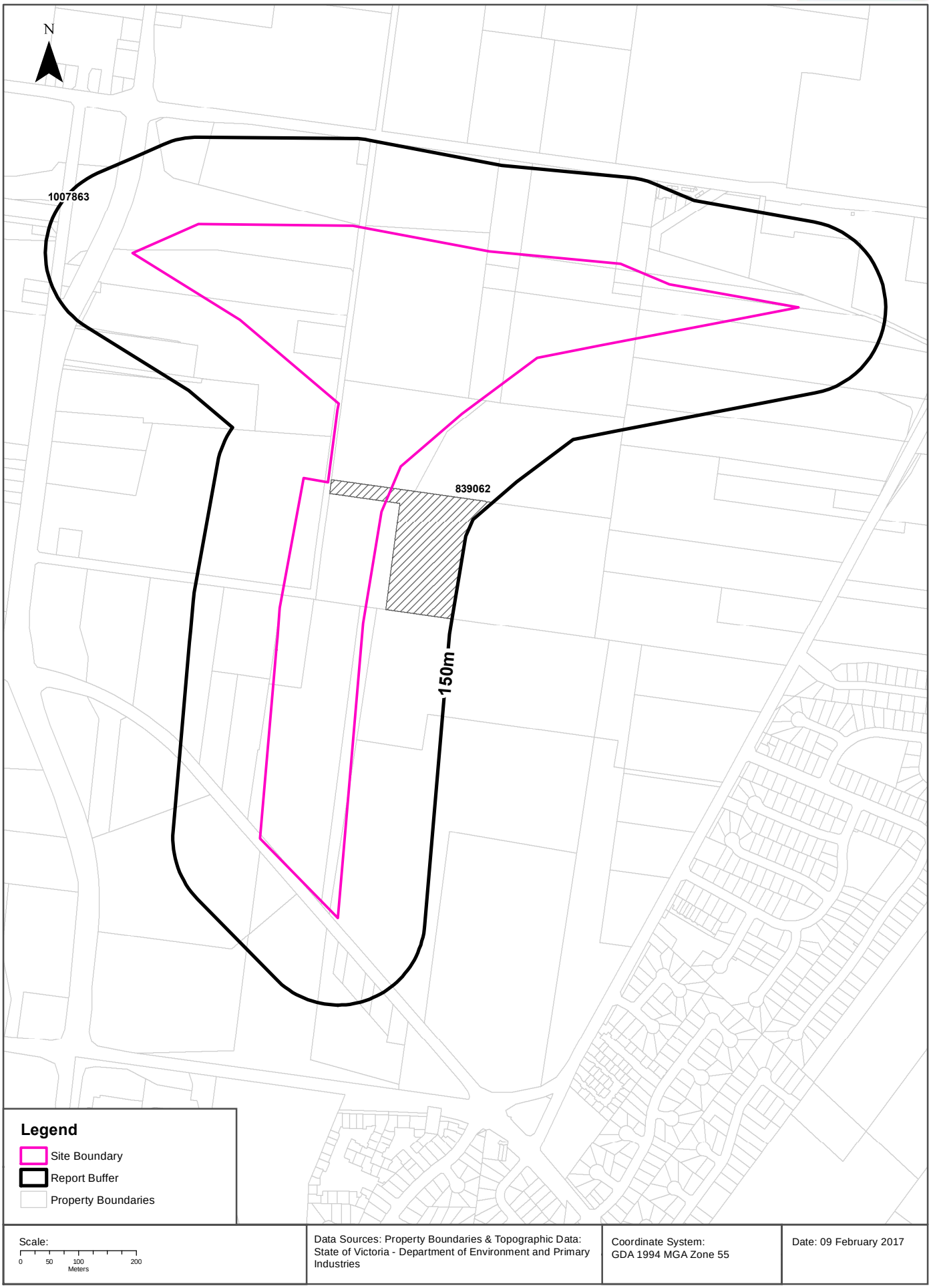
Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)

Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February 2017

Features of Interest

OSAR Proposed Road Alignments - Site 26 (Section 1)



Features of Interest

OSAR Proposed Road Alignments - Site 26 (Section 1)

Features of Interest

Features of Interest within 1km of the site:

Feature Id	Feature Type	Feature Sub Type	Name	Distance	Direction
839062	dumping ground	landfill	Dingley	0m	Onsite
1007863	education centre	education complex		149m	North West

Hydrogeology & Groundwater

OSAR Proposed Road Alignments - Site 26 (Section 1)

Hydrogeology

Description of aquifers within report buffer:

Description	Distance	Direction
Porous, extensive highly productive aquifers	0m	Onsite

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

Groundwater Salinity

On-site Groundwater Salinity:

Groundwater Salinity	Percent Of Site Area
500 - 1,000 mg/l	82
Less than 500 mg/l	18

Depth to Watertable

On-site Depth to Watertable:

Depth to Watertable	Percent Of Site Area
Less than 5 metres	84
5 to 10 metres	16

Surface Elevation

Approximate on-site Surface Elevation:

Surface Elevation
17 AHDm to 31 AHDm

Basement Elevation

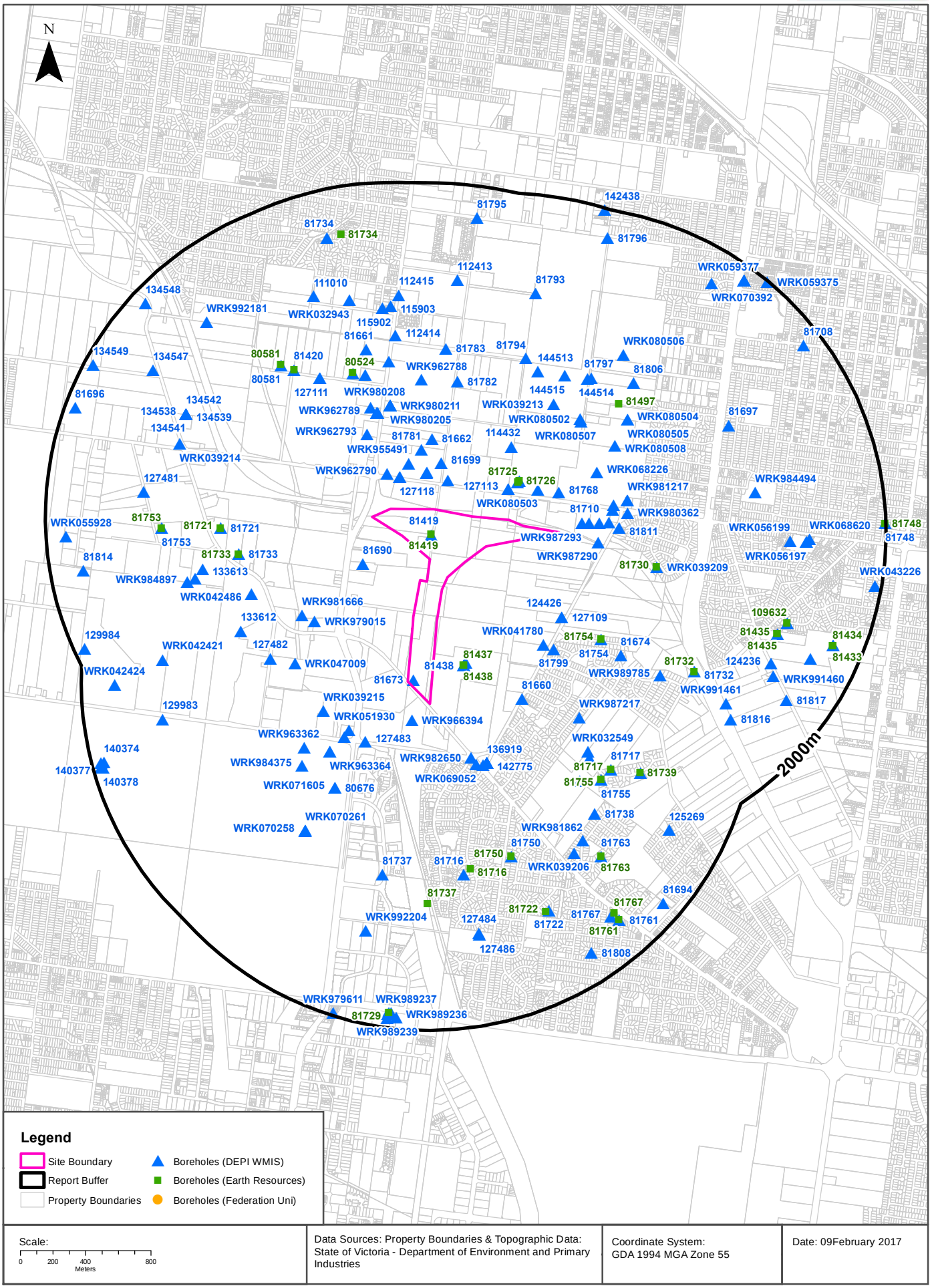
Approximate on-site Basement Elevation:

Basement Elevation - Basement Rocks comprise Lower Palaeozoic basement rocks that form the highlands and the crystalline basement; and Mesozoic rocks of the Otway and Gippsland basins both outcropping and subsurface
-26 AHDm to -10 AHDm

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

Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 1)



Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 1)

Boreholes (DEPI WMIS)

Boreholes from the Department of Environment and Primary Industries' Water Measurement Information System, within the report buffer:

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81673	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-1.22m SAND 1.22m-6.10m CLAYEY SAND 6.10m-6.40m SAND 6.40m-10.67m CLAY 10.67m-14.02m STICKY MARINE CLAY SAND 14.02m-18.29m SANDSTONE PIECES MARINE SILT SAND 18.29m-37.19m MARINE SILT CLAY 37.19m-38.71m DARK MARINE SHELL 38.71m-42.30m DARK MARINE SHELL LITTLE LIMESTONE				1970-01-06	0	Onsite
81419	Observation, State Observation Network	0.00m-1.50m TOP SOIL SAND 1.50m-4.60m CLAY AND SAND 4.60m-6.10m ORANGE CLAY SAND 6.10m-10.70m SANDY DARK CLAY 10.70m-22.90m GREEN CLAY SAND 22.90m-23.00m GRAVEL 23.00m-23.20m HARD BAR 23.20m-26.20m GREEN CLAY GRAVEL 26.20m-27.40m GREY CLAY 27.40m-39.60m GREEN SILTY CLAY WITH SHELLS 39.60m-42.98m CLAY MUD STONE	0.00m-42.98m INNER LINING - CASING = Pvc	Date/time: 1982-07-26 0000 Quality: 43 WLMP: 6.58m DBNS: 6.55m RWL: 20.12mAHD		1971-11-27	0	Onsite
WRK966394							146	South
WRK987293	Groundwater Investigation	0.00m-0.16m 0.16M CONCRETE 0.16m-0.30m FILL: SANDY GRAVEL 0.30m-0.80m FILL: SILTY SAND FINE GRAINED 0.80m-4.20m SILTY CLAY (CH) STIFF 4.20m-5.00m SANDY CLAY				2008-07-14	149	East
81438	Not Known					1985-09-20	187	South
81437	Not Known					1985-09-20	187	South
81421	Observation, State Observation Network	0.00m-1.20m SAND 1.20m-6.40m SANDY CLAY YELLOW 6.40m-7.90m SANDS DARK GREY 7.90m-14.90m GREEN MARL SANDY GRAVEL 14.90m-15.20m HARD STONE BAR 15.20m-21.30m GRAVEL CLAY SOME HARD BARS 21.30m-30.50m SILTY MARL GREEN 30.50m-32.00m SILTY MARL SAND GREYT MICA 32.00m-38.40m SILTY MARL SAND GREY 38.40m-39.90m DARKER SILTY CLAY 39.90m-42.10m GREEN MARL FIRM SHELLS 42.10m-44.20m HARD BAR STONE 44.20m-50.29m GREY CLAY TURNED TO STONE (BEDROCK)	0.00m-30.50m INNER LINING - CASING = Pvc 30.50m-42.70m INNER LINING - SCREEN = Pvc 42.70m-50.29m INNER LINING - CASING = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 25.90m-50.29m OUTER LINING - GRAVEL = Gravel	Date/time: 1991-12-04 0000 Quality: 43 WLMP: 4.21m DBNS: 3.34m RWL: 18.36mAHD	30.50m-42.70m Marl	1973-02-21	187	South
127114	Groundwater Investigation	0.00m-4.00m FINE GREY SAND 4.00m-7.00m YELLOW AND GREY CLAY 7.00m-9.50m GREY SANDY CLAY	0.20m-6.00m INNER LINING - CASING = Pvc 6.00m-8.00m INNER LINING - SCREEN = Pvc 8.00m-9.00m INNER LINING - CASING = Pvc 4.50m-5.50m OUTER LINING - GRAVEL = Bentonite 5.50m-9.00m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-08 0000 Quality: 47 WLMP: 4.61m DBNS: 3.82m RWL: 26.95mAHD		1995-12-07	187	North East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
127113	Groundwater Investigation	0.00m-4.00m FINE GREY SAND 4.00m-7.00m YELLOW AND GREY CLAY 7.00m-9.50m GREY SANDY CLAY 9.50m-16.00m FINE GREY SAND 16.00m-19.00m FINE DARK GREY SAND 19.00m-20.00m LIGHNIOUS CLAY	0.30m-17.00m INNER LINING - CASING = Pvc 17.00m-19.00m INNER LINING - SCREEN = Pvc 19.00m-20.00m INNER LINING - CASING = Pvc 15.50m-16.50m OUTER LINING - GRAVEL = Bentonite 16.50m-20.00m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-08 0000 Quality: 47 WLMP: 9.46m DBNS: 8.56m RWL: 22.21mAHD		1995-12-06	188	North East
WRK990436							190	North
WRK987292	Groundwater Investigation	0.00m-0.30m CONCRETE	0.00m-0.40m OUTER LINING - GRAVEL = Cement 0.40m-1.00m OUTER LINING - GRAVEL = Bentonite 1.00m-6.00m OUTER LINING - GRAVEL = Gravel			2008-07-15	191	East
127117	Groundwater Investigation	0.00m-1.00m GREY SAND 1.00m-2.50m YELLOW AND GREY CLAYEY SAND 2.50m-4.00m YELLOW AND GREY CLAY 4.00m-6.00m YELLOW AND GREY SANDY CLAY 6.00m-9.50m FINE SAND 9.50m-11.00m BROWN COAL 11.00m-15.50m MEDIUM SAND 15.50m-22.00m GREY SILTY CLAY 22.00m-30.00m MARL CLAY	0.00m-25.00m INNER LINING - CASING = Pvc 25.00m-27.00m INNER LINING - SCREEN = Pvc 27.00m-28.00m INNER LINING - CASING = Pvc 23.50m-24.50m OUTER LINING - GRAVEL = Bentonite 24.50m-28.00m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-08 0000 Quality: 47 WLMP: 6.39m DBNS: 6.45m RWL: 22.81mAHD		1995-12-13	194	North West
127118	Groundwater Investigation	0.00m-1.00m GREY SAND 1.00m-2.50m YELLOW AND GREY CLAYEY SAND 2.50m-4.00m YELLOW AND GREY CLAY 4.00m-6.00m YELLOW AND GREY SANDY CLAY 6.00m-9.50m FINE SAND 9.50m-10.50m BROWN COAL 10.50m-15.00m MEDIUM SAND 15.00m-16.00m GREY SILTY CLAY	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 10.50m-11.50m OUTER LINING - GRAVEL = Bentonite 11.50m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-07 0000 Quality: 47 WLMP: 1.40m DBNS: 1.44m RWL: 27.82mAHD		1995-12-14	195	North West
WRK046838						2006-08-10	197	South
WRK962790	Groundwater Investigation	0.00m-2.50m DARK BROWN SAND 2.50m-4.00m DARK ORANGE SAND 4.00m-7.00m WET SAND	0.00m-7.00m INNER LINING - CASING = Pvc			2003-09-29	216	North West
WRK962792	Groundwater Investigation	0.00m-2.50m LIGHT ORANGE SAND 2.50m-3.50m PALR GREY SAND 3.50m-7.00m GREY SILTY SAND 7.00m-10.00m FINE CLAYEY SAND 10.00m-11.70m FINE PALE GREY QUARTZ GRAVEL	0.00m-11.70m INNER LINING - CASING = Pvc			2003-09-29	220	North
WRK962791	Groundwater Investigation	0.00m-0.10m FILL, DARK GREY PEBBLY SAND 0.10m-1.00m LIGHT GREY SAND 1.00m-4.50m DARK GREY SAND 4.50m-5.00m FINE ORANGE SAND 5.00m-7.50m FINE PALE GREY SAND 7.50m-10.00m CLAYEY SAND 10.00m-12.00m LIGHT GREY/BROWN SAND 12.00m-15.00m CLAYEY SAND 15.00m-19.00m SILTY SAND 19.00m-24.50m FINE BROWN/GREY GRAVEL 24.50m-28.00m SILTY CLAY 28.00m-31.00m FINE SANDY GRAVEL 31.00m-33.00m CLAYEY SAND 33.00m-36.00m GRAVEL 36.00m-38.00m GRAVELLY SAND	30.00m-32.00m INNER LINING - CASING = Pvc 32.00m-38.00m INNER LINING - SCREEN = Pvc			2003-09-29	224	North
81725	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-3.00m SAND 3.00m-9.10m SANDY CLAY 9.10m-15.20m CLAYEY SAND AND LIGNITE 15.20m-16.80m CONSOLIDATED LIGNITE AND SAND 16.80m-17.10m COARSE SAND AND LIGNITE 17.10m-17.40m FINE SAND AND LIGNITE 17.40m-18.90m MEDIUM COARSE SAND AND LIGNITE 18.90m-22.30m SILT WITH LAYERS OF GREY CLAY 22.30m-23.50m MARINE CLAY 23.50m-24.40m COARSE SAND 24.40m-39.60m MARINE SILT 39.60m-43.90m GREY AND GREEN SANDSTONE				1983-04-28	235	North East
WRK080503	Observation	0.00m-3.00m CLAY 3.00m-12.00m SAND	0.00m-7.50m OUTER LINING - GRAVEL = Cement 7.50m-8.50m OUTER LINING - GRAVEL = Bentonite 8.50m-12.00m OUTER LINING - GRAVEL = Gravel		9.00m-12.00m Sand	2014-07-17	235	North East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81768	Not Known	0.00m-0.50m DARK BROWN SAND 0.50m-1.60m STIFF BROWN CLAY 1.60m-2.00m FIRM YELLOW-BROWN CLAY 2.00m-5.50m STIFF YELLOW-ORANGE CLAY AND FINE SAND 5.50m-8.50m GREY FINE TO COURSE SAND WITH DARK GREY CLAY LENSES	0.00m-7.80m INNER LINING - CASING = Pvc 7.80m-8.50m INNER LINING - SCREEN = Pvc 0.20m-8.50m OUTER LINING - GRAVEL = Gravel		7.80m-8.50m Sand	1985-09-24	240	North East
WRK987290	Groundwater Investigation	0.00m-0.70m FILL - GRAVEL 0.70m-1.20m BROWN SAND 1.20m-5.90m CLAYEY SAND 5.90m-7.00m SAND	0.00m-0.40m OUTER LINING - GRAVEL = Cement 0.40m-0.80m OUTER LINING - GRAVEL = Bentonite			2008-07-16	245	East
81726	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-5.80m SANDY CLAY 5.80m-17.10m CLAYEY SAND 17.10m-17.70m GREY CLAY 17.70m-19.50m SLOPPY GREY SANDY CLAY 19.50m-21.30m STICKY MARINE CLAY 21.30m-21.90m FINE MARINE CLAYEY SAND 21.90m-22.60m FINE MARINE SAND 22.60m-23.80m MARINE SILT				1983-05-09	247	North East
81710	Irrigation	0.00m-1.00m FIRM CLAYEY SAND 1.00m-6.10m VEREY STIFF SANDY CLAY 6.10m-15.20m SOFT CLAYEY SAND 15.20m-26.00m COARSE & FINE SAND 26.00m-29.00m BLUE SILT LIMESTONE PIECES & COARSE SAND 29.00m-30.50m HARD LIMESTONE BROKEN & SOME SAND 30.50m-33.50m MEDIUM HARD BLUE SHALE (CLAYEY) 33.50m-82.50m MEDIUM HARD BLUE SHALE WITH HARD LAYERS OF SANDSTONE 82.50m-152.50m HARD SANDSTONE	0.00m-34.00m INNER LINING - CASING = Steel 0.00m-76.50m INNER LINING - CASING = Steel 76.50m-152.50m INNER LINING - SCREEN = Steel			1979-01-12	251	East
81690	Not Known	0.00m-16.76m GREENY GREY CLAYEY SAND	0.00m-16.76m INNER LINING - CASING = Not Known 10.67m-16.76m INNER LINING - SCREEN = Not Known			1973-02-11	274	West
WRK955491						2006-02-10	279	North
81699	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-2.74m SAND 2.74m-9.75m SANDY CLAY 9.75m-23.47m SAND WITH LAYER CLAY 23.47m-47.24m MARINE SILT LITTLE SHELL				1973-11-05	287	North
WRK987291	Groundwater Investigation	0.00m-0.30m FILL - GRAVEL 0.30m-4.60m SANDY CLAY 4.60m-6.00m CLAYEY SAND 6.00m-6.50m SAND	0.00m-0.70m OUTER LINING - GRAVEL = Cement 0.70m-1.50m OUTER LINING - GRAVEL = Bentonite 1.50m-6.50m OUTER LINING - GRAVEL = Gravel			2008-07-14	309	East
WRK981683							353	East
81781	Not Known	0.00m-3.40m NO RETURNS 3.40m-4.90m SAND FINE/MEDIUM 4.90m-6.40m NO RETURNES 6.40m-11.00m SAND FINE/CLAYEY 11.00m-12.50m SAND FINE/MEDIUM 12.50m-26.20m SAND MEDIUM/COARSE LIGNEOUS 26.20m-32.30m SAND FINE/COARSE GRAVEL 32.30m-33.10m CLAY SANDY 33.10m-36.40m SAND GRAVEL CALCARESUS NODULES 36.40m-36.90m CLAY SILTY 36.90m-41.50m SAND FINE SILTY 41.50m-42.20m SAND MED/COARSE 42.20m-46.00m SAND FINE SILTY CLAYEY 46.00m-47.60m SAND FINE LIMESTONE FRAGMENTS CALCARESUS BANDS	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-33.00m INNER LINING - SCREEN = Pvc 33.00m-47.60m INNER LINING - CASING = Pvc		3.00m-33.00m Sand	1990-02-03	363	North
81811	Not Known					1988-01-01	366	East
WRK986702	Domestic & Stock	0.00m-0.10m TOP SOIL 0.10m-7.50m SANDY CLAYS	0.00m-8.00m INNER LINING - CASING = Pvc Class 18 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-7.50m OUTER LINING - GRAVEL = Bentonite			2008-06-17	371	East
WRK982650							415	South
81662	Domestic					1970-12-31	431	North
WRK980362							434	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK068226	Observation	0.00m-9.00m CLAY	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-9.00m INNER LINING - SCREEN = Pvc 0.00m-1.50m OUTER LINING - GRAVEL = Cement 1.50m-2.50m OUTER LINING - GRAVEL = Bentonite 3.50m-9.00m OUTER LINING - GRAVEL = Gravel		3.00m-9.00m Clay	2012-02-02	434	North East
127483	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m FINE GREY SAND 1.00m-2.00m LIGHT ORANGE CLAY 2.00m-4.00m YELLOW AND GREY SANDY CLAY 4.00m-10.00m LIGHT BROWN SANDY CLAY 10.00m-12.00m ORANGE CLAYEY SAND 12.00m-15.00m GREY SAILTY CLAY	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 11.00m-12.00m OUTER LINING - GRAVEL = Bentonite 12.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1104 Quality: 43 WLMP: 5.29m DBNS: 5.34m RWL: 12.46mAHD		1996-04-18	440	South West
114432	Groundwater Investigation	0.00m-12.00m SAND GREY / BROWN MEDIUM 12.00m-23.50m COARSE SAND SOME GRAVEL GREY	-0.50m-8.00m INNER LINING - CASING = Pvc 8.00m-23.50m INNER LINING - SCREEN = Pvc 0.00m-6.00m OUTER LINING - GRAVEL = Cement 6.00m-7.00m OUTER LINING - GRAVEL = Bentonite 7.00m-23.00m OUTER LINING - GRAVEL = Gravel		8.00m-23.50m Sand	1992-08-04	449	North East
WRK057334	Domestic & Stock	67.00m-68.00m siltstone	0.00m-61.50m INNER LINING - CASING = Pvc 61.50m-67.50m INNER LINING - SCREEN = Pvc 67.50m-68.00m INNER LINING - CASING = Pvc 45.00m-48.00m OUTER LINING - GRAVEL = Cement 58.00m-60.00m OUTER LINING - GRAVEL = Bentonite 60.00m-61.00m OUTER LINING - GRAVEL = Seal		61.50m-67.50m Siltstone	2010-06-02	457	East
WRK981217							460	East
WRK069052	Observation	0.00m-0.40m FILL 0.40m-9.50m CLAY	0.00m-6.00m INNER LINING - CASING = Pvc 6.00m-9.00m INNER LINING - SCREEN = Pvc 9.00m-9.50m INNER LINING - CASING = Pvc 0.00m-5.00m OUTER LINING - GRAVEL = Cement 5.00m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-9.00m OUTER LINING - GRAVEL = Gravel		9.00m-9.50m Clay	2012-08-17	466	South
WRK051930	Observation	0.00m-6.00m clay	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 1.00m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-6.00m OUTER LINING - GRAVEL = Gravel		0.00m-3.00m Clay 3.00m-6.00m Clay	2009-10-21	466	South West
WRK962793	Groundwater Investigation	0.00m-2.00m DARK BROWN/GREY SAND 2.00m-4.00m ORANGE/BROWN SAND 4.00m-7.00m FINE GREY SAND 7.00m-7.50m COARSE SAND 7.50m-8.50m PALE GREY SANDY SILT 8.50m-12.50m SILTY SAND 12.50m-13.00m BLACK SILTY SAND	0.00m-13.00m INNER LINING - CASING = Pvc			2003-09-29	481	North West
WRK991278	Groundwater Investigation	0.00m-0.30m topsoil 0.30m-1.50m sand 1.50m-3.60m sandstone 3.60m-8.20m sand	0.00m-4.20m INNER LINING - CASING = Pvc 4.20m-8.20m INNER LINING - SCREEN = Pvc 0.00m-2.50m OUTER LINING - GRAVEL = Cement 2.50m-3.70m OUTER LINING - GRAVEL = Bentonite 3.70m-8.20m OUTER LINING - GRAVEL = Gravel			2009-05-08	493	South
136917	Groundwater Investigation	0.00m-0.80m SANDY SILT, BROWN, MOIST FILL 0.80m-1.00m SAND CLAY, ORANGE BROWN, PAIL BROWN, YELLOW BROWN, STIFF, MO 1.00m-7.50m CLAYEY SAND FINE AND MEDIUM SAND, RED BROWN, YELLOW BROWN AN	0.00m-3.50m INNER LINING - CASING = Pvc Class 18 3.50m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.30m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	503	South

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136918	Groundwater Investigation	0.00m-0.80m SANDY SILT, BROWN, DENSE, MOIST FILL 0.80m-7.50m CLAYEY SAND, FINE AND MEDIUM SAND, RED BROWN, YELLOW BROWN,	0.00m-4.00m INNER LINING - CASING = Pvc Class 18 4.00m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.40m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	503	South
142774	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	503	South
142769	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	503	South
142773	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	503	South
142771	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	503	South
142768	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	503	South
142770	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	503	South
136919	Groundwater Investigation	0.00m-0.90m SILTY SAND, BROWN, MOIST FILL 0.90m-7.50m CLAYEY SAND RED BROWN, YELLOW BROWN AND PAIL GREY, MEDIUM GR	0.00m-4.00m INNER LINING - CASING = Pvc Class 18 4.00m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.30m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	503	South
142772	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc			1998-10-22	503	South
142775	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-7.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	503	South
124426	Groundwater Investigation			Date/time: 1996-09-26 0000 Quality: 47 WLMP: 3.76m DBNS: 2.75m RWL: 27.60mAHD		1995-04-07	510	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
127109	Groundwater Investigation	0.00m-9.00m BACK FILL FROM TIP 9.00m-16.00m GREY CLAYEY SAND 16.00m-19.00m GREY SILTY CLAY 19.00m-20.00m MUDSTONE 20.00m-30.00m SANDY MARL	0.30m-27.00m INNER LINING - CASING = Pvc 27.00m-29.00m INNER LINING - SCREEN = Pvc 29.00m-30.00m INNER LINING - CASING = Pvc 25.50m-26.50m OUTER LINING - GRAVEL = Bentonite 26.50m-30.00m OUTER LINING - GRAVEL = Gravel			1995-11-24	513	East
WRK986516							514	South West
WRK039215	Irrigation	0.00m-5.60m STIFF YELLOW/BROWN CLAY 5.60m-10.70m GREY FINE TO MEDIUM GRAINED SAND 10.70m-29.70m YELLOW/GREY FIRM CLAYEY SAND 29.70m-40.02m YELLOW/WHITE VERY LOOSE COARSE GRAINED SAND &	0.00m-30.00m INNER LINING - CASING = Pvc 30.00m-39.50m INNER LINING - SCREEN = Pvc 39.50m-40.02m INNER LINING - CASING = Pvc 39.00m-40.02m OUTER LINING - GRAVEL = Gravel		30.00m-39.50m Sand	1990-02-20	546	South West
81660	Not Known					1970-12-31	559	South East
WRK069758	Observation					2012-08-03	593	North West
WRK069757	Observation					2012-08-02	593	North West
WRK069756	Observation					2012-08-02	593	North West
WRK069754	Observation	0.00m-5.00m CLAY	0.00m-2.00m INNER LINING - CASING = Pvc 2.00m-5.00m INNER LINING - SCREEN = Pvc 0.00m-1.50m OUTER LINING - GRAVEL = Bentonite 1.50m-5.00m OUTER LINING - GRAVEL = Gravel		2.00m-5.00m Clay	2012-08-02	594	North West
WRK069755	Observation					2012-08-02	595	North West
WRK979015							601	West
WRK080508	Observation	0.00m-1.00m CLAY 1.00m-15.00m FILL 15.00m-20.00m SAND	0.00m-15.50m OUTER LINING - GRAVEL = Cement 15.50m-16.50m OUTER LINING - GRAVEL = Bentonite 16.50m-20.00m OUTER LINING - GRAVEL = Gravel		17.00m-20.00m Sand	2014-07-17	629	North East
WRK039209	Irrigation	0.00m-0.60m TOP SOIL 0.60m-3.00m SANDY CLAY RED 3.00m-27.40m COARSE SAND AND CLAY 27.40m-36.50m CLAY 36.50m-38.40m PEAT 38.40m-60.96m SANDSTONE	0.00m-38.40m INNER LINING - CASING = Steel 38.40m-60.96m INNER LINING - SCREEN = Steel		38.40m-60.96m Sandstone	1983-02-22	632	East
WRK980213	Domestic & Stock		0.00m-23.00m INNER LINING - CASING = Pvc 23.00m-26.00m INNER LINING - SLOT = Pvc 0.00m-21.00m OUTER LINING - GRAVEL = Cement 21.00m-22.00m OUTER LINING - GRAVEL = Bentonite 22.00m-26.00m OUTER LINING - GRAVEL = Gravel			2007-04-05	632	North
WRK980210	Domestic & Stock		0.00m-14.00m INNER LINING - CASING = Pvc 14.00m-18.00m INNER LINING - SLOT = Pvc 0.00m-11.50m OUTER LINING - GRAVEL = Cement 11.50m-13.00m OUTER LINING - GRAVEL = Bentonite 13.00m-18.00m OUTER LINING - GRAVEL = Gravel			2007-04-03	632	North
WRK980211	Domestic & Stock		0.00m-7.00m INNER LINING - CASING = Pvc 7.00m-11.50m INNER LINING - SLOT = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.50m OUTER LINING - GRAVEL = Bentonite 6.50m-11.50m OUTER LINING - GRAVEL = Gravel			2007-04-02	632	North
WRK980212	Domestic & Stock		0.00m-14.00m INNER LINING - CASING = Pvc 14.00m-18.00m INNER LINING - SLOT = Pvc 0.00m-11.50m OUTER LINING - GRAVEL = Cement 11.50m-13.00m OUTER LINING - GRAVEL = Bentonite 13.00m-18.00m OUTER LINING - GRAVEL = Gravel			2007-04-03	632	North

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK980205	Domestic & Stock		0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SLOT = Pvc 0.00m-5.00m OUTER LINING - GRAVEL = Cement 5.00m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel			2007-04-02	632	North
WRK980208	Domestic & Stock		0.00m-7.00m INNER LINING - CASING = Pvc 7.00m-11.50m INNER LINING - SLOT = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.50m OUTER LINING - GRAVEL = Bentonite 6.50m-11.50m OUTER LINING - GRAVEL = Gravel			2007-04-02	632	North
WRK980209	Domestic & Stock		0.00m-23.00m INNER LINING - CASING = Pvc 23.00m-26.00m INNER LINING - SLOT = Pvc 0.00m-21.00m OUTER LINING - GRAVEL = Cement 21.00m-22.00m OUTER LINING - GRAVEL = Bentonite 22.00m-26.00m OUTER LINING - GRAVEL = Gravel			2007-04-05	632	North
WRK962789	Groundwater Investigation	0.00m-0.10m GARDEN BED, GRASS & MULCH 0.10m-2.00m FINE BLACK/GREY SAND 2.00m-4.00m FINE SAND 4.00m-5.00m DARK BROWN SAND 5.00m-8.00m PALE SAND 8.00m-11.50m CLAYEY SAND 11.50m-14.00m BROWN SAND	0.00m-14.00m INNER LINING - CASING = Pvc			2003-09-29	633	North West
WRK963364							641	South West
WRK963363							641	South West
WRK041780	Dairy						655	South East
WRK981666							679	West
WRK080507	Observation	0.00m-3.00m CLAY 3.00m-10.00m CLAY/SAND	0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.50m OUTER LINING - GRAVEL = Bentonite 6.50m-10.00m OUTER LINING - GRAVEL = Gravel		7.00m-10.00m Sand	2014-07-17	691	North East
81799	Domestic, Stock					1988-01-01	694	South East
WRK047009							697	South West
81754	Not Known	0.00m-2.00m FINE BLACK SAND 2.00m-8.00m FINE/MED MUDDY ORANGE SAND 8.00m-8.10m LIGNITE 8.10m-30.00m FINE MUDDY GREY SAND				1983-05-10	702	South East
WRK080502	Observation	0.00m-4.00m CLAY 4.00m-35.00m CLAY/SAND 35.00m-42.00m SILTSTONE	0.00m-39.00m INNER LINING - CASING = Pvc Class 9 0.00m-37.00m OUTER LINING - GRAVEL = Cement 37.00m-38.00m OUTER LINING - GRAVEL = Bentonite 38.00m-42.00m OUTER LINING - GRAVEL = Gravel		39.00m-42.00m Siltstone	2014-07-17	705	North East
WRK963362	Domestic & Stock					2005-11-07	752	South West
WRK039213	Miscellaneous	0.00m-0.30m TOP SOIL 0.30m-2.40m GREY CLAY & FINE SAND 2.40m-3.60m YELLOW CLAY 3.60m-6.60m CLAY & FINE SAND 6.60m-12.10m COARSE SAND & PET 12.10m-24.00m FINE WHITE SAND 24.00m-33.40m SAND & CLAY 33.40m-40.00m FINE SAND 40.00m-43.50m GREY SANDSTONE 43.50m-76.00m BLUE/GREY SAND,STONE WITH FRACTURES	0.00m-41.00m INNER LINING - CASING = Mild Steel 42.50m-68.00m INNER LINING - SCREEN = Mild Steel			1989-10-23	760	North East
80676	Not Known					1988-01-01	773	South West
WRK071605	Irrigation					2012-10-02	773	South West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK962788	Groundwater Investigation	0.00m-4.00m FINE GRAIN SAND 4.00m-5.50m FINE LIGHT GREY SAND 5.50m-6.00m LIGHT GREY CLAYEY SAND 6.00m-11.00m FINE PALE GREY SAND 11.00m-13.00m GREY SAND 13.00m-16.00m GRAVEL				2003-09-25	792	North
81782	Not Known	0.00m-1.80m NO RETURNS 1.80m-4.90m SAND FINE SILTY ORANGE 4.90m-6.40m NO RETURNS 6.40m-10.20m SAND COARSE WHITE SILTY 10.20m-20.70m SAND MED TO COARSE BROWN 20.70m-20.80m SAND MED TO COARSE GRAVEL GREY 20.80m-26.80m SAND GINE SILTY GREY 26.80m-27.30m GRAVEL GREY 27.30m-28.20m SAND MED SILTY GREY/GREEN 28.20m-28.80m GRAVEL/SAND MED TO COARSE 28.80m-29.30m CLAY SILTY GREEN 29.30m-30.80m SAND FINE TO COARSE GREEN 30.80m-31.40m SAND MED CLAYEY GREEN 31.40m-33.80m SAND COARSE MINOR GRAVEL 33.80m-41.50m SILT SAND CLAY CALCASEOUS BANDS CLAY NODULES	0.00m-8.00m INNER LINING - CASING = Pvc 8.00m-33.00m INNER LINING - SCREEN = Pvc 33.00m-41.50m INNER LINING - CASING = Pvc		8.00m-33.00m Sand	1990-02-06	796	North
WRK080505	Observation	0.00m-4.50m CLAY 4.50m-6.70m CLAY/SAND 6.70m-10.00m SAND	0.00m-0.30m OUTER LINING - GRAVEL = Cement 0.30m-5.50m OUTER LINING - GRAVEL = Bentonite 5.50m-10.00m OUTER LINING - GRAVEL = Gravel		7.00m-10.00m Sand	2014-07-03	807	North East
WRK080504	Observation	0.00m-4.50m CLAY 4.50m-6.70m CLAY/SAND 6.70m-10.00m SAND	0.00m-0.30m OUTER LINING - GRAVEL = Cement 0.30m-4.50m OUTER LINING - GRAVEL = Bentonite 4.50m-5.50m OUTER LINING - GRAVEL = Bentonite 5.50m-10.00m OUTER LINING - GRAVEL = Gravel		7.00m-10.00m Sand	2014-07-03	807	North East
WRK984375							825	South West
WRK042465	Irrigation					1970-12-31	837	North
81674	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-1.52m CLAY 1.52m-3.35m SANDY CLAY 3.35m-6.10m SLOPPY CLAYEY SAND 6.10m-7.62m CLAY MOTTLEY 7.62m-10.67m BROWN CLAYEY SAND 10.67m-11.28m BLACK CLAY 11.28m-17.07m MARINE STICKY SAND CLAY 17.07m-27.32m MARINE SAND CLAY SILT 27.32m-29.26m BROWN COAL CLAY 29.26m-38.71m DARK MARINE CLAY LITTLE SHELL 38.71m-39.32m SHELL MARINE CLAY WITH FEW PEBBLES 39.32m-40.23m SILT BROWN CLAY MUDSTONE WITH THIS LAYERS SANDSTONE 40.23m-50.90m SANDSTONE				1970-01-06	842	South East
81733	Not Known	0.00m-0.35m TOP SANDY LOAM 0.35m-12.19m GREEN AND YELLOW CLAY 12.19m-13.00m BROWN WATER BEARING SANDY CLAY 13.00m-21.34m SOFT SANDY CLAY 21.34m-24.60m WATER BEARING GREY SANDY CLAY 24.60m-39.49m MEDIUM HARD SANDY CLAY	0.00m-24.38m INNER LINING - CASING = Galvanised Iron 24.38m-39.49m INNER LINING - SCREEN = Galvanised Iron		24.38m-39.49m Clay	1983-02-20	848	West
127482	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m YELLOW AND GREY CLAY 1.00m-8.00m YELLOW SANDY CLAY 8.00m-15.00m SANDY MARL	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 11.00m-12.00m OUTER LINING - GRAVEL = Bentonite 12.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1124 Quality: 43 WLMP: 7.28m DBNS: 7.30m RWL: 11.34mAHD		1996-04-16	851	South West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
80524	Not Known	0.00m-1.00m TOP SOIL 1.00m-8.00m GREY AND ORANGE CLAY 8.00m-9.00m BROWN MED COARSE SAND 9.00m-14.00m BROWN FINE/MED/COARSE SAND AND LIGNETIC SAND 14.00m-20.00m SANDY GREY AND ORANGE CLAY 20.00m-45.00m GREEN SILT AND LIMESTONE LAYERS 45.00m-46.00m DARK GREY SILTY CLAY 46.00m-51.00m GREEN SILT 51.00m-57.00m BROWN AND GREY CLAY AND WOOD 57.00m-59.00m COAL 59.00m-63.50m GREEN SILT AND GREY CLAY 63.50m-64.20m GRANODORITE				1983-09-29	862	North West
WRK042486	Irrigation	0.00m-0.30m TOP SOIL 0.30m-6.00m CLAY 6.00m-14.00m SANDY CLAY 14.00m-26.00m MARL 26.00m-39.00m LIMESTONE AND CLAY 39.00m-43.00m MARL 43.00m-80.00m SHALE 80.00m-181.00m VERY HARD SHALE	0.00m-63.00m INNER LINING - CASING = Pvc 63.00m-110.00m INNER LINING - CASING = Pvc 10.00m-15.00m OUTER LINING - GRAVEL = Cement 15.00m-62.50m OUTER LINING - GRAVEL = Bentonite 62.50m-63.00m OUTER LINING - GRAVEL = Seal		110.00m-181.00m Shale	2004-03-06	873	West
81780	Not Known	0.00m-6.10m NO RETURNS 6.10m-9.10m CLAY 9.10m-11.40m SAND 11.40m-15.20m SAND LIGNEOUS NODULES 15.20m-16.80m SAND MINOR GRAVEL 16.80m-18.30m NO RETURNS 18.30m-22.10m SAND MINOR GRAVEL 22.10m-22.90m SAND 22.90m-24.40m NO RETURNS 24.40m-29.70m SAND MINOR GRAVEL 29.70m-30.50m CLAY 30.50m-36.60m SAND 36.60m-41.20m SAND CLAYEY/SILTY	0.00m-7.70m INNER LINING - CASING = Pvc 7.70m-28.70m INNER LINING - SCREEN = Pvc 28.70m-41.20m INNER LINING - CASING = Pvc		7.70m-28.70m Sand	1990-01-31	901	North
127111	Groundwater Investigation	0.00m-2.00m FINE GREY SAND 2.00m-4.20m BROWN AND GREY CLAY 4.20m-7.20m YELLOW AND GREY SANDY CLAY 7.20m-10.20m FINE GREY SAND 10.20m-10.50m DARK GREY CLAY	0.00m-7.50m INNER LINING - CASING = Pvc 7.50m-9.50m INNER LINING - SCREEN = Pvc 9.50m-10.50m INNER LINING - CASING = Pvc 6.00m-7.00m OUTER LINING - GRAVEL = Bentonite 7.00m-10.50m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-07 0000 Quality: 47 WLMP: 5.47m DBNS: 5.54m RWL: 27.40mAHD		1995-11-30	905	North West
127110	Groundwater Investigation	0.00m-2.00m FINE GREY SAND 2.00m-4.00m BROWN AND GREY SAND 4.00m-7.00m YELLOW AND GREY SANDY CLAY 7.00m-10.20m FINE GREY SAND 10.20m-11.00m DARK GREY CLAY 11.00m-19.00m FINE SAND 19.00m-23.00m FINE SAND AND GRAVEL 23.00m-25.00m FINE CLAYEY SAND 25.00m-30.00m SANDY CLAY	0.00m-17.00m INNER LINING - CASING = Pvc 17.00m-19.00m INNER LINING - SCREEN = Pvc 19.00m-20.00m INNER LINING - CASING = Pvc 15.50m-16.50m OUTER LINING - GRAVEL = Bentonite 16.50m-20.00m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-07 0000 Quality: 47 WLMP: 8.31m DBNS: 8.35m RWL: 24.59mAHD		1995-11-30	908	North West
WRK987217							918	South East
144513	Groundwater Investigation	0.00m-0.30m FILL & SAND 0.30m-1.00m SAND WITH CLAY 1.00m-9.00m SILTY SAND WITH CLAY 9.00m-18.50m SAND WITH ORANGE BROWN CLAY 18.50m-23.00m SILTY SAND MEDIUM TO COARSE SAND 23.00m-29.00m SANDY SILT, FINE SAND, DARK GREY SILT, CLEAR QUARTZ SAND 29.00m-35.00m SILTY SAND MEDIUM TO COARSE 35.00m-43.60m SANDY SILT, FINE SAND, GREY TO GREEN CLAY 43.60m-51.60m SILTSTONE MEDIUM STRENGTH	0.00m-45.60m INNER LINING - CASING = Pvc Class 18 45.60m-51.60m INNER LINING - SCREEN = Pvc Class 18			1996-02-13	925	North East
81721	Stock	0.00m-0.35m TOP SANDY LOAM 0.35m-3.00m GREY CLAY 3.00m-7.00m BROWN SOFT CLAY 7.00m-9.50m GREEN CLAY 9.50m-16.20m HARD BROWN SANDY COAL CLAY 16.20m-21.00m WATER BEARING HARD AND MEDIUM HARD SANDSTONE 21.00m-27.00m SOFT SANDSTONE 27.00m-30.00m VERY SOFT GREEN SANDY CLAY 30.00m-33.00m WATER BEARING GRAVELY SOFT CLAY	0.00m-29.50m INNER LINING - CASING = Not Known 29.50m-31.20m INNER LINING - SCREEN = Not Known		29.50m-31.20m Sandstone	1983-01-05	929	West

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144515	Groundwater Investigation	0.00m-0.30m SILTY SAND, FINE TO MEDIUM SAND 0.30m-1.60m SANDY CLAY FINE TO COARSE SAND 1.60m-4.80m SILTY SAND WITH CLAY, FINE TO COARSE SAND, PALE GREY 4.80m-18.00m SAND FINE TO COARSE 18.00m-20.50m SILTY SAND, COARSE SAND, DARK GREY BROWN SILT, CLEAR TO PALE	0.00m-14.50m INNER LINING - CASING = Pvc Class 18 14.50m-20.50m INNER LINING - SCREEN = Pvc Class 18			1996-02-12	948	North East
144514	Groundwater Investigation	0.00m-2.00m CLAYEY SAND 2.00m-5.00m SILTY SAND FINE TO COARSE SAND 5.00m-21.00m SAND WITH SILT MEDIUM TO COARSE 21.00m-23.00m SILTY SAND FINE TO MEDIUM SAND, DARK GREY SILT 23.00m-26.00m SANDY SILT DARK GREY 26.00m-38.00m SILTY SAND FINE TO COARSE SAND	0.00m-32.00m INNER LINING - CASING = Pvc Class 18 32.00m-38.00m INNER LINING - SCREEN = Pvc Class 18			1996-02-07	956	North East
81797	Groundwater Investigation	0.00m-38.00m BROWN & GREY SAND 38.00m-40.00m GREY SILTSTONE	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-40.00m INNER LINING - SCREEN = Pvc	Date/time: 1996-10-04 0000 Quality: 47 WLMP: 6.15m DBNS: RWL:		1990-09-19	965	North East
81661	Domestic					1970-12-31	985	North
81783	Not Known	0.00m-6.40m NO RETURNS 6.40m-9.50m SILT SANDY 9.50m-14.00m SAND FINE/MEDIUM 14.00m-14.90m SAND FINE/COARSE 14.90m-22.40m SAND FINE/COARSE 22.40m-23.60m SAND COARSE MINOR GRAVEL 23.60m-33.90m SAND FINE/COARSE MIN GRAVEL 33.90m-44.50m SAND FINE/MED 44.50m-47.60m SILT CLAY CALCAREOUS BANDS	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-36.00m INNER LINING - SCREEN = Pvc 36.00m-47.60m INNER LINING - CASING = Pvc		3.00m-36.00m Sand	1990-02-09	986	North
81794	Groundwater Investigation	0.00m-33.00m GREY & BROWN SAND 33.00m-34.10m GREY SILTSTONE	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-34.10m INNER LINING - SCREEN = Pvc			1990-08-20	995	North
WRK032549	Irrigation	0.00m-4.00m TOP SOIL AND CLAY 4.00m-43.00m SAND 43.00m-50.00m SANDSTONE AND SLATE 50.00m-55.00m SANDSTONE 55.00m-73.00m GRAVEL AND COAL AND SEA SHELLS 73.00m-85.00m SANDSTONE	0.00m-43.00m INNER LINING - CASING = Steel 0.00m-74.00m INNER LINING - CASING = Steel 60.00m-85.00m INNER LINING - SCREEN = Steel			1997-10-03	1009	South East
81420	Observation	0.00m-1.50m SAND 1.50m-4.60m SANDY CLAY 4.60m-9.10m SAND 9.10m-10.70m DARK CLAY COAL 10.70m-13.70m SANDY CLAY 13.70m-14.30m BAND BLACK COAL 14.30m-18.30m SAND SOME COARSE GRAVEL 18.30m-25.30m GREEN SILTY CLAY 25.30m-27.40m COURSE GRAVEL CLAY 27.40m-29.60m SILTY SAND 29.60m-33.20m HARD BAND STONE 33.20m-44.80m FINE SILTY SANDS 44.80m-45.40m BAND HARD STONE 45.40m-47.20m GREEN DIRTY MARL SAND 47.20m-48.80m SILTY CLAY 48.80m-49.40m BAND OF HARD STONE 49.40m-50.00m GREEN CLAY 50.00m-50.60m STONE 50.60m-56.40m BROWN CLAY 56.40m-58.20m DECOM CLAY COAL 58.20m-60.96m MUDSTONE	0.00m-60.96m INNER LINING - CASING = Pvc	Date/time: 1975-10-22 0000 Quality: 47 WLMP: 6.33m DBNS: 6.30m RWL: 27.34mAHD		1973-01-31	1019	North West
81806	Not Known					1988-01-01	1022	North East
WRK985144							1031	South East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81791	Not Known	0.00m-0.50m SANDY LOAM 0.50m-1.50m FINE WHITE SAND 1.50m-2.00m DARK BROWN SANDY CLAY 2.00m-15.50m LIGHT GREY & YELLOW SANDY CLAY 15.50m-19.00m DIRTY DRIFT SAND 19.00m-36.00m GREEN MARINE SILT 36.00m-37.00m BROWN COAL 37.00m-44.00m GREEN SILT & SHELL 44.00m-45.00m LIGNIOUS CLAY 45.00m-59.00m SOFT MUDSTONE				1990-09-05	1033	South East
133612	Irrigation	0.00m-52.00m SILTY SANDS & CLAYEY MARLS SOME FILLING ENCOUNTERED AT 5-9 M 52.00m-150.00m FRIM GREY MUDSTONES	0.30m-52.00m INNER LINING - CASING = Steel 52.00m-150.00m INNER LINING - SCREEN = Steel 0.00m-52.00m OUTER LINING - GRAVEL = Cement		52.00m-150.00m Mudstone	1997-11-24	1044	West
81750	Domestic	0.00m-0.50m GREY SANDY LOAM 0.50m-3.00m YELLOW CLAY 3.00m-3.15m SANDY LAYER MEDIUM 3.15m-5.00m WHITE GREY CLAY 5.00m-5.07m THIN ROCK LAYER 5.07m-5.45m COARSE SAND WITH SOME FINE CLAY 5.45m-6.00m GREY CLAY	0.00m-5.00m INNER LINING - CASING = Pvc 5.00m-5.45m INNER LINING - SCREEN = Pvc 5.45m-6.00m INNER LINING - SCREEN = Slotted Pvc		5.00m-5.45m Sand 5.45m-6.00m Clay	1984-06-04	1057	South
112414	Groundwater Investigation	0.00m-0.30m SILTY TOP SOIL 0.30m-0.80m TIP FILL 0.80m-3.00m SILTY SAND 3.00m-12.00m YELLOW SILTY CLAY SAND 12.00m-12.50m GREY SANDY CLAY 12.50m-15.40m LIGNIOUS SANDY CLAY 15.40m-21.00m FINE LIGNIOUS SAND OPEN HOLE 21.00m-26.00m FINE LIGNIOUS SAND	-0.10m-19.25m INNER LINING - CASING = Pvc 19.25m-25.00m INNER LINING - SCREEN = Pvc 0.20m-1.50m OUTER LINING - GRAVEL = Cement 18.00m-25.00m OUTER LINING - GRAVEL = Gravel		19.25m-25.00m Sand	1992-01-09	1061	North
81716	Domestic	0.00m-2.00m TOP SOIL 2.00m-6.00m CLAY 6.00m-7.00m LIGHT CLAY AND SAND 7.00m-8.00m LIGHT SAND 8.00m-10.00m COARSE SAND	0.00m-7.00m INNER LINING - CASING = Pvc 7.00m-10.00m INNER LINING - SCREEN = Pvc		7.00m-10.00m Clay	1983-06-12	1063	South
WRK989785							1071	South East
81737	Domestic	0.00m-3.00m TOP SOIL WITH GREY SAND 3.00m-5.00m GREY SANDY CLAY 5.00m-11.00m GREY CLAY WITH SAND 11.00m-17.00m BROWN SANDY CLAY 17.00m-59.00m BLACK CLAY 59.00m-60.00m WEATHERED MUDSTONE 60.00m-86.00m MUDSTONE	0.00m-59.20m INNER LINING - CASING = Mild Steel 59.20m-86.00m INNER LINING - SCREEN = Mild Steel		59.20m-86.00m Mudstone	1983-12-02	1082	South
WRK070261	Observation					2012-07-05	1083	South West
133613	Irrigation	0.00m-50.00m SILTY SANDS & CLAYEY MARLS 50.00m-150.00m SOFT GREY MUDSTONE	-0.30m-50.00m INNER LINING - CASING = Steel 50.00m-150.00m INNER LINING - SCREEN = Steel 0.00m-50.00m OUTER LINING - GRAVEL = Cement		50.00m-150.00m Mudstone	1997-11-22	1084	West
80581	Stock	0.00m-8.00m CLAYEY SAND 8.00m-10.00m FINE WHITE SAND 10.00m-17.00m BLACK SAND 17.00m-29.00m FINE BLACK SILTY SAND 29.00m-55.00m BLACK SAND LAYERS SANDSTONE 55.00m-58.00m BROWN CLAY AND INFERIOR COAL 58.00m-80.00m WEATHERED GRANITE	0.00m-68.00m INNER LINING - CASING = Steel 68.00m-80.00m INNER LINING - SCREEN = Steel		68.00m-80.00m Granite	1984-02-17	1085	North West
WRK070260	Observation					2012-07-04	1086	South West
WRK070259	Observation					2012-07-03	1088	South West
WRK070258	Observation					2012-07-02	1089	South West
81755	Domestic	0.00m-0.30m TOP SOIL 0.30m-7.62m CLAY 7.62m-12.80m SAND AND CLAY	0.00m-11.58m INNER LINING - CASING = Pvc 11.58m-12.80m INNER LINING - SCREEN = Pvc		11.58m-12.80m Sand	1983-06-01	1146	South East
WRK058438	Irrigation	0.00m-42.00m SAND 42.00m-55.00m MUD STONE 55.00m-68.00m BASALT 68.00m-87.00m SAND 87.00m-95.00m CLAY 95.00m-108.00m SANDSTONE	0.00m-42.50m INNER LINING - CASING = Steel 45.50m-84.50m INNER LINING - SLOT = Steel 0.00m-42.50m OUTER LINING - GRAVEL = Cement		0.00m-42.50m Mudstone 45.50m-84.50m Basalt	2009-09-21	1146	West
WRK080506	Observation	0.00m-1.50m CLAY 1.50m-7.30m CLAY/SAND 7.30m-13.10m SAND	0.00m-0.30m OUTER LINING - GRAVEL = Cement 0.30m-8.50m OUTER LINING - GRAVEL = Bentonite 8.50m-13.10m OUTER LINING - GRAVEL = Gravel		10.10m-13.10m Sand	2014-07-03	1156	North East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81717	Domestic, Stock	0.00m-1.00m SAND BROWN 1.00m-1.80m SAND GREY 1.80m-3.00m CEMENTED FERRIGINOUS PIECES 3.00m-7.00m CLAYEY SAND 7.00m-8.00m GRAVEL 8.00m-10.00m SANDY CLAY 10.00m-11.00m COFFEE ROCK 11.00m-15.00m SILT GRAVEL AND BLACK SAND 15.00m-15.50m CLAYEY SAND 15.50m-16.20m GRAVEL 16.20m-0.00m ROCK	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-16.20m INNER LINING - SCREEN = Pvc 0.00m-2.00m OUTER LINING - GRAVEL = Cement		12.00m-16.20m Silt	1981-08-13	1179	South East
81732	Domestic, Stock	0.00m-3.00m SANDY LOAM 3.00m-10.60m MOTTLED CLAY FIRM SANDY 10.60m-39.30m SAND, SILTY FIRM (FINE) 39.30m-42.60m SANDSTONE PIECES AND FINE SAND	0.00m-39.30m INNER LINING - CASING = Steel 39.30m-42.60m INNER LINING - SCREEN = Steel		39.30m-42.60m Sandstone	1982-11-12	1187	East
WRK984897							1198	West
81738	Domestic	0.00m-1.50m GREY LOAM AND SAND 1.50m-3.00m GREY FIRM SAND 3.00m-4.52m GREY FINE SAND AND CLAY 4.52m-6.10m GREY SAND MEDIUM COARSE 6.10m-7.62m GREY COARSE SAND 7.62m-9.10m YELLOW CLAY SOME GRIT 9.10m-10.62m FINE SAND AND CLAY 10.62m-11.30m MEDIUM FINE SAND 11.30m-12.70m GREY MEDIUM COARSE SAND 12.70m-13.70m GREY MEDIUM CORASE SAND SOME CLAY 13.70m-15.20m COARSE GREY SAND WITH CLAY 15.20m-16.70m YELLOW CLAY FINE SAND 16.70m-19.81m COARSE GREY SAND	0.00m-7.62m INNER LINING - CASING = Pvc 7.62m-18.50m INNER LINING - SCREEN = Pvc 18.50m-19.81m INNER LINING - SCREEN = Slotted Pvc		7.62m-18.50m Clay 18.50m-19.81m Sand	1983-09-14	1212	South East
WRK984494							1223	East
81697	Domestic, Stock	0.00m-1.52m TOP AND SUB SOILS 1.52m-3.05m YELLOW SANDY CLAY 3.05m-3.66m GREY/WHITE CLAY 3.66m-4.88m ORANGE SANDY CLAY 4.88m-7.31m PURE WHITE FINE SAND	0.00m-7.31m INNER LINING - CASING = Not Known 1.52m-7.31m INNER LINING - SCREEN = Not Known			1973-01-06	1225	North East
115902	Groundwater Investigation	0.00m-15.00m BROWN & GREY SILTY SANDS	0.00m-13.00m INNER LINING - CASING = Pvc 13.00m-15.00m INNER LINING - SCREEN = Pvc 10.00m-12.70m OUTER LINING - GRAVEL = Gravel 12.70m-12.90m OUTER LINING - GRAVEL = Bentonite 12.90m-15.00m OUTER LINING - GRAVEL = Gravel			1993-06-07	1232	North
115903	Groundwater Investigation	0.00m-15.00m BROWN & GREY SILTY SANDS	0.00m-13.00m INNER LINING - CASING = Pvc 13.00m-15.00m INNER LINING - SCREEN = Pvc 10.00m-12.70m OUTER LINING - GRAVEL = Gravel 12.70m-12.90m OUTER LINING - GRAVEL = Bentonite 12.90m-15.00m OUTER LINING - GRAVEL = Gravel			1993-06-07	1241	North
WRK981862							1255	South East
WRK039214	Irrigation	0.00m-6.50m GREY STICKY SILTY SAND 6.50m-26.00m BLACK MED GRAINED SAND 26.00m-28.90m BLACK-GREY COARSE SAND AND GRAVEL 28.90m-35.60m YELLOW/BROWN CLAYEY SAND 35.60m-40.50m GREY/BROWN MED GRAINED SAND 40.50m-52.50m VERY LOOSE MED GRAINED GREY/WHITE SAND 52.50m-54.38m SOFT TO HARD GREY/BROWN WEATHERED ROCK	0.00m-54.38m INNER LINING - CASESCRN = Not Known			1990-07-29	1260	North West
WRK039206	Irrigation					1970-12-31	1269	South East
81753	Domestic	0.00m-1.50m GREY BLACK LOAM 1.50m-3.00m BROWN SAND 3.00m-5.00m SAND GREY SILT, SOME GRAVEL 5.00m-7.00m SAND AND FINE GRAVEL 7.00m-9.00m SANDY CLAY 9.00m-13.70m COARSE GRAVEL AND SAND	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-12.40m INNER LINING - SCREEN = Pvc 12.40m-13.70m INNER LINING - SCREEN = Slotted Pvc		12.00m-12.40m Gravel 12.40m-13.70m Gravel	1985-04-01	1288	West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
134540	Groundwater Investigation	0.00m-0.80m ORGANIC SILTY SAND 0.80m-1.80m SANDY CLAY 1.80m-3.20m CLAYEY SAND 3.20m-5.80m SANDY CLAY 5.80m-7.00m CLAYEY SAND 7.00m-8.50m SILTY CLAYEY SAND	0.00m-7.00m INNER LINING - CASING = Pvc Class 18 7.00m-8.50m INNER LINING - SCREEN = Pvc Class 18			1996-07-17	1300	North West
134543	Groundwater Investigation	0.00m-0.80m ORGANIC SILTY SAND 0.80m-5.50m SANDY CLAY 5.50m-5.60m CLAYEY SAND 5.60m-8.50m SILTY CLAY	0.00m-7.00m INNER LINING - CASING = Pvc Class 18 7.00m-8.50m INNER LINING - SCREEN = Pvc Class 18			1996-07-18	1300	North West
134541	Groundwater Investigation	0.00m-0.80m ORGANIC SILTY SAND 0.80m-3.00m SANDY CLAY 3.00m-4.00m CLAYEY SAND 4.00m-4.50m SANDY CLAY	0.00m-4.00m INNER LINING - CASING = Pvc Class 18 4.00m-4.50m INNER LINING - SCREEN = Pvc Class 18			1996-07-17	1300	North West
134542	Groundwater Investigation	0.00m-1.80m ORGANIC SILTY SAND 1.80m-2.80m SANDY CLAY 2.80m-4.20m CLAYEY SILTY SAND 4.20m-6.20m SANDY CLAY 6.20m-9.50m CLAYEY SAND	0.00m-8.00m INNER LINING - CASING = Pvc Class 18 8.00m-9.50m INNER LINING - SCREEN = Pvc Class 18			1996-07-17	1300	North West
134539	Groundwater Investigation	0.00m-0.80m SILTY SAND 0.80m-3.50m SANDY GRAVELLY CLAY 3.50m-4.50m SANDY CLAY 4.50m-9.50m SAND	0.00m-7.50m INNER LINING - CASING = Pvc Class 18 7.50m-9.50m INNER LINING - SCREEN = Pvc Class 18			1996-07-17	1300	North West
134544	Groundwater Investigation	0.00m-0.80m FILL 0.80m-2.50m SANDY GRAVELLY CLAY 2.50m-3.00m SILTY SAND 3.00m-9.50m CLAYEY SILTY SAND	0.00m-8.00m INNER LINING - CASING = Pvc Class 18 8.00m-9.50m INNER LINING - SCREEN = Pvc Class 18			1996-07-18	1300	North West
134538	Groundwater Investigation	0.00m-1.00m SILTY SAND 1.00m-2.00m SANDY CLAY 2.00m-4.00m CLAYEY SAND 4.00m-5.00m SANDY CLAY 5.00m-8.50m CLAYEY SAND	0.00m-7.00m INNER LINING - CASING = Pvc Class 18 7.00m-8.50m INNER LINING - SCREEN = Pvc Class 18			1996-07-17	1300	North West
WRK032943	Irrigation	0.00m-60.00m SAND / CLAY 60.00m-95.00m GRANITE	0.00m-60.00m INNER LINING - CASING = Steel 60.00m-75.00m INNER LINING - CASING = Pvc 75.00m-95.00m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement			2000-05-24	1305	North
112415	Groundwater Investigation	0.00m-0.20m FINE DRY SAND 0.20m-2.00m DARK SAND CLAY SHELLS 2.00m-4.10m LIGNIOUS SILTY SAND 4.10m-11.80m MEDIUM-COARSE SAND 11.80m-12.50m FINER GREEN SAND 12.50m-18.50m FINE TO MEDIUM GREEN SILTY SAND 18.50m-20.00m FIRM GREY CLAY (MUDSTONE)	-0.10m-13.00m INNER LINING - CASING = Pvc 13.00m-19.00m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 18.00m-20.00m OUTER LINING - GRAVEL = Gravel		13.00m-19.00m Sand	1992-01-29	1311	North
81739	Domestic	0.00m-1.50m GREY SANDY LOAM 1.50m-4.52m YELLOW CLAY 4.52m-9.10m YELLOW ORANGE CLAY 9.10m-10.60m MEDIUM SAND AND MEDIUM COARSE GRAVEL 10.60m-12.10m YELLOW CLAY 12.10m-15.20m YELLOW CLAY, COARSE GRAVEL 15.20m-18.29m GREEN CLAY, SOME GRAVEL 18.29m-19.51m GREEN CLAY - GRAVEL	0.00m-6.40m INNER LINING - CASING = Pvc 6.40m-18.00m INNER LINING - SCREEN = Pvc 18.00m-18.50m INNER LINING - CASING = Pvc 18.50m-19.51m INNER LINING - SCREEN = Pvc		6.40m-18.00m Clay 18.50m-19.51m Clay	1983-12-13	1356	South East
111010	Groundwater Investigation	0.00m-6.00m SAND (FINE TO MEDIUM) 6.00m-10.00m GREY SANDY CLAY 10.00m-18.00m SAND (MEDIUM TO FINE) WITH CEMENTED BANDS	-1.00m-10.00m INNER LINING - CASING = Pvc Class 12 10.00m-18.00m INNER LINING - SCREEN = Pvc Class 12 0.00m-1.00m OUTER LINING - GRAVEL = Cement 3.50m-4.50m OUTER LINING - GRAVEL = Bentonite 4.50m-18.00m OUTER LINING - GRAVEL = Gravel		10.00m-18.00m Sand	1991-12-13	1383	North West
81793	Groundwater Investigation	0.00m-22.50m BROWN & GREY SAND 22.50m-28.00m COARSE GREY SAND 28.00m-35.10m FINE BROWN SAND 35.10m-37.20m GREY SILTSTONE	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-37.20m INNER LINING - SCREEN = Pvc 3.00m-0.00m OUTER LINING - GRAVEL = Seal	Date/time: 1996-10-03 0000 Quality: 47 WLMP: 6.55m DBNS: RWL:		1990-08-13	1399	North
81763	Domestic	0.00m-0.25m TOP SOIL 0.25m-0.75m ORANGE SAND 0.75m-6.00m ORANGE CLAY 6.00m-7.00m GREY CLAY 7.00m-8.00m ORANGE SANDY CLAY 8.00m-9.15m IRON STONE	0.00m-8.95m INNER LINING - CASING = Galvanised Iron 8.95m-9.15m INNER LINING - SCREEN = Galvanised Iron		8.95m-9.15m Ironstone	1982-11-12	1403	South East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
127481	Groundwater Investigation, Observation, State Observation Network	0.00m-2.00m DARK GREY SAND 2.00m-7.00m YELLOW GREY CLAYEY SAND 7.00m-10.00m FINE YELLOW SAND 10.00m-15.00m FINE BROWN SAND	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 11.00m-12.00m OUTER LINING - GRAVEL = Bentonite 12.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1145 Quality: 43 WLMP: 3.01m DBNS: 3.06m RWL: 22.18mAHD		1996-04-17	1405	West
112413	Groundwater Investigation	0.00m-0.30m RUBBLE FILL 0.30m-2.00m SILTY SAND 2.00m-6.00m SILTY CLAY 6.00m-7.30m FIRM GREY CLAY 7.30m-15.50m FINE TO MEDIUM DRY SAND 15.50m-17.00m HARD LIGNIOUS SAND 17.00m-20.00m LIGNIOUS SAND HARD BARS 20.00m-22.00m MEDIUM SAND 22.00m-27.00m GREEN SAND MEDIUM	-0.20m-22.50m INNER LINING - CASING = Steel -0.15m-25.00m INNER LINING - CASING = Pvc 19.00m-25.00m INNER LINING - SCREEN = Pvc 18.00m-25.00m OUTER LINING - GRAVEL = Gravel		19.00m-25.00m Sand	1992-01-14	1411	North
WRK056199	Observation					2010-09-14	1413	East
127484	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m DARK GREY SANDY SOIL 1.00m-2.00m ORANGY BROWN SANDY CLAY 2.00m-3.00m BROWNY ORANGE SANDY CLAY 3.00m-5.00m ORANGE GRAVELY CLAY 5.00m-13.00m ORANGE & GREY GRAVELY CLAY 13.00m-15.00m GREY SILTY SAND	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 10.00m-11.00m OUTER LINING - GRAVEL = Bentonite 11.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1042 Quality: 43 WLMP: 4.18m DBNS: 4.20m RWL: 6.95mAHD		1996-04-12	1433	South
WRK992204	Groundwater Investigation	0.00m-0.50m fill 0.50m-5.00m brighton group sands	0.00m-2.00m INNER LINING - CASING = Pvc 2.00m-5.00m INNER LINING - SCREEN = Pvc 0.00m-0.20m OUTER LINING - GRAVEL = Cement 0.20m-1.50m OUTER LINING - GRAVEL = Bentonite 1.50m-5.00m OUTER LINING - GRAVEL = Gravel			2009-08-10	1442	South
127486	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m FINE GREY SAND 1.00m-7.00m LIGHT BROWN CLAYEY SAND 7.00m-15.00m BROWN CLAYEY SAND 15.00m-30.00m SANDY MARL	0.00m-27.00m INNER LINING - CASING = Pvc 27.00m-29.00m INNER LINING - SCREEN = Pvc 29.00m-30.00m INNER LINING - CASING = Pvc 26.00m-27.00m OUTER LINING - GRAVEL = Bentonite 27.00m-30.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1043 Quality: 43 WLMP: 4.17m DBNS: 4.24m RWL: 6.88mAHD		1996-04-18	1445	South
81722	Domestic	0.00m-1.20m TOP SOIL 1.20m-8.00m CLAY 8.00m-9.00m RIVER SAND 9.00m-0.00m ROCK (SANDSTONE)	0.00m-6.00m INNER LINING - CASING = Pvc 6.00m-9.00m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 0.30m-0.00m OUTER LINING - GRAVEL = Seal		6.00m-9.00m Sand	1983-02-28	1457	South
WRK991461							1464	South East
81435	Groundwater Investigation, Observation, State Observation Network		0.00m-16.50m INNER LINING - CASING = Pvc	Date/time: 1985-09-24 0000 Quality: 43 WLMP: 8.88m DBNS: 8.51m RWL: 24.59mAHD		1976-04-29	1473	East
109632	Observation, State Observation Network	0.00m-0.60m TOP SOIL 0.60m-11.90m SANDY CLAY GREY 11.90m-16.20m DARK BROWN SILTY COAL 16.20m-18.90m BROWN CLAY 18.90m-22.90m SILTY SAND PY RITES 22.90m-27.40m GREEN SILTY MARL 27.40m-32.00m GRREN SILTY MARL 32.00m-32.60m SILTY MARL HARD BAR CEMENTED GRAVEL 32.60m-36.60m GREY CLAY STONE CLAY (BEDROCK) 36.60m-39.62m GREY CLAY (BEDROCK)	0.00m-9.14m INNER LINING - CASING = Pvc 9.14m-15.24m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 9.00m-15.30m OUTER LINING - GRAVEL = Gravel	Date/time: 1974-05-30 0000 Quality: 43 WLMP: 5.81m DBNS: 5.76m RWL: 28.69mAHD	9.14m-15.24m Coal	1973-07-30	1501	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
109633	Observation, State Observation Network		0.00m-18.29m INNER LINING - CASING = Pvc 18.29m-30.48m INNER LINING - SCREEN = Pvc 30.48m-39.62m INNER LINING - CASING = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 15.24m-18.29m OUTER LINING - GRAVEL = Bentonite 18.29m-39.62m OUTER LINING - GRAVEL = Gravel	Date/time: 1974-05-30 0000 Quality: 43 WLMP: 9.05m DBNS: 9.00m RWL: 25.45mAHD	18.29m-30.48m Marl	1973-07-30	1501	East
WRK042421	Irrigation	0.00m-12.00m SAND CLAY 12.00m-18.00m SANDY SILT 18.00m-35.00m MUDSTONE 35.00m-57.00m SLATESTONE 57.00m-91.00m BASALT QUARTZ 91.00m-97.70m BASALT	-0.20m-42.00m INNER LINING - CASING = Steel -0.20m-42.50m INNER LINING - CASING = Steel 42.00m-85.00m INNER LINING - SCREEN = Steel 85.00m-97.70m INNER LINING - SCREEN = Slotted Steel			1993-01-07	1507	West
WRK056198	Observation					2010-04-14	1513	East
WRK056197	Observation	0.00m-5.00m sandy clay	0.00m-1.50m INNER LINING - CASING = Pvc 1.50m-5.00m INNER LINING - SCREEN = Pvc 0.00m-0.50m OUTER LINING - GRAVEL = Cement 0.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-5.00m OUTER LINING - GRAVEL = Gravel		0.00m-1.50m Clay 1.50m-5.00m Clay	2010-04-13	1513	East
129983	Groundwater Investigation, Observation	0.00m-7.00m CLAY 7.00m-11.00m SAND 11.00m-15.00m MUDSTONE 15.00m-33.00m SAND 33.00m-45.00m MUDSTONE 45.00m-54.00m GREEN MUDSTONE 54.00m-58.00m COAL 58.00m-87.00m MUDSTONE 87.00m-90.00m FRACTURED MUDSTONE & BASALT 90.00m-150.00m WEATHERED BASALT	-0.30m-4.20m INNER LINING - CASING = Not Known -0.30m-91.00m INNER LINING - CASING = Not Known 61.00m-91.00m INNER LINING - SCREEN = Not Known			1997-02-07	1518	South West
124236	Groundwater Investigation		0.00m-13.80m INNER LINING - CASING = Pvc 13.80m-17.80m INNER LINING - SCREEN = Pvc 0.00m-9.80m OUTER LINING - GRAVEL = Cement 9.80m-10.50m OUTER LINING - GRAVEL = Bentonite 10.50m-18.00m OUTER LINING - GRAVEL = Gravel			1993-12-07	1524	East
WRK068620	Observation	0.00m-1.00m FILL 1.00m-5.00m SAND	0.00m-0.50m INNER LINING - CASING = Pvc 0.50m-5.00m INNER LINING - SCREEN = Pvc 0.00m-0.50m OUTER LINING - GRAVEL = Bentonite 0.50m-5.00m OUTER LINING - GRAVEL = Gravel		0.50m-5.00m Sand	2012-03-23	1532	East
81816	Groundwater Investigation	0.00m-1.00m SAND FINE WHITE 1.00m-2.74m SILTY SAND BROWN 2.74m-10.70m FINE SANDY CLAY BROWN/RED 10.70m-12.00m COARSE CLAYEY SAND BROWN 12.00m-17.45m MEDIUM GRAIN SANDY GREY 17.45m-20.00m SAND DARK BROWN/BLACK FINE TO MEDIUM	-0.30m-10.00m INNER LINING - CASING = Pvc 10.00m-20.00m INNER LINING - SCREEN = Pvc 10.00m-20.00m OUTER LINING - GRAVEL = Gravel			1991-09-03	1552	South East
WRK992181	Groundwater Investigation	0.00m-3.00m fill clay 3.00m-9.00m silty clay	0.00m-6.00m INNER LINING - CASING = Pvc 6.00m-9.00m INNER LINING - SCREEN = Pvc 0.00m-4.50m OUTER LINING - GRAVEL = Cement 4.50m-5.50m OUTER LINING - GRAVEL = Bentonite 5.50m-9.00m OUTER LINING - GRAVEL = Gravel			2009-08-05	1567	North West
WRK991460	Groundwater Investigation	0.00m-5.00m clay 5.00m-7.00m coarse sands	0.00m-4.00m INNER LINING - CASING = Pvc 4.00m-7.00m INNER LINING - SCREEN = Pvc 2.00m-3.00m OUTER LINING - GRAVEL = Cement 3.00m-7.00m OUTER LINING - GRAVEL = Seal			2009-06-23	1576	East
134547	Groundwater Investigation	0.00m-0.30m SANDY CLAY 0.30m-0.80m SILTY SAND 0.80m-2.60m SAND FINE TO MED 2.60m-3.70m SANDY CLAY 3.70m-4.80m CLAYEY SAND 4.80m-5.80m SAND MED TO COARSE 5.80m-5.90m CLAYEY SAND 5.90m-11.50m SAND MED TO COARSE	0.00m-10.50m INNER LINING - CASING = Pvc 10.50m-11.50m INNER LINING - SCREEN = Pvc			1996-08-20	1614	North West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
125269	Groundwater Investigation, State Observation Network	0.00m-2.00m DRY SAND 2.00m-8.00m SANDY CLAY 8.00m-11.00m GRAVEL SILT & CLAY 11.00m-17.00m YELLOW SILTY CLAY 17.00m-28.00m GREY SILTY CLAY	0.00m-8.50m INNER LINING - CASING = Pvc 8.50m-10.50m INNER LINING - SCREEN = Pvc 10.50m-13.50m INNER LINING - CASING = Pvc 8.50m-13.50m OUTER LINING - GRAVEL = Gravel 13.50m-14.50m OUTER LINING - GRAVEL = Bentonite	Date/time: 2016-02-23 1019 Quality: 43 WLMP: 6.33m DBNS: 6.33m RWL: 20.88mAHD		1995-01-13	1655	South East
81734	Domestic	0.00m-0.15m TOP SOIL 0.15m-3.00m FINE BROWN SAND 3.00m-4.00m TACKY FINE WHITE SAND 4.00m-5.50m GREY CLAY 5.50m-8.00m FINE TACKY SAND 8.00m-9.50m FINE CLEAN SAND 9.50m-11.00m BROWN LIGNIOUS SAND 11.00m-14.60m BROWN MEDIUM SAND	0.00m-11.70m INNER LINING - CASING = Pvc 11.70m-14.60m INNER LINING - SCREEN = Pvc		11.70m-14.60m Sand	1983-10-03	1706	North
81767	Domestic	0.00m-0.30m SURFACE SOIL 0.30m-0.60m GREY SAND 0.60m-4.20m CLAY 4.20m-14.00m SANDY CLAY 14.00m-15.80m SLOPPY CLAYEY SAND 15.80m-17.90m CLAYEY SAND WITH PIECES OF IRONSTONE	0.00m-15.80m INNER LINING - CASING = Pvc 15.80m-17.90m INNER LINING - SCREEN = Pvc 4.50m-17.90m OUTER LINING - GRAVEL = Gravel		15.80m-17.90m Sand	1983-09-01	1710	South East
81778	Not Known	0.00m-0.30m TOPSOIL 0.30m-2.00m LOOSE SAND 2.00m-4.00m CLAYEY SAND 4.00m-5.50m WELL-CEMENTED SAND 5.50m-15.00m QUARTZITE SAND 15.00m-19.00m SILTY MARINE SAND	0.00m-3.50m INNER LINING - CASING = Pvc 3.50m-17.00m INNER LINING - SCREEN = Pvc 17.00m-17.50m INNER LINING - CASING = Pvc 3.00m-17.50m OUTER LINING - GRAVEL = Not Known		3.50m-17.00m Sand	1988-06-01	1719	East
81817	Groundwater Investigation	0.00m-1.00m SAND BROWN GREY 1.00m-4.00m CLAYEY BROWN MEDIUM SAND 4.00m-6.00m CLAYEY MEDIUM GREY SAND 6.00m-6.75m COARSE GREY SAND 6.75m-10.50m FINE GREY SAND 10.50m-19.67m DARK BROWN & GREY FINE & COARSE SAND SOME BLACK	-0.30m-10.00m INNER LINING - CASING = Pvc 10.00m-19.67m INNER LINING - SCREEN = Pvc 10.00m-19.67m OUTER LINING - GRAVEL = Gravel			1991-09-04	1729	East
81761	Domestic, Stock	0.00m-1.00m FILL BRICK RUBBLE 1.00m-3.00m SAND YELLOW 3.00m-6.00m SANDY CLAY 6.00m-9.00m CLAY 9.00m-13.50m SAND 13.50m-0.00m BEDROCK	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-13.50m INNER LINING - SCREEN = Pvc		12.00m-13.50m Sand	1983-12-31	1758	South East
WRK070392	Observation	0.00m-0.60m FILL 0.60m-2.20m CLAY 2.20m-10.00m CLAY	0.00m-6.00m INNER LINING - CASING = Pvc 6.00m-10.00m INNER LINING - SCREEN = Pvc 0.00m-4.00m OUTER LINING - GRAVEL = Cement 4.00m-5.00m OUTER LINING - GRAVEL = Bentonite 5.00m-10.00m OUTER LINING - GRAVEL = Gravel		6.00m-10.00m Clay	2012-08-20	1786	North East
WRK042424	Irrigation					1996-05-31	1796	West
81814	Domestic, Miscellaneous, Stock	0.00m-1.10m TOP SOIL 1.10m-18.00m CLAY 18.00m-42.00m DECOMPOSED ROCK (MUDSTONE) 42.00m-48.00m CLAY 48.00m-67.00m COAL/SAND	0.00m-54.70m INNER LINING - CASING = Not Known 54.70m-67.00m INNER LINING - SCREEN = Not Known		54.70m-67.00m Sand	1990-02-01	1797	West
81795	Groundwater Investigation	0.00m-3.00m BROWN SANDY CLAY 3.00m-18.00m BROWN & GREY SILTY SAND 18.00m-19.00m GREY SILTSTONE	3.00m-19.00m INNER LINING - SCREEN = Slotted Pvc 10.00m-3.00m INNER LINING - CASING = Pvc	Date/time: 1996-10-03 0000 Quality: 47 WLMP: 3.83m DBNS: RWL:		1991-08-23	1803	North
81433	Groundwater Investigation		0.00m-28.00m INNER LINING - CASING = Pvc 28.00m-30.00m INNER LINING - SCREEN = Pvc 30.00m-32.00m INNER LINING - CASING = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement		28.00m-30.00m Clay	1976-04-09	1813	East
81434	Groundwater Investigation					1976-04-23	1813	East
81808	Not Known					1988-01-01	1815	South

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81796	Groundwater Investigation	0.00m-33.80m BROWN & GREY SAND	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-33.80m INNER LINING - SCREEN = Pvc	Date/time: 1996-10-03 0000 Quality: 47 WLMP: 6.76m DBNS: RWL:		1990-09-03	1828	North East
WRK055928	Domestic & Stock	0.00m-10.00m clay sands 10.00m-20.00m clay orange 20.00m-24.00m clay sands 24.00m-25.00m course sand 25.00m-28.00m clay sand	0.00m-20.00m INNER LINING - CASING = Pvc 20.00m-32.00m INNER LINING - SCREEN = Pvc 0.00m-10.00m OUTER LINING - GRAVEL = Cement 10.00m-32.00m OUTER LINING - GRAVEL = Gravel		0.00m-20.00m Clay 20.00m-32.00m Sand	2010-04-21	1876	West
81694	Miscellaneous	0.00m-4.26m FINE GREY-BROWN SAND 4.26m-7.92m FIRM YELLOW BROWN SANDY CLAY 7.92m-13.72m BROWN SILTY FINE-MEDIUM SAND	0.00m-13.72m INNER LINING - CASING = Not Known 8.22m-13.72m INNER LINING - SCREEN = Not Known			1973-04-18	1880	South East
81708	Domestic	0.00m-1.00m BLACK LOAM 1.00m-8.00m CLAY 8.00m-10.00m SANDSTONE	0.00m-10.00m INNER LINING - CASING = Pvc 0.10m-10.00m INNER LINING - SCREEN = Pvc			1975-03-08	1883	North East
134548	Groundwater Investigation	0.00m-1.30m SILTY SAND 1.30m-3.20m SAND MED 3.20m-5.70m SAND FINE TO MED 5.70m-6.90m CLAYEY SAND 6.90m-11.50m SAND COARSE	0.00m-10.50m INNER LINING - CASING = Pvc 10.50m-11.50m INNER LINING - SCREEN = Pvc			1996-08-20	1905	North West
WRK989237							1907	South
81729	Domestic	0.00m-3.05m CLAY 3.05m-12.19m SANDY CLAY BROWN 12.19m-21.34m SAND BROWN 21.34m-36.58m SAND GREY 36.58m-49.38m SAND BLACK	0.00m-36.58m INNER LINING - CASING = Pvc 36.58m-38.10m INNER LINING - SCREEN = Pvc 38.10m-44.50m INNER LINING - CASING = Pvc 42.98m-45.72m INNER LINING - SCREEN = Pvc		36.58m-38.10m Sand 42.98m-45.72m Sand	1982-12-23	1909	South
WRK059379	Observation		0.00m-0.00m OUTER LINING - GRAVEL = Not Known			2015-05-29	1910	North East
WRK065493	Observation		0.00m-0.00m OUTER LINING - GRAVEL = Not Known			2015-05-29	1910	North East
WRK059378	Observation		0.00m-0.00m OUTER LINING - GRAVEL = Not Known			2015-05-29	1910	North East
WRK065494	Observation		0.00m-0.00m OUTER LINING - GRAVEL = Not Known			2015-05-29	1910	North East
WRK059380	Observation		0.00m-0.00m OUTER LINING - GRAVEL = Not Known			2015-05-29	1910	North East
WRK059376	Observation		0.00m-0.00m OUTER LINING - GRAVEL = Not Known			2015-05-29	1910	North East
WRK065492	Observation		0.00m-0.00m OUTER LINING - GRAVEL = Not Known			2015-05-29	1910	North East
WRK059381	Observation		0.00m-0.00m OUTER LINING - GRAVEL = Not Known			2015-05-29	1910	North East
WRK059377	Observation		0.00m-0.00m OUTER LINING - GRAVEL = Not Known			2015-05-29	1910	North East
WRK989238							1918	South
140374	Groundwater Investigation	0.00m-1.00m SAND, SOME SILT & GRAVEL, DARK BROWN, LOOSE 1.00m-2.00m SANDY CLAY, FINE TO COARSE SAND, SOFT TO FIRM 2.00m-6.00m SANDY CLAY, LIGHT GREY, SAND FINE-MEDIUM, SOFT TO FIRM	0.00m-1.50m INNER LINING - CASING = Pvc Class 18 1.50m-6.00m INNER LINING - SCREEN = Pvc Class 18			1999-04-13	1925	South West
WRK989236							1929	South
129984	Groundwater Investigation, Observation	0.00m-16.00m CLAY 16.00m-41.00m SAND 41.00m-56.00m MUDSTONE 56.00m-70.00m CLAY & COAL 70.00m-95.00m FRACTURED ROCK 95.00m-130.00m FRACTURED ROCK	-0.30m-48.00m INNER LINING - CASING = Not Known -0.30m-95.00m INNER LINING - CASING = Not Known 77.00m-95.00m INNER LINING - SCREEN = Not Known			1997-03-02	1933	West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81696	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-1.22m SAND 1.22m-3.96m CLAY 3.96m-4.27m SLOPPY CLAYEY SAND 4.27m-12.80m SAND CLAY 12.80m-16.76m CLAYEY SAND 16.76m-21.34m MARINE STICKY CLAY 21.34m-21.94m BROKEN ROCK PIECES 21.94m-45.72m MARINE SILT AND SHELL 45.72m-49.68m LIGHT MARINE SILT SHELL 49.68m-50.29m LIMESTONE 50.29m-54.86m SHELL SILT FINE SAND 54.86m-55.17m SANDSTONE 55.17m-56.08m COARSE SAND	0.00m-49.99m INNER LINING - CASING = Not Known 49.98m-51.20m INNER LINING - SCREEN = Not Known 49.38m-0.00m OUTER LINING - GRAVEL = Seal			1973-10-22	1937	North West
140378	Groundwater Investigation	0.00m-1.00m SILTY SAND, DARK BROWN, FINE-COARSE GRAINED, MOIST 1.00m-3.00m SAND, SOME CLAY, GREY/ORANGE/BROWN, SAND FINE TO COARSE, MOI 3.00m-5.00m SANDY CLAY, ORANGE/GREY, FINE TO COARSE SAND, STIFF	0.00m-2.00m INNER LINING - CASING = Pvc Class 18 2.00m-5.00m INNER LINING - SCREEN = Pvc Class 18			1999-04-13	1939	South West
WRK989239							1940	South
140376	Groundwater Investigation	0.00m-1.00m SAND , SOME SILT & CLAY, DARK BROWN, FINE TO MEDIUM GRAINED, 1.00m-2.00m SANDY CLAY, GREY/ORANGE, FINE-MEDIUM SAND, SOFT TO FIRM 2.00m-3.00m SAND WITH SOME CLAY, FINE-MEDIUM SAND, MOIST 3.00m-4.00m SANDY CLAY, ORANGE/GREY, FINE-MEDIUM SAND, MOIST 4.00m-5.00m SANDY CLAY, ORANGE/GREY, FINE-COARSE SAND, FIRM TO STIFF	0.00m-3.00m INNER LINING - CASING = Pvc Class 18 3.00m-5.00m INNER LINING - SCREEN = Pvc Class 18			1999-04-13	1943	South West
134549	Groundwater Investigation	0.00m-0.40m SILTY SAND 0.40m-0.60m SILTY CLAYEY SAND 0.60m-2.60m CLAY 2.60m-3.40m SAND 3.40m-4.70m CLAYEY SAND 4.70m-9.00m SAND FINE 9.00m-15.00m SAND MED TO COARSE	0.00m-13.50m INNER LINING - CASING = Pvc 13.50m-15.00m INNER LINING - SCREEN = Pvc			1996-08-21	1946	North West
140377	Groundwater Investigation	0.00m-1.00m SAND, SOME SILT & CLAY, BROWN/ORANGE, FINE TO MEDIUM GRAINED 1.00m-2.00m CLAYEY SAND, MOTLLED GREY & ORANGE, SAND FINE TO COARSE, MOI 2.00m-3.00m SAND, SOME CLAY, FINE TO MEDIUM GRAINED, MOIST 3.00m-4.00m SANDY CLAY, ORANGE/GREY, FINE TO COARSE SAND, FIRM TO STIFF 4.00m-5.00m SANDY CLAY, ORANGE/GREY, FINE TO COASE SAND, FIR TO STIFF	0.00m-2.00m INNER LINING - CASING = Pvc Class 18 2.00m-5.00m INNER LINING - SCREEN = Pvc Class 18			1999-04-13	1951	South West
WRK043226	Groundwater Investigation	0.00m-2.30m TOP SOIL 2.30m-5.00m PEATY FORMATION 5.00m-9.00m SILTY SAND AND CLAY 9.00m-18.00m SAND 18.00m-33.00m MARL 33.00m-36.00m NEWPORT FORMATION 36.00m-51.00m VERY SOFT SHALE 51.00m-55.00m FIRMER SHALE 55.00m-78.00m HARDER SHALE	0.00m-55.50m INNER LINING - CASING = Pvc 0.00m-55.40m OUTER LINING - GRAVEL = Seal			2003-04-22	1959	East
WRK979611							1980	South
142438	Groundwater Investigation	0.00m-0.20m CLAY & GRAVEL FILL 0.20m-0.90m SANDY CLAY, DARK BROWN, MOIST 0.90m-2.80m SANDY CLAY, LIGHT BROWN, PALE BROWN, MOIST, SOFT, FINE & MED 2.80m-8.00m CLAYEY SAND, PALE BROWN, ORANGE, MED & COARSE SAND, MOIST/WE	0.00m-4.50m INNER LINING - CASING = Pvc Class 18 4.50m-8.00m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.50m OUTER LINING - GRAVEL = Cement 3.80m-4.30m OUTER LINING - GRAVEL = Bentonite 4.30m-8.00m OUTER LINING - GRAVEL = Gravel		4.50m-8.00m Sand	1998-06-15	1987	North East
WRK059375	Observation	0.00m-0.50m FILL 0.50m-5.00m CLAY 5.00m-10.00m SAND	0.00m-5.90m INNER LINING - CASING = Pvc 5.90m-8.90m INNER LINING - SCREEN = Pvc 0.00m-4.90m OUTER LINING - GRAVEL = Bentonite 4.90m-8.90m OUTER LINING - GRAVEL = Seal		5.90m-8.90m Sand	2011-09-21	1992	North East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81748	Domestic	0.00m-1.22m LOOSE SANDY SOIL 1.22m-1.83m HARD SOIL 1.83m-3.66m WHITE SAND 3.66m-4.27m CLAY 4.27m-5.18m LUMPY SOIL	0.00m-5.18m INNER LINING - CASING = Not Known			1983-09-04	1995	East

Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 1)

Boreholes (Earth Resources Database)

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

Bore Id	Bore Type	Company	Usage	Method	Status	Drill Date	Depth	Elevation	Accuracy (m)	Dist (m)	Direct
81419		Department of Manufacturing & Industry Development	Groundwater Observation	Percussion (cable)		27/11/1971	42.98	26.70	100	0	Onsite
81421		Department of Manufacturing & Industry Development	Groundwater Observation	Percussion (cable)		21/02/1973	51.82	21.70	100	184	South
81437		Department of Manufacturing & Industry Development		Hand Auger	Abandoned	20/09/1985	4.00		100	184	South
81438		Department of Manufacturing & Industry Development		Hand Auger	Abandoned	20/09/1985	2.90		100	184	South
81725		Private Individual/Corporation		Percussion (cable)	Abandoned	28/04/1983	43.90		100	236	North East
81726		Private Individual/Corporation		Percussion (cable)	Abandoned	09/05/1983	23.80		100	248	North East
81730		Private Individual/Corporation	Irrigation	Air Percussion/Air Rotary		22/02/1983	60.96		100	630	East
81754		Private Individual/Corporation		Percussion (cable)	Abandoned	10/05/1983	30.00		100	700	South East
81733		Private Individual/Corporation		Percussion (cable)	Abandoned	20/02/1983	39.49		100	849	West
80524		Private Individual/Corporation		Percussion (cable)	Abandoned	29/09/1983	64.50		100	864	North West
81497		Private Individual/Corporation				31/12/1970	16.45	45.72	100	865	North East
81721		Private Individual/Corporation	Stock/Poultry water supply	Percussion (cable)		05/01/1983	33.00		100	931	West
81420		Department of Manufacturing & Industry Development	Groundwater Observation	Percussion (cable)		31/01/1973	60.96	33.67	100	1021	North West
81716		Private Individual/Corporation	Domestic water supply	Hand Auger		12/06/1983	10.00		100	1041	South
81750		Private Individual/Corporation	Domestic water supply	Hand Auger		04/06/1984	6.00		100	1055	South
80581		Private Individual/Corporation	Stock/Poultry water supply	Air Percussion/Air Rotary		17/02/1984	80.00		100	1087	North West
81755		Private Individual/Corporation	Domestic water supply	Hand Auger		01/06/1983	12.80		100	1143	South East
81717		Private Individual/Corporation	Domestic water supply	Hand Auger		13/08/1981	16.20		100	1177	South East
81732		Private Individual/Corporation	Domestic & Stock water supply	Rotary (diamond/drag bit)		12/11/1982	42.60		100	1185	East

Bore Id	Bore Type	Company	Usage	Method	Status	Drill Date	Depth	Elevation	Accuracy (m)	Dist (m)	Direct
81737		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		02/12/1983	86.00		100	1221	South
81753		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		01/04/1985	13.70		100	1290	West
81739		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		13/12/1983	19.51		100	1353	South East
81763		Private Individual/Corporation	Domestic water supply	Percussion (cable)		12/11/1982	9.15		100	1400	South East
81722		Private Individual/Corporation	Domestic water supply	Hand Auger		28/02/1983	9.00		100	1454	South
81435		Department of Manufacturing & Industry Development	Groundwater Investigation	Percussion (cable)		29/04/1976	18.00	37.10	100	1471	East
81435		Department of Manufacturing & Industry Development	Groundwater Observation	Percussion (cable)		29/04/1976	18.00	37.10	100	1471	East
109632		Department of Manufacturing & Industry Development	Groundwater Observation	Percussion (cable)		30/07/1973	45.72	34.45	100	1498	East
81767		Private Individual/Corporation	Domestic water supply	Percussion (cable)		01/09/1983	17.90		100	1706	South East
81734		Private Individual/Corporation	Domestic water supply	Percussion (cable)		03/10/1983	14.60		100	1709	North
81761		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		31/12/1983	13.50		100	1756	South East
81433		Department of Manufacturing & Industry Development	Groundwater Investigation	Percussion (cable)		09/04/1976	33.00		100	1811	East
81433		Department of Manufacturing & Industry Development	Groundwater Observation	Percussion (cable)		09/04/1976	33.00		100	1811	East
81434		Department of Manufacturing & Industry Development	Groundwater Observation	Percussion (cable)		23/04/1976	18.00		100	1811	East
81729		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		23/12/1982	49.38		100	1908	South
81748		Private Individual/Corporation	Domestic water supply	Hand Auger		04/09/1983	5.18		100	1994	East

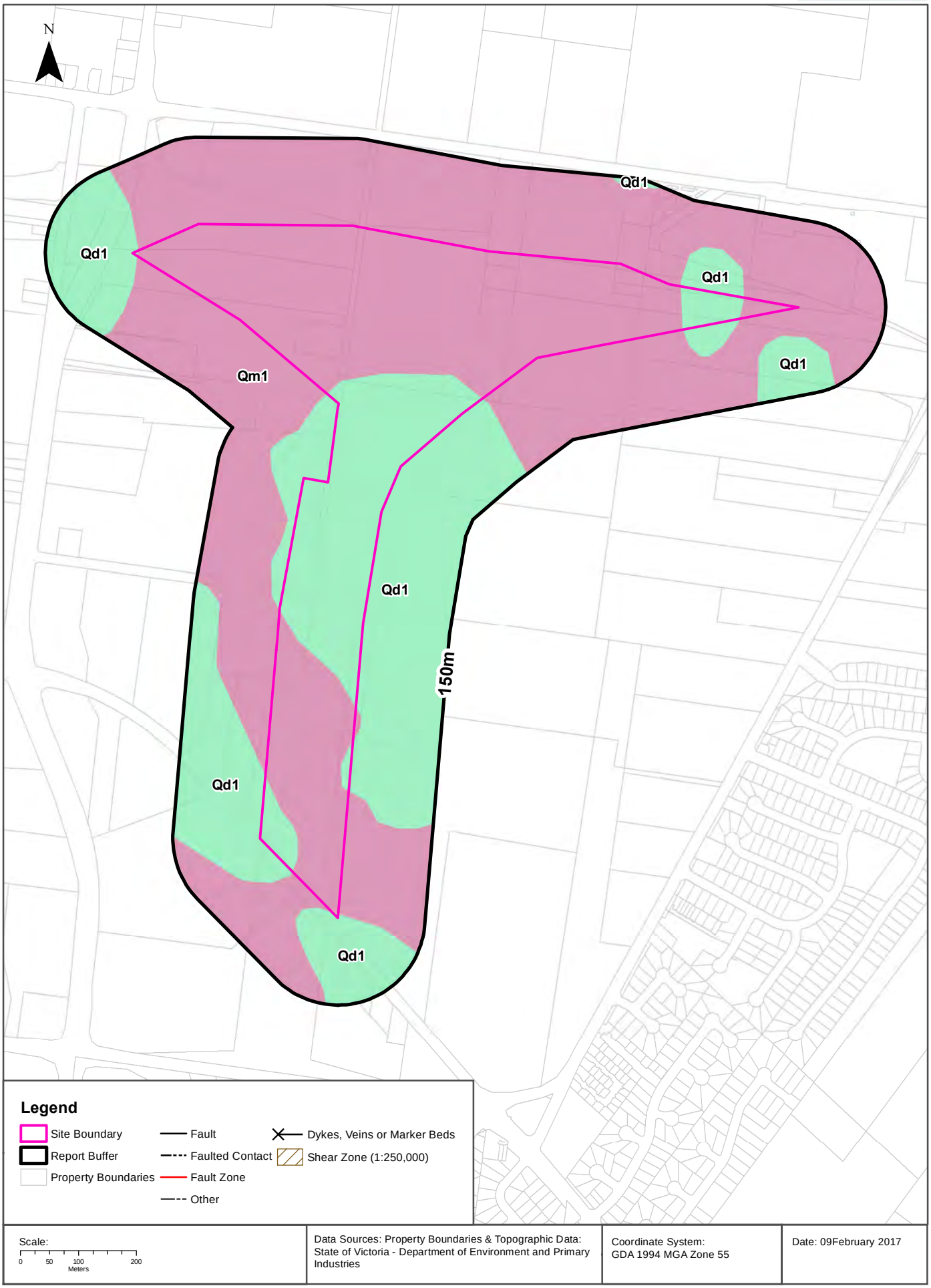
Boreholes (Federation University)

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

Bore Id	Authority	Type	Uses	Initial TD	Log	Dist (m)	Direct
N/A	No records within buffer						

Geology 1:50,000

OSAR Proposed Road Alignments - Site 26 (Section 1)



Geology

OSAR Proposed Road Alignments - Site 26 (Section 1)

Geological Units

What are the Geological Units onsite?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Qd1	inland dune deposits (Qd1): generic	Sand, silt, clay: friable to consolidated; well sorted; includes both lunette deposits and deposits of longitudinal dunes	Quaternary to Quaternary	sand (significant); silt material (significant); clay lithology (significant)	1:50,000
Qm1	swamp and lake deposits (Qm1): generic	Grey to black carbonaceous mud, silt, clay, minor peat: generally unconsolidated; rare dolomite	Pleistocene to Holocene	mud (major proportion); silt material (significant); clay lithology (significant); peat (minor proportion)	1:50,000

What are the Geological Units within the report buffer?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Qd1	inland dune deposits (Qd1): generic	Sand, silt, clay: friable to consolidated; well sorted; includes both lunette deposits and deposits of longitudinal dunes	Quaternary to Quaternary	sand (significant); silt material (significant); clay lithology (significant)	1:50,000
Qm1	swamp and lake deposits (Qm1): generic	Grey to black carbonaceous mud, silt, clay, minor peat: generally unconsolidated; rare dolomite	Pleistocene to Holocene	mud (major proportion); silt material (significant); clay lithology (significant); peat (minor proportion)	1:50,000

Geology

OSAR Proposed Road Alignments - Site 26 (Section 1)

Geological Structures

What are the Geological Faults or Faulted Contacts onsite?

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:50,000

What are the Dykes, Marker Beds and Veins onsite?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:50,000

What are the Shear Zones onsite (1:250,000 scale)?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

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

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:50,000

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

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:50,000

What are the Shear Zones within the report buffer (1:250,000 scale)?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

Coastal Acid Sulfate Soils

OSAR Proposed Road Alignments - Site 26 (Section 1)

Coastal Acid Sulfate Soils

What are the on-site Coastal Acid Sulfate Soil types?

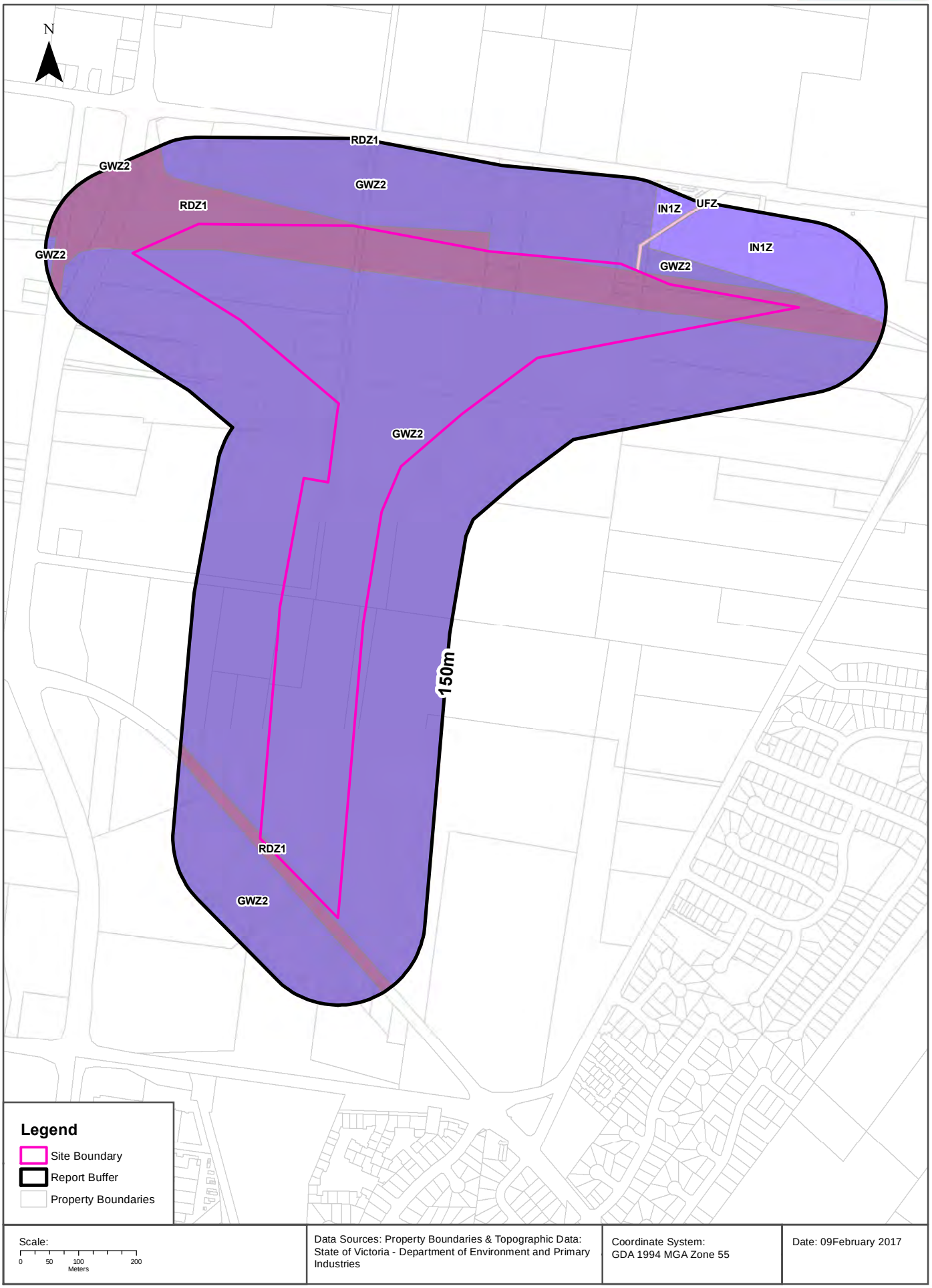
Coastal Acid Sulfate Soil Types
There are no Acid Sulfate areas onsite

What are the Coastal Acid Sulfate Soil types within the report buffer?

Coastal Acid Sulfate Soil Types	Distance	Direction
There are no Acid Sulfate areas within the report buffer		

Planning Zones

OSAR Proposed Road Alignments - Site 26 (Section 1)



Planning Zones

OSAR Proposed Road Alignments - Site 26 (Section 1)

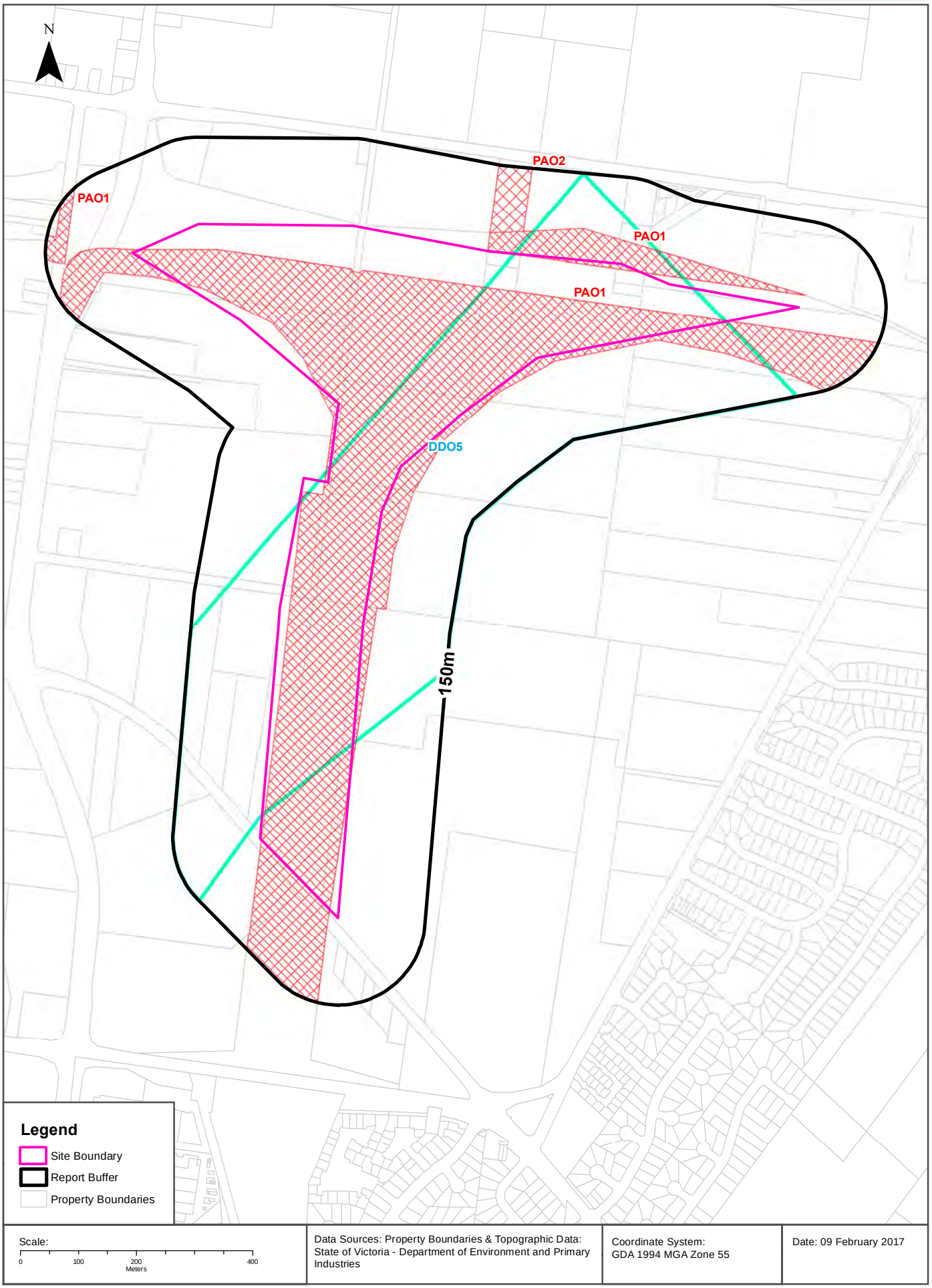
Planning Zones

Planning zones within the report buffer:

Zone Code	Description	Distance	Direction
GWZ2	GREEN WEDGE ZONE - SCHEDULE 2	0m	Onsite
RDZ1	ROAD ZONE - CATEGORY 1	0m	Onsite
UFZ	URBAN FLOODWAY ZONE	0m	North East
GWZ2	GREEN WEDGE ZONE - SCHEDULE 2	15m	South
IN1Z	INDUSTRIAL 1 ZONE	24m	East
IN1Z	INDUSTRIAL 1 ZONE	61m	North East
GWZ2	GREEN WEDGE ZONE - SCHEDULE 2	134m	West
GWZ2	GREEN WEDGE ZONE - SCHEDULE 2	145m	North West

Planning Overlays

OSAR Proposed Road Alignments - Site 26 (Section 1)



Planning Overlays

OSAR Proposed Road Alignments - Site 26 (Section 1)

Planning Overlays

Planning overlays within the report buffer:

Zone Code	Description	Distance	Direction
PAO1	PUBLIC ACQUISITION OVERLAY 1	0m	Onsite
DDO5	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 5	0m	Onsite
PAO2	PUBLIC ACQUISITION OVERLAY 2	31m	North East
PAO1	PUBLIC ACQUISITION OVERLAY 1	114m	North West

Cultural Heritage Sensitivity

OSAR Proposed Road Alignments - Site 26 (Section 1)

Cultural Heritage Sensitivity

Areas of Cultural Heritage Sensitivity as specified in Division 3 of Part 2 in the Aboriginal Heritage Regulations 2007, within the report buffer:

Map Id	Culturally Sensitive	Distance	Direction
N/A	No records in buffer		

Natural Hazards

OSAR Proposed Road Alignments - Site 26 (Section 1)

Bushfire Prone Areas

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

Map ID	Feature	Plan No	LGA	Gazetted Date	Distance	Direction
N/A	No records within buffer					

Fire History

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

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

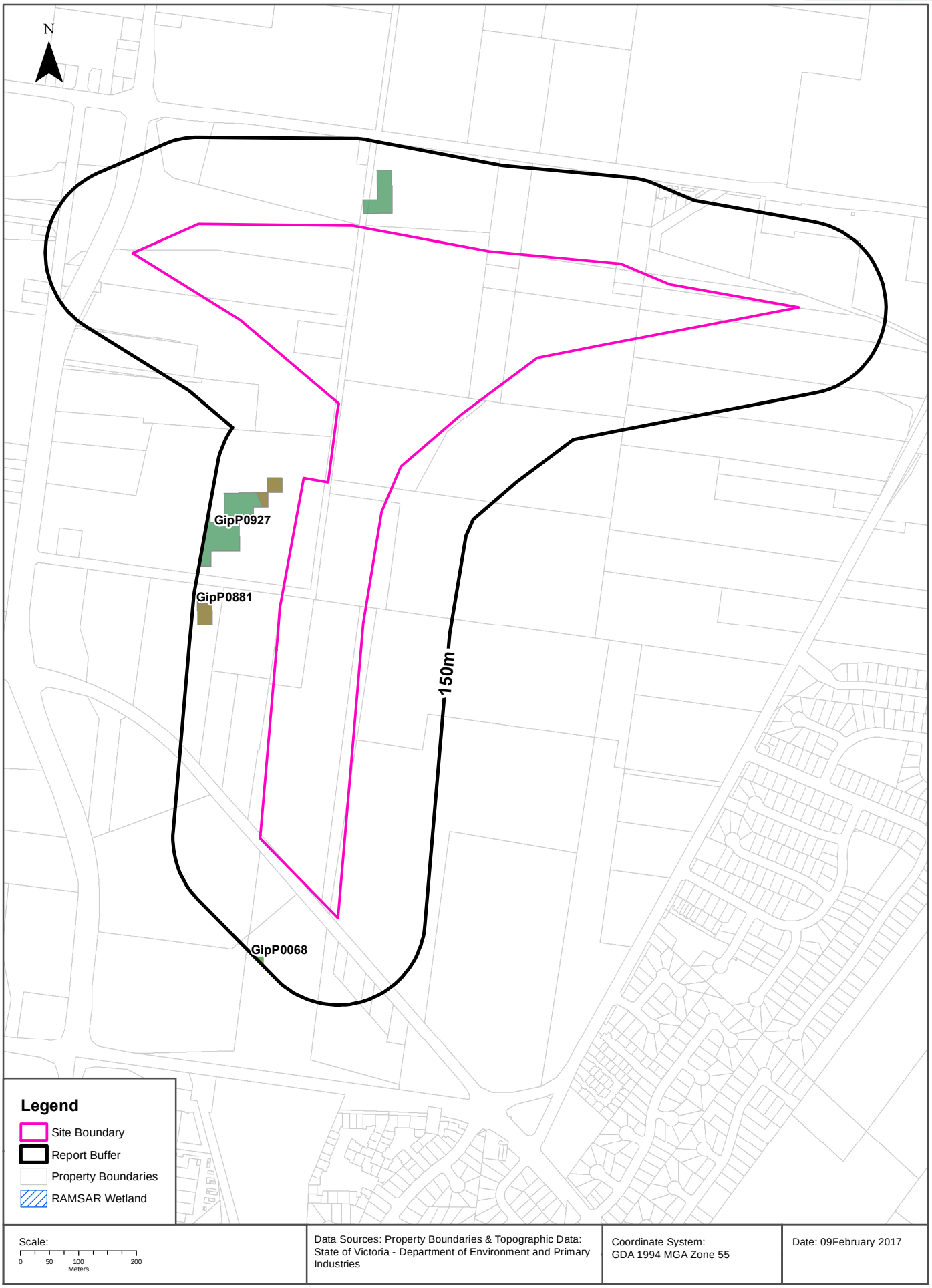
Flood - 1 in 100 year modelled flood extent

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

Feature	Source	Method	Scale	Modified Date	Distance	Direction
N/A	No records within buffer					

Ecological Constraints - Native Vegetation 2005 & RAMSAR Wetlands

OSAR Proposed Road Alignments - Site 26 (Section 1)



Ecological Constraints

OSAR Proposed Road Alignments - Site 26 (Section 1)

Native Vegetation (Modelled 2005 Ecological Vegetation Classes)

What native vegetation exists within the report buffer?

Veg Code	EVC Name	EVCCode	Group	Subgroup	Bioregion	Conservation Status	Geographic Occurance	Distance
GipP0927	Plains Grassy Woodland/Swamp Scrub/Plains Grassy Wetland Mosaic	0927	Plains Woodlands or Forests	Freely-draining	Gippsland Plain	Endangered	not applicable	22m
GipP0881	Damp Sands Herb-rich Woodland/Heathy Woodland Mosaic	0881	Herb-rich Woodlands	Damp Sands	Gippsland Plain	Vulnerable	not applicable	32m
GipP0055	Plains Grassy Woodland	0055	Plains Woodlands or Forests	Freely-draining	Gippsland Plain	Endangered	Common	138m
GipP0068	Creekline Grassy Woodland	0068	Riverine Grassy Woodlands or Forests	Creekline and/or swampy	Gippsland Plain	Endangered	Minor	139m

RAMSAR Wetlands

What RAMSAR wetland areas exist within the report buffer?

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

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Environmental Risk and Planning Report

Proposed Road Alignments - Mordialloc Bypass (Section 2)

Report Buffer: 150m

Report Date: 09 Feb 2017 09:16:33

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Location Confidences

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

LC Code	Location Confidence
1	Georeferenced to the site location / premise or part of site
2	Georeferenced with the confidence of the general/approximate area
3	Georeferenced to the road or rail
4	Georeferenced to the road intersection
5	Feature is a buffered point
6	Land adjacent to Georeferenced Site
7	Georeferenced to a network of features

Dataset Listing

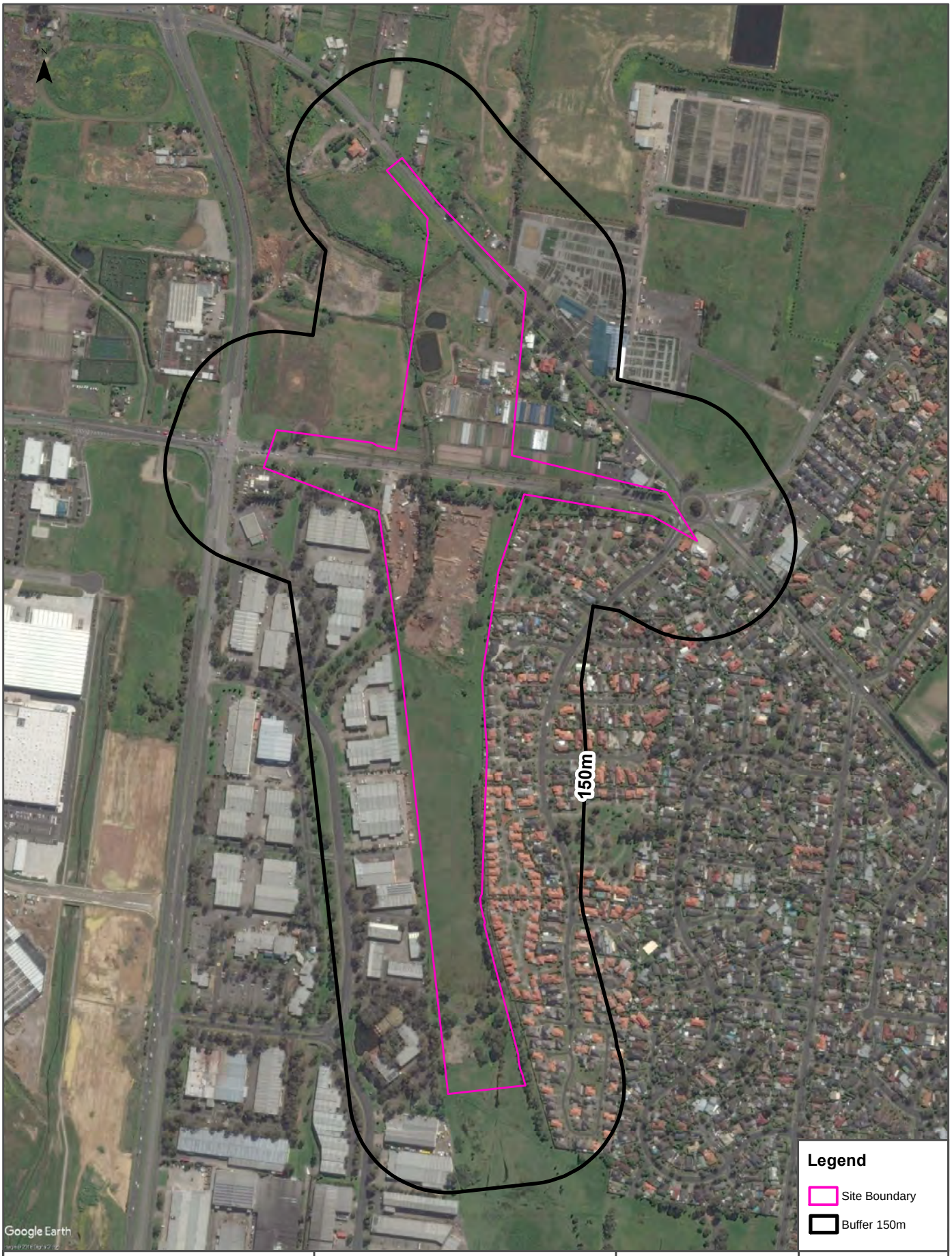
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Topographic and Cadastre data	State Government Victoria - Department of Environment, Land, Water & Planning	06/02/2017	06/02/2017	Quarterly	-	-	-
Current Priority Sites	Environment Protection Authority (Vic)	06/02/2017	31/12/2016	Monthly	1	1	1
Former Priority Sites & other Pollution Notices	Environment Protection Authority (Vic)	06/02/2017	05/01/2017	Monthly	8	8	8
EPA Environmental Audit Reports	Environment Protection Authority (Vic)	06/02/2017	24/11/2016	Monthly	1	3	3
Groundwater Zones with Restricted Uses	Environment Protection Authority (Vic)	06/02/2017	27/01/2017	Monthly	0	0	0
Licensed Activities	Environment Protection Authority (Vic)	06/02/2017	29/01/2017	Monthly	0	0	0
Former Licensed Activities	Environment Protection Authority (Vic)	06/02/2017	29/01/2017	Monthly	1	1	1
Works Approvals	Environment Protection Authority (Vic)	06/02/2017	06/02/2017	Monthly	0	0	0
National Waste Management Site Database	Geoscience Australia	06/02/2017	15/11/2012	Quarterly	1	1	1
Statewide Waste and Resource Recovery Infrastructure Plan Facilities	State Government Victoria - Department of Sustainability	27/11/2014	31/12/2012	None planned	1	1	1
EPA Prescribed Industrial Waste	Environment Protection Authority (Vic)	04/01/2017	04/01/2017	Quarterly	1	1	1
UBD Business to Business Directory 1991	Hardie Grant			Not required	3	34	34
UBD Business to Business Directory 1991 - Garages & Service Stations	Hardie Grant			Not required	3	3	3
UBD Business Directory 1980	Hardie Grant			Not required	2	5	5
UBD Business Directory 1980 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	1	1	1
UBD Business Directory 1960 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1950	Hardie Grant			Not required	0	0	0
UBD Business Directory 1950 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
Features of Interest	State Government Victoria - Department of Environment, Land, Water & Planning	03/02/2017	27/01/2017	Quarterly	2	5	9
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1	1	1
Groundwater Salinity	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	2	-	-
Depth to Watertable	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	2	-	-
Surface Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	1	-	-
Basement Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	1	-	-
Groundwater Boreholes WMIS	State Government Victoria - Department of Environment, Land, Water & Planning	29/04/2016	28/04/2016	Annually	1	17	185
Groundwater Boreholes Earth Resources Database	The State of Victoria, Department of Economic Development, Jobs, Transport and Resources	29/04/2016	17/02/2010	As required	0	1	27
Groundwater Boreholes Fed Uni	Federation University Australia	29/04/2016	07/01/2014	As required	0	0	0
Geological Units 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	2	-	2
Geological Structures 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	-	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Dykes and Marker Beds 50k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	0	0
Shear zones 250k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	-	0
Coastal Acid Sulfate Soils	The State of Victoria, Department of Economic Development, Jobs, Transport and Resources	15/07/2016	30/03/2011	None planned	0	0	0
Planning Scheme Zones	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	4	9	11
Planning Scheme Overlay	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	4	8	9
Cultural Heritage Sensitivity	State Government Victoria - Department of Planning and Community Development	03/02/2017	27/01/2017	Quarterly	0	0	0
Bushfire Prone Area	State Government Victoria - Department of Transport, Planning and Local Infrastructure	27/01/2017	27/01/2017	Quarterly	0	0	0
Fire History	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	0	0	0
Flood - 1 in 100 Year Modelled Flood Extent	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	0	0	0
Native Vegetation (Modelled 2005 Ecological Vegetation Classes)	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	31/12/2005	None planned	2	2	3
RAMSAR Wetlands	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	24/06/2013	None planned	0	0	0

Aerial Imagery 2016

OSAR Proposed Road Alignments - Site 26 (Section 2)



Scale:
0 100 200 400
Meters

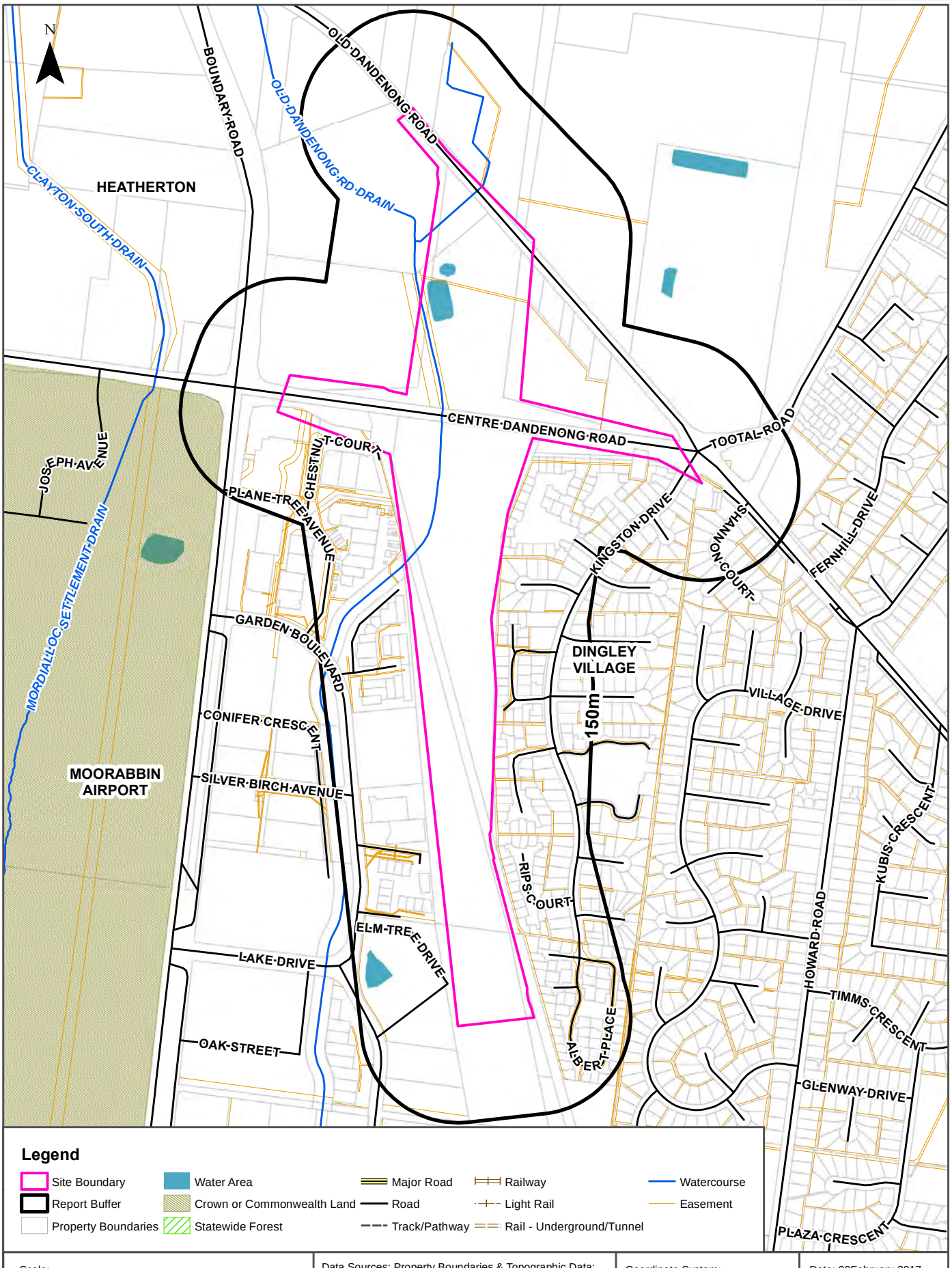
Data Sources: Aerial Imagery © 2016 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February, 2017

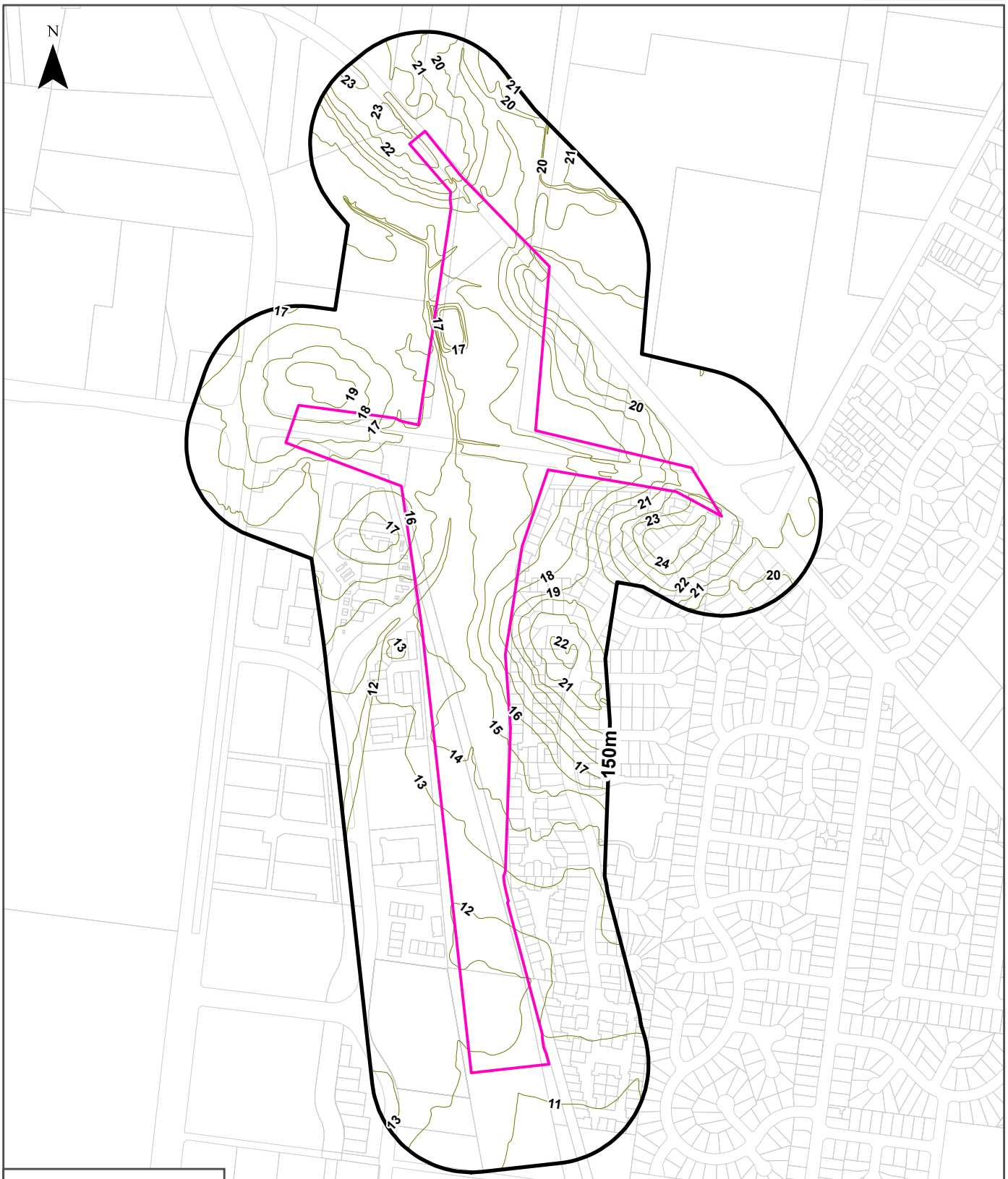
Topographic Data

OSAR Proposed Road Alignments - Site 26 (Section 2)



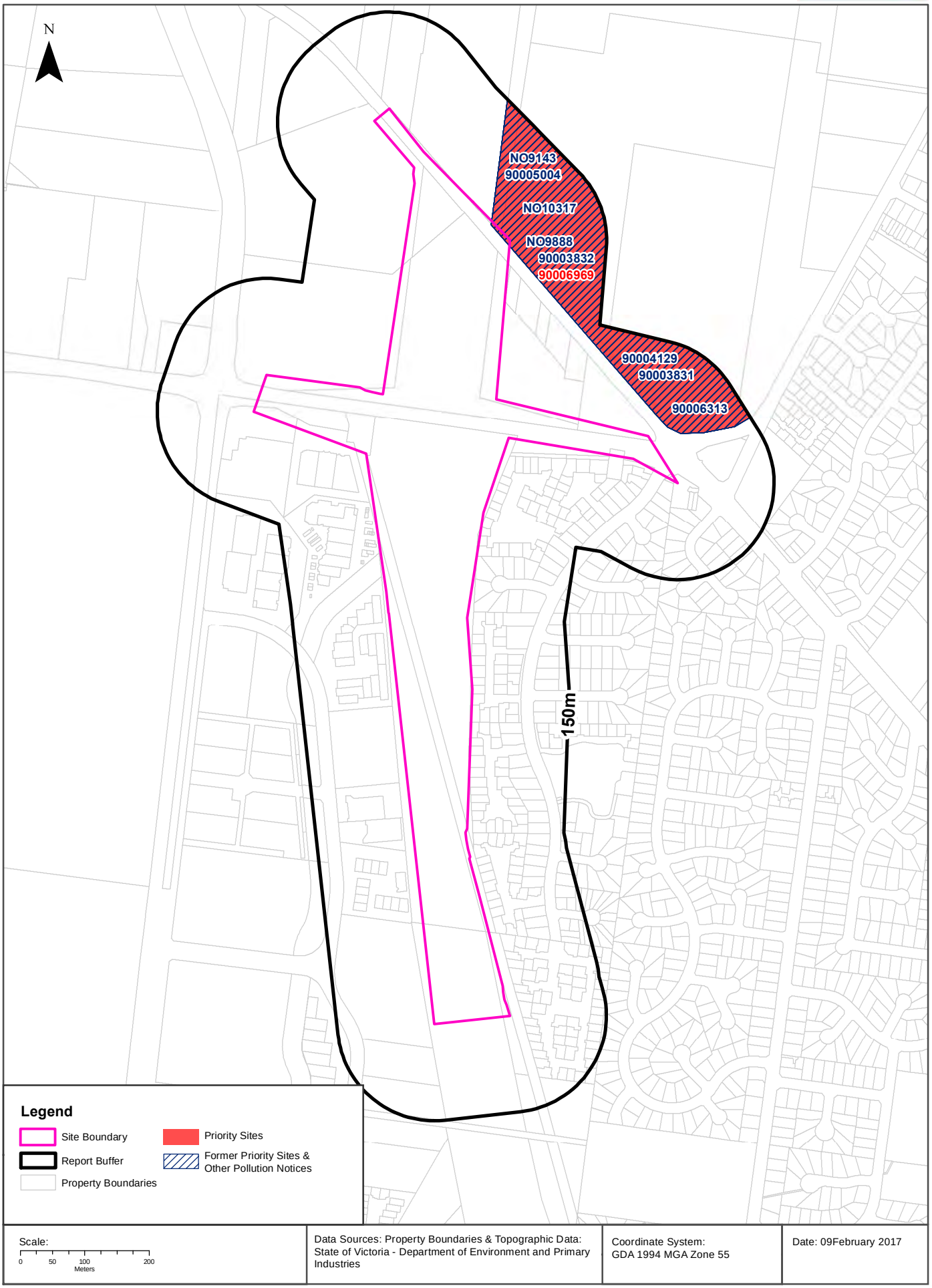
Elevation Contours (m AHD)

OSAR Proposed Road Alignments - Site 26 (Section 2)



EPA Records - Priority Sites & Pollution Notices

OSAR Proposed Road Alignments - Site 26 (Section 2)



EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 2)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
90006969	370 Old Dandenong RD	DINGLEY VILLAGE		Premise Match	0m	Onsite

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

Former EPA Priority Sites & Other Pollution Notices

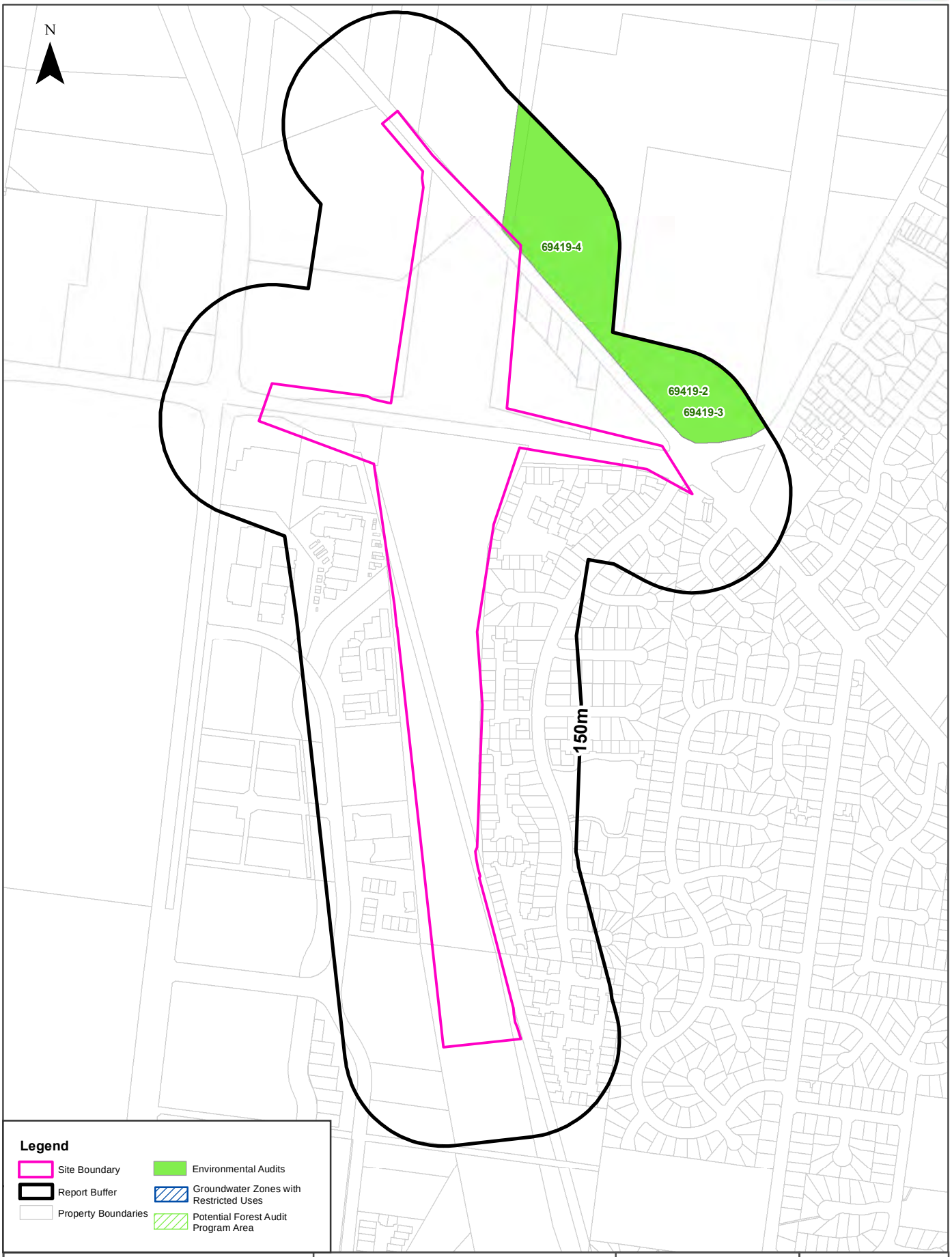
What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
NO9888	62A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires assessment and/or clean up.	10/10/2011	Premise Match	0m	Onsite
NO9143	62A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires ongoing management.	24/02/2011	Premise Match	0m	Onsite
NO10317	31A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires ongoing management.	03/04/2012	Premise Match	0m	Onsite
90006313	Pollution Abatement Notice	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice	AIR QUALITY - CONTAMINATION (LEGACY)	20/08/2015	Premise Match	0m	Onsite
90005004	Pollution Abatement Notice	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice		11/09/2014	Premise Match	0m	Onsite
90004129	Hydrogeological Assessment PAN	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice	LIQUID - CONTAMINATION (LEGACY)	25/09/2015	Premise Match	0m	Onsite
90003832	Previous Priority Notice, Monitoring, Rehab' & Aftercare PAN	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Priority Notice	Former Landfill. Requires ongoing management	27/11/2014	Premise Match	0m	Onsite
90003831	Previous Priority Notice, Hydrogeological Assessment PAN	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Priority Notice	Former Landfill. Requires ongoing management	17/07/2014	Premise Match	0m	Onsite

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

EPA Records - Audit Reports & GQRUZ

OSAR Proposed Road Alignments - Site 26 (Section 2)



EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 2)

EPA Environmental Audits

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

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
69419-4	8004942	370-418 OLD DANDENONG RD, DINGLEY VILLAG 370 -418 OLD DANDENONG RD	370-418 OLD DANDENONG RD, DINGLEY VILLAG 370-418 OLD DANDENONG RD	DINGLEY VILLAGE	22/07/2016	Premise Match	0m	Onsite
69419-2	8004084	370-418 OLD DANDENONG ROAD DIN SAN LANDFILL	370-418 OLD DANDENONG ROAD	Dingley	30/06/2014	Premise Match	32m	North East
69419-3	8004540	370-418 OLD DANDENONG ROAD DINGLEY DIN SAN LANDFILL	370-418 OLD DANDENONG ROAD DINGLEY DIN SAN LANDFILL	DINGLEY	30/06/2015	Premise Match	32m	North East

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

EPA Groundwater Zones with Restricted Uses

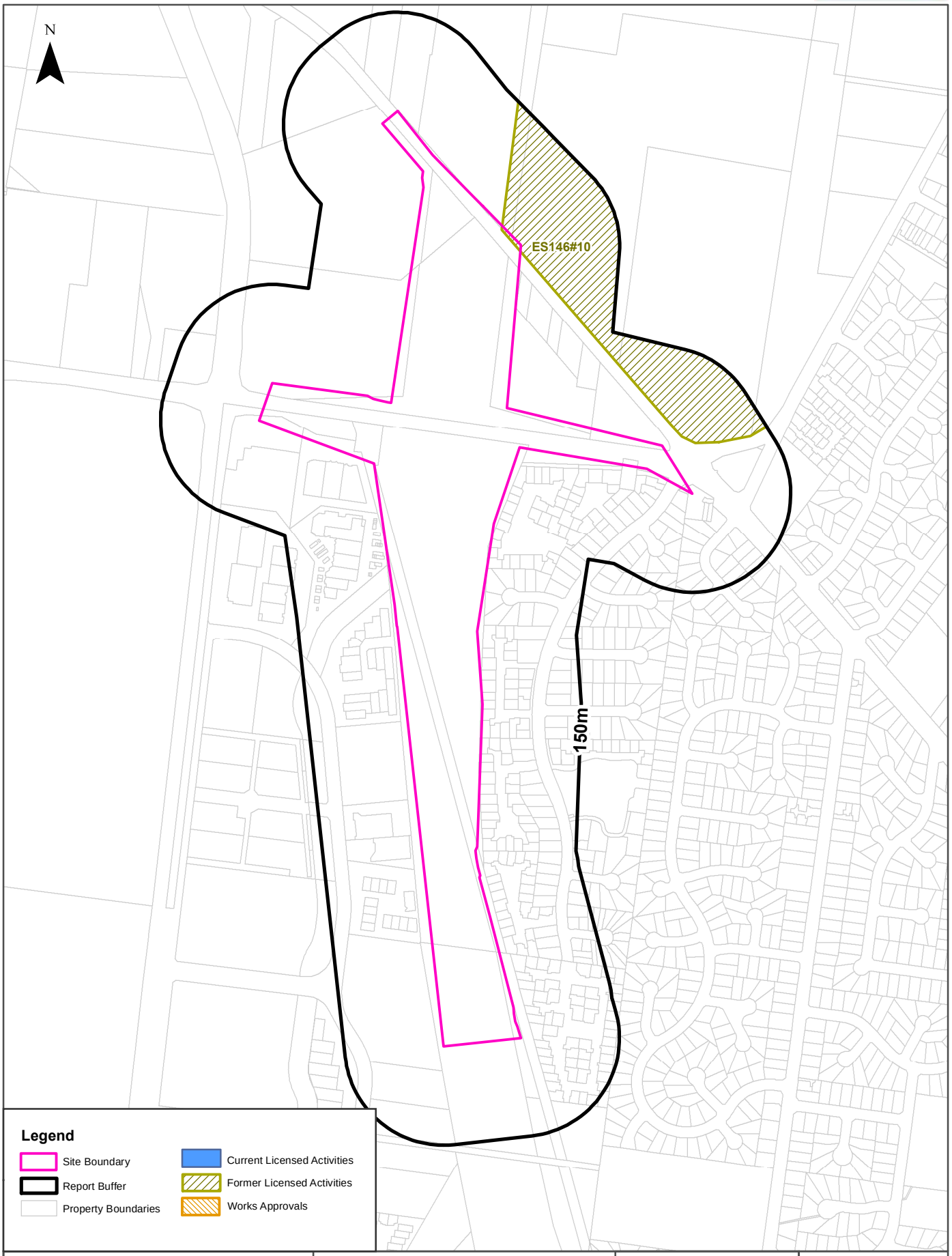
What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

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

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

EPA Records - Licensed Activities & Works Approvals

OSAR Proposed Road Alignments - Site 26 (Section 2)



Data Sources: Property Boundaries & Topographic Data: State of Victoria - Department of Environment and Primary Industries

Coordinate System: GDA 1994 MGA Zone 55

Date: 09February 2017

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 2)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

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

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

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
ES146#10	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370-418 Old Dandenong Rd	DINGLEY VILLAGE VIC 3172	A05 Landfills	Premise Match	0m	Onsite

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

EPA Works Approvals

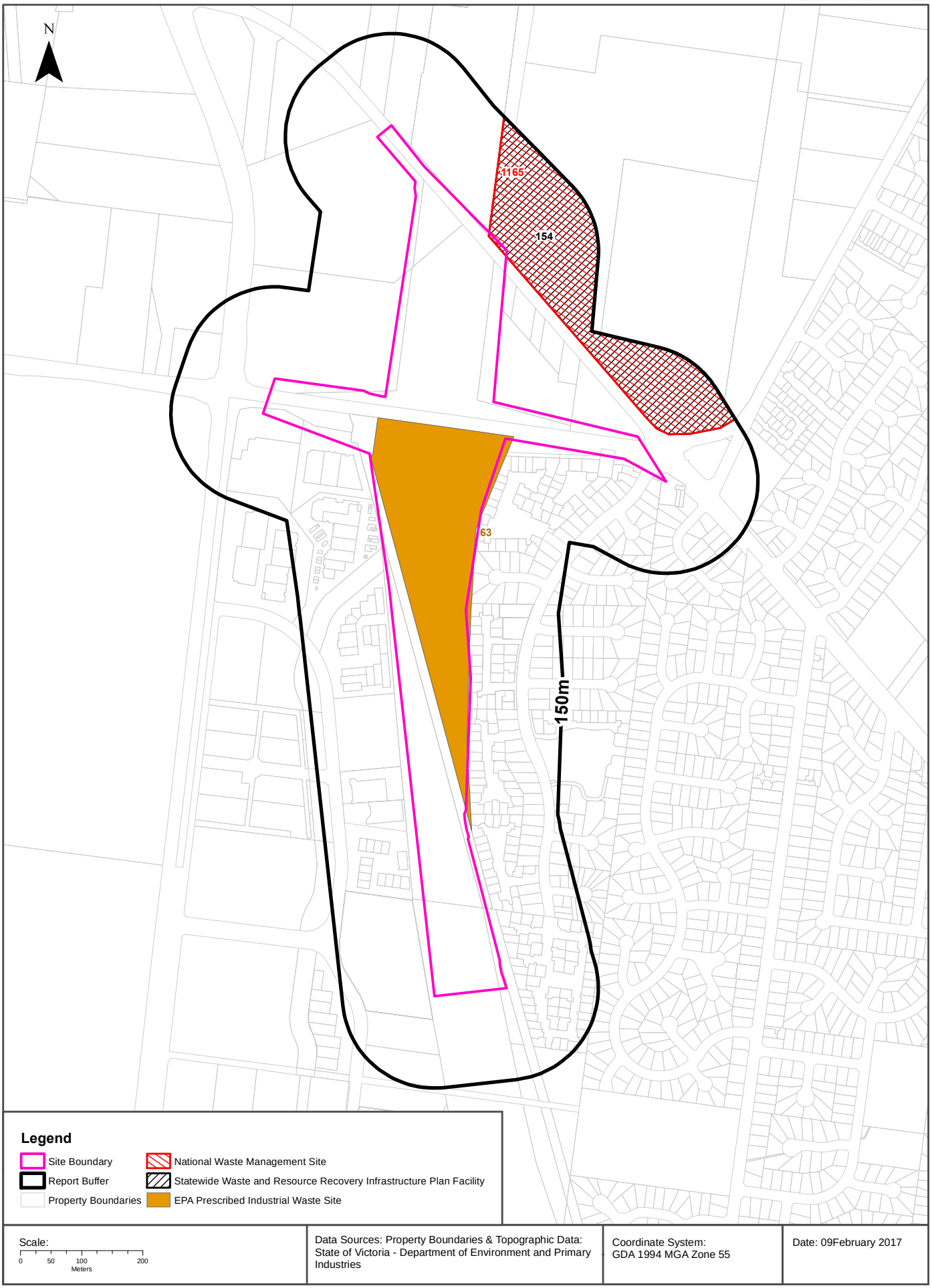
What EPA works approvals exist within the report buffer?

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

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

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 2)



Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 2)

National Waste Management Site Database

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

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
1165	Kingston Council	Ernest Smith Contractors Pty Ltd	Tootal Road	Dingley Village	3172	Operating	Not Applicable	Not Applicable	Premise Match	0m	Onsite

Waste Management Facilities Data Source: Australian Government Geoscience Australia

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

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

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
154		Ernest Smith Contractors (ES 146)	370-418 Old Dandenong Rd	Dingley Village	Landfill	Landfill	Premise Match	0m	Onsite

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

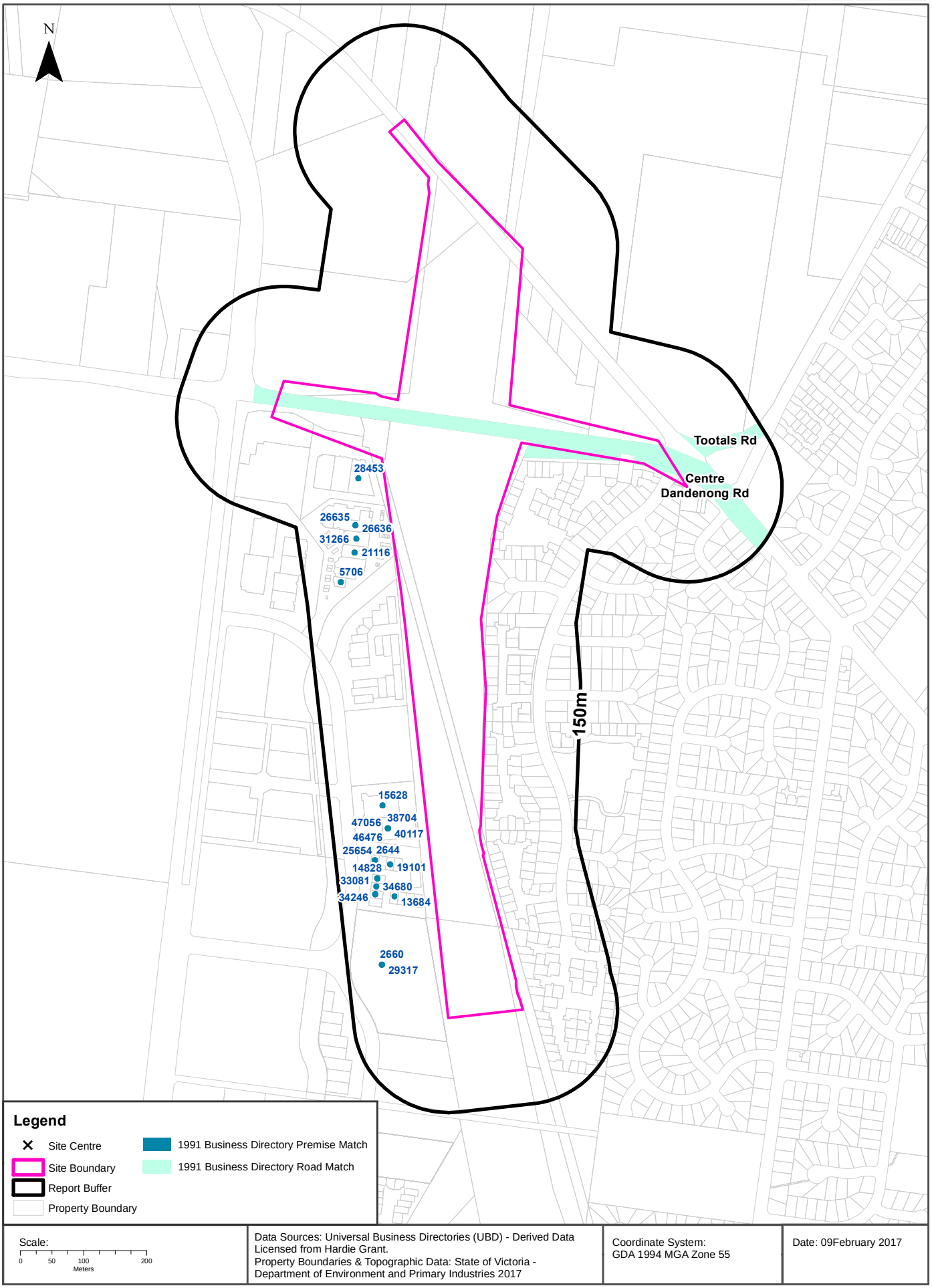
EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
63	B.R. DEMOLITION AUSTRALIA PTY LTD [DINGLEY]	262 CENTRE DANDENONG RD	DINGLEY VILLAGE VIC 3172	No	Yes	No	Current EPA List	Premise Match	0m	Onsite

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Historical Business to Business Directory Activity 1991

OSAR Proposed Road Alignments - Site 26 (Section 2)



Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 2)

1991 Business to Business Directory Records

1991 UBD Business Directory Records within 150m of the site:

Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
Motor Garages & Service Stations	BP Dingley Village	Centre Dandenong Rd. Dingley. 3172	6065	Road Match	0m	-
Motor Garages & Service Stations	Mobil Ornoley Service Centre,	Centre Dandenong Rd Dingley. 3172	27044	Road Match	0m	-
Motor Garages & Service Stations	Morris Motor Service Centre,	Centre Dandenong Rd , Dingley. 3172	6066	Road Match	0m	-
Computer Accessories &/or Supplies	Daniel glenn Computer forms Pty. Ltd.,	Redwood gardens, 5 coniler Cr., Dingley 3172	246	Suburb/Area Match	27m	East
Swimming Pools	Dinghy Sporting Centre PTY LTD	Tootats Rd., Dingley. 3172	363	Suburb/Area Match	27m	East
Clothing Mfrs &/or W/salers - Maternity Wear	jeffries&hawkers	factory 9/2 garden byde, dingley.3172	321	Suburb/Area Match	27m	East
Boring & Drilling Plant &/or Equipment Mfrs &/or Imps &/or Dists	seismic supply internaTIONAL PTY LTD	UNIT 122 garden blade dingley 3172	247	Suburb/Area Match	27m	East
Dairies &/or Dairymen	diamond greek diary	tootals rd dingley 3172	26162	Road Match	33m	North East
Dairies &/or Dairymen	dingley park dairy	tootals rd dingley 3172	26984	Road Match	33m	North East
Garden Supplies &/or Equipment Mfrs &/or Dists &/or W/Salers	Tropian Australia Pty Ltd	1 Chestnut Crt Dingley 3172	28453	Premise Match	39m	North West
Motor Car Mfrs &.or Imps &/or Dists	Subaru (Aust) Pty Ltd	12 Plane Tree Avenue Dingley 3172	26635	Premise Match	55m	West
Motor Car Mfrs &.or Imps &/or Dists	Subaru (Aust) Pty Ltd	12 Plane Tree Avenue Dingley 3172	26636	Premise Match	55m	West
Printers Supplies & Services	B.M.L. Forme Cutting Services,	10 Plane Tree Ave., DIngley. 3172	31266	Premise Match	56m	West
Paint – Anti-Corrosive Or Protective Coating – Mfrs. &/or Imps. &/or Dists.	Blythe Colours (Australia) Pry. Ltd., Redwood Gardens Estate,	26 Garden Blvde., Dingley. 3172	40117	Premise Match	60m	South
Plastic Mfrs. Material Suppliers.	Blythe Colours (Australia) Pry. Ltd., Redwood Gardens Estate,	26 Garden Blvde., Dingley. 3172	46476	Premise Match	60m	South
Plastic Mfrs. Material Suppliers.	Blythe Colours (Australia) Pry. Ltd., Redwood Gardens Estate,	26 Garden Blvde., Dingley. 3172	47056	Premise Match	60m	South
Ceramics Mfrs &/or Suppliers	Blythe Colours (Australia) Pry. Ltd., Redwood Gardens Estate,	26 Garden Blvde., Dingley. 3172	38704	Premise Match	60m	South
Kitchenware &.or Holloware Mfrs &/or Dists	C P S Houseware Specialists	2 Holly Dr Dingley 3172	13684	Premise Match	62m	South
Manufacturers Agents	Trevan N C & Co	8 Plane Tree Ave Dingley 3172	21116	Premise Match	62m	West
X-Ray Apparatus Mfrs &/or Dists	Fishver Imagine Australia Pty Ltd	5 Fir St Dingley 3172	19101	Premise Match	63m	South
Chemical Mfrs &/or Imps &/or Dists	union carbide of australia	30 garden blvde dingley 3172	15628	Premise Match	65m	South
Air Conditioning Equipment & Parts Mfrs. &/or Imps &/or Dists	Bradway Engineering Pty Ltd	24 Garden Blvde North Dingley 3172	14828	Premise Match	85m	South
Air Conditioning Sales &/or Service	Bradway Engineering Pty Ltd	24 Garden Blvde North Dingley 3172	34680	Premise Match	85m	South
Air Conditioning Units &/or Machinery Mfrs &/or Imps &/or Dists	Bradway Engineering Pty Ltd	24 Garden Blvde North Dingley 3172	5277	Premise Match	85m	South
Oil - Essential - Mfrs. &/or Merchants	Bronson & Jacobs Pty. Ltd.	1 Fir St., Dingley. 3172	2644	Premise Match	86m	South
Chemical Mfrs &/or Imps &/or Dists	Bronson &jacobs pty ;ltd	1 fir st dingley 3172	25654	Premise Match	86m	South
Caterers Supplies	Dinkum Dog	22 Garden Blvd North, Dingley 3172	33081	Premise Match	89m	South
Taxi Truck Services	Mainway Transport	2 Plane Tree Ave., Dingley. 3172	5706	Premise Match	90m	South West

Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
Tool Mfrs &/or Dists	Kennametal Australia Pty Ltd	20 Garden Blvde Dingley 3172	13741	Premise Match	92m	South
Tungsten Carbide Mfrs &/or Dists	Kennametal Australia Pty Ltd	20 Garden Blvde Dingley 3172	34246	Premise Match	92m	South
Engineers Supplies	Kennametal Australia Pty Ltd	20 Garden Blvde Dingley 3172	4422	Premise Match	92m	South
Engineers - Mining	Kennametal Australlia Pty Ltd	20 Garden Blvde Dingley 3172	14177	Premise Match	92m	South
Pump & Pumping Equipment Mfrs &/or Dists	Warman International Ltd	Unit 1 Business Centre 14 Garden Blvd Dingley 3172	29317	Premise Match	93m	South
Mining Machinery &/or Equipment Mfrs &/or Imps &/or Dists	Warman International Lts	Unit 1 Business Centre 14 Garden Blvd Dingley 3172	2660	Premise Match	93m	South

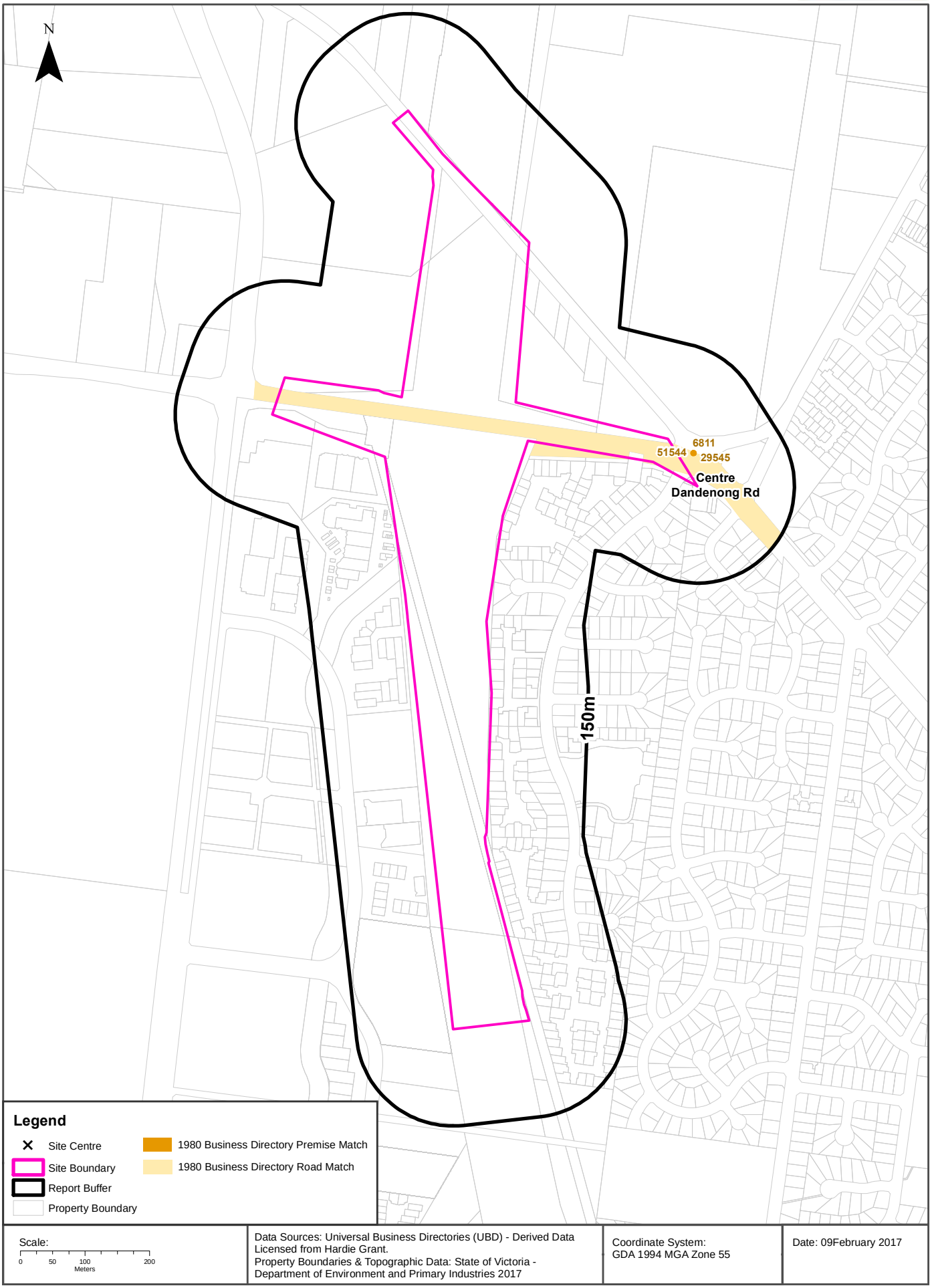
1991 Business to Business Directory Garages & Service Stations

1991 UBD Business Directory Garages & Service Stations within 1km of the site:

Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
Motor Garages & Service Stations	BP Dingley Village	Centre Dandenong Rd. Dingley. 3172	6065	Road Match	0m	-
Motor Garages & Service Stations	Mobil Ornoley Service Centre,	Centre Dandenong Rd Dingley. 3172	27044	Road Match	0m	-
Motor Garages & Service Stations	Morris Motor Service Centre,	Centre Dandenong Rd , Dingley. 3172	6066	Road Match	0m	-

Historical Business Directory Activity 1980

OSAR Proposed Road Alignments - Site 26 (Section 2)



Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 2)

1980 Business Directory Records

1980 UBD Business Directory Records within 150m of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
CHILDRENS WEAR RETAILERS.	Kids Things, Centre Dandenong Rd., Dingley.	15502	Road Match	0m	-
MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Morris Motor Service Centre, Centre Dandenong Rd., Dingley.	1524	Road Match	0m	-
SQUASH COURTS.	Dingley Sporting Centre Pty. Ltd., Cnr. Tootals & Dandenong Rds., Dingley.	51544	Road Intersection	20m	East
GYMNASIUMS.	Dingley Sporting Centre Pty. Ltd., Cnr. Tootals & Dandenong Rds., Dingley.	29545	Road Intersection	20m	East
BATHS - SWIMMING.	Dingley Sporting Centre Pty. Ltd., Cnr. Tootals & Dandenong Rds., Dingley.	6811	Road Intersection	20m	East

1980 Business Directory Drycleaners, Garages & Service Stations

Drycleaners, Garages & Service Stations from the 1980 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Morris Motor Service Centre, Centre Dandenong Rd., Dingley.	1524	Road Match	0m	-

Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 2)

1960 Business Directory Drycleaners, Garages & Service Stations

Drycleaners, Garages & Service Stations from the 1960 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Business Directory Records

1950 UBD Business Directory Records within 150m of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Business Directory Drycleaners, Garages & Service Stations

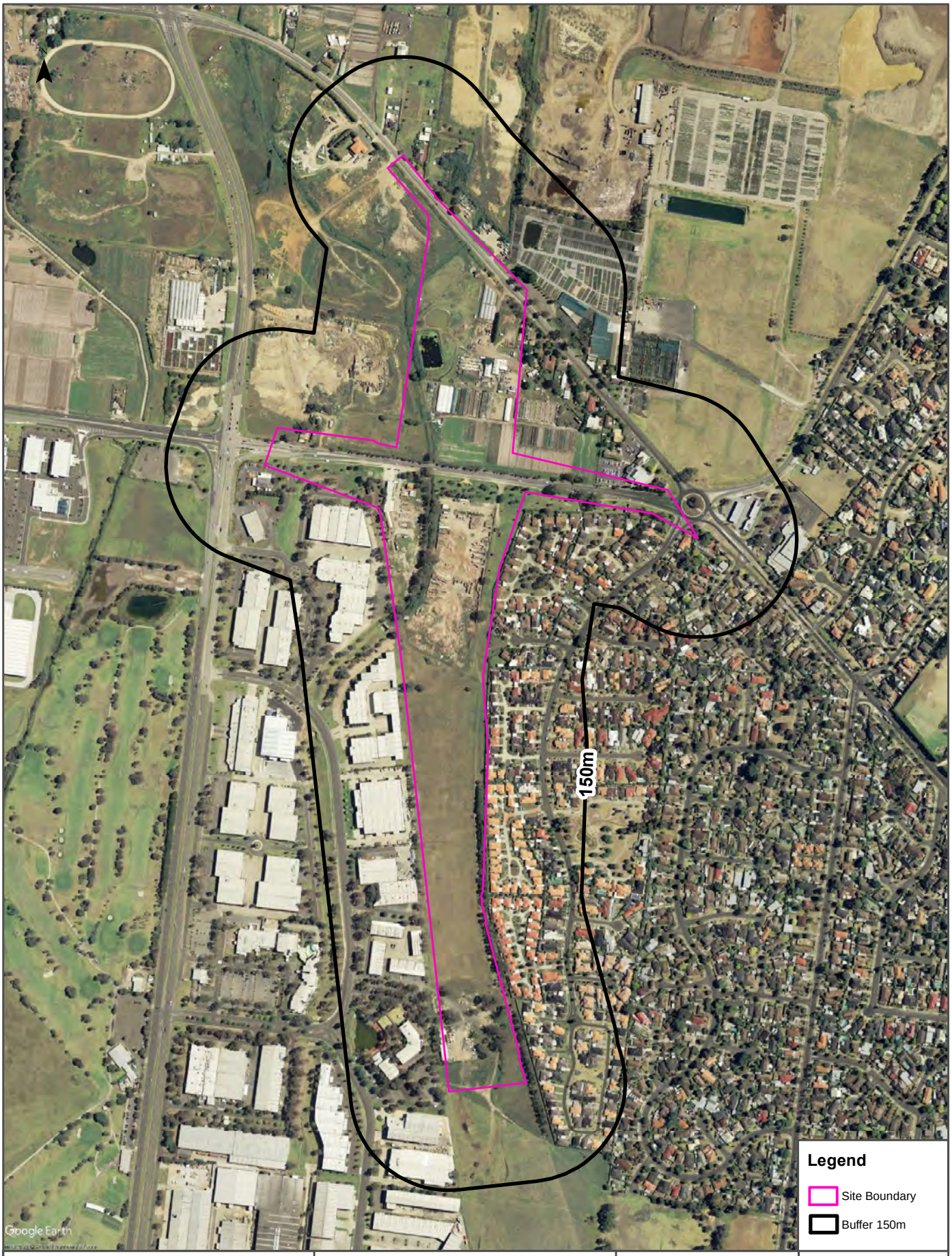
Drycleaners, Garages & Service Stations from the 1950 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Aerial Imagery 2009

OSAR Proposed Road Alignments - Site 26 (Section 2)



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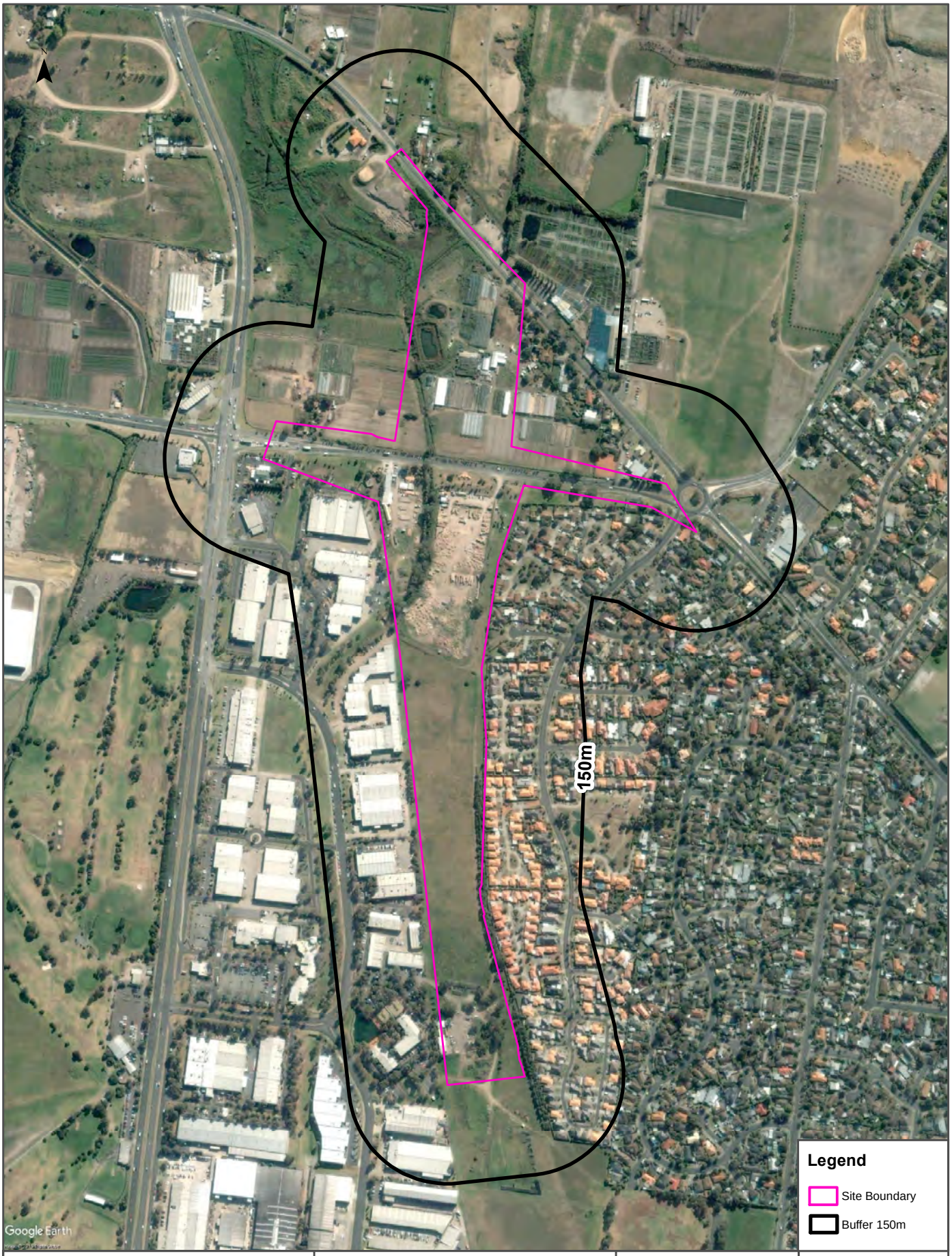
Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February, 2017

Aerial Imagery 2005

OSAR Proposed Road Alignments - Site 26 (Section 2)



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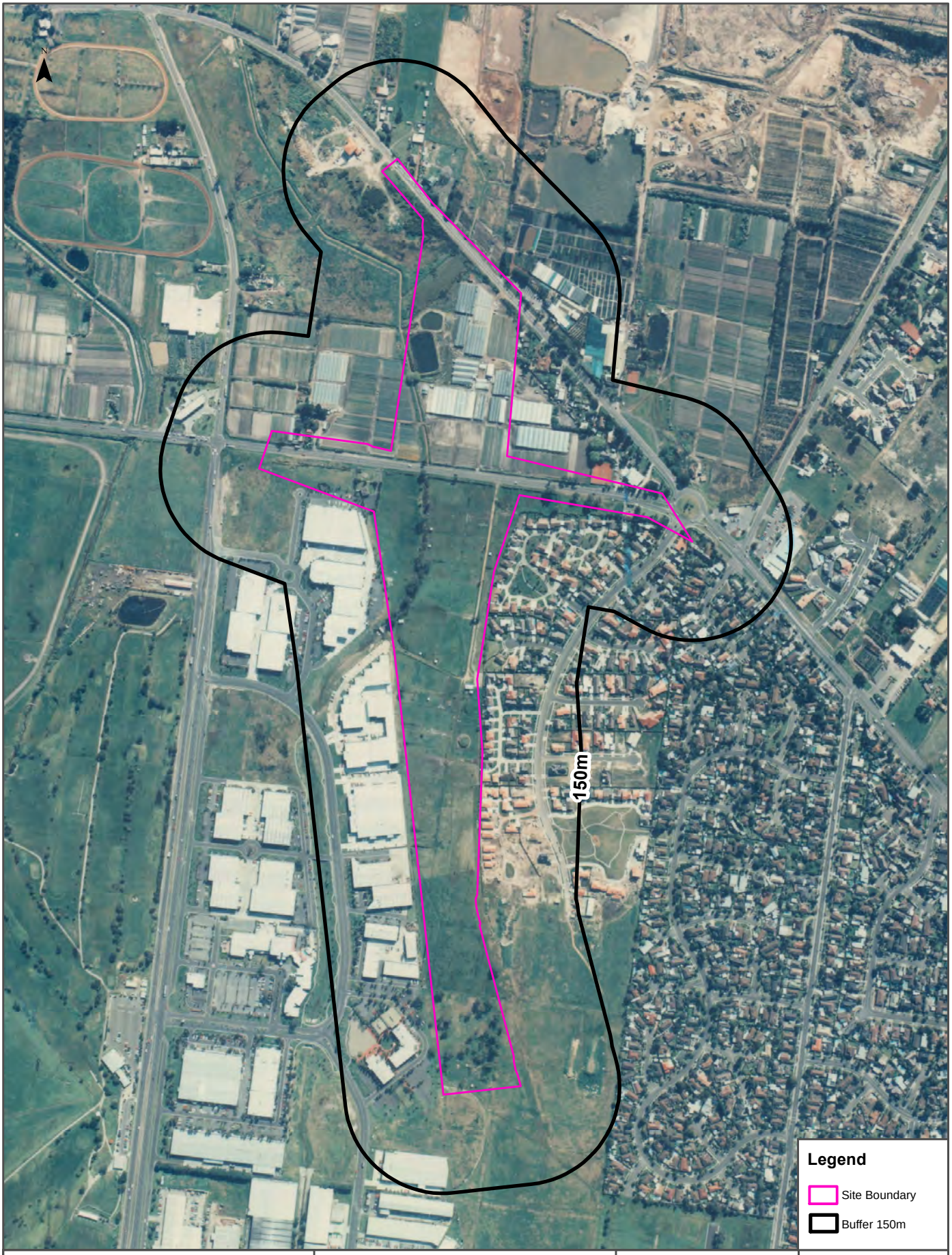
Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February, 2017

Aerial Imagery 1991

OSAR Proposed Road Alignments - Site 26 (Section 2)

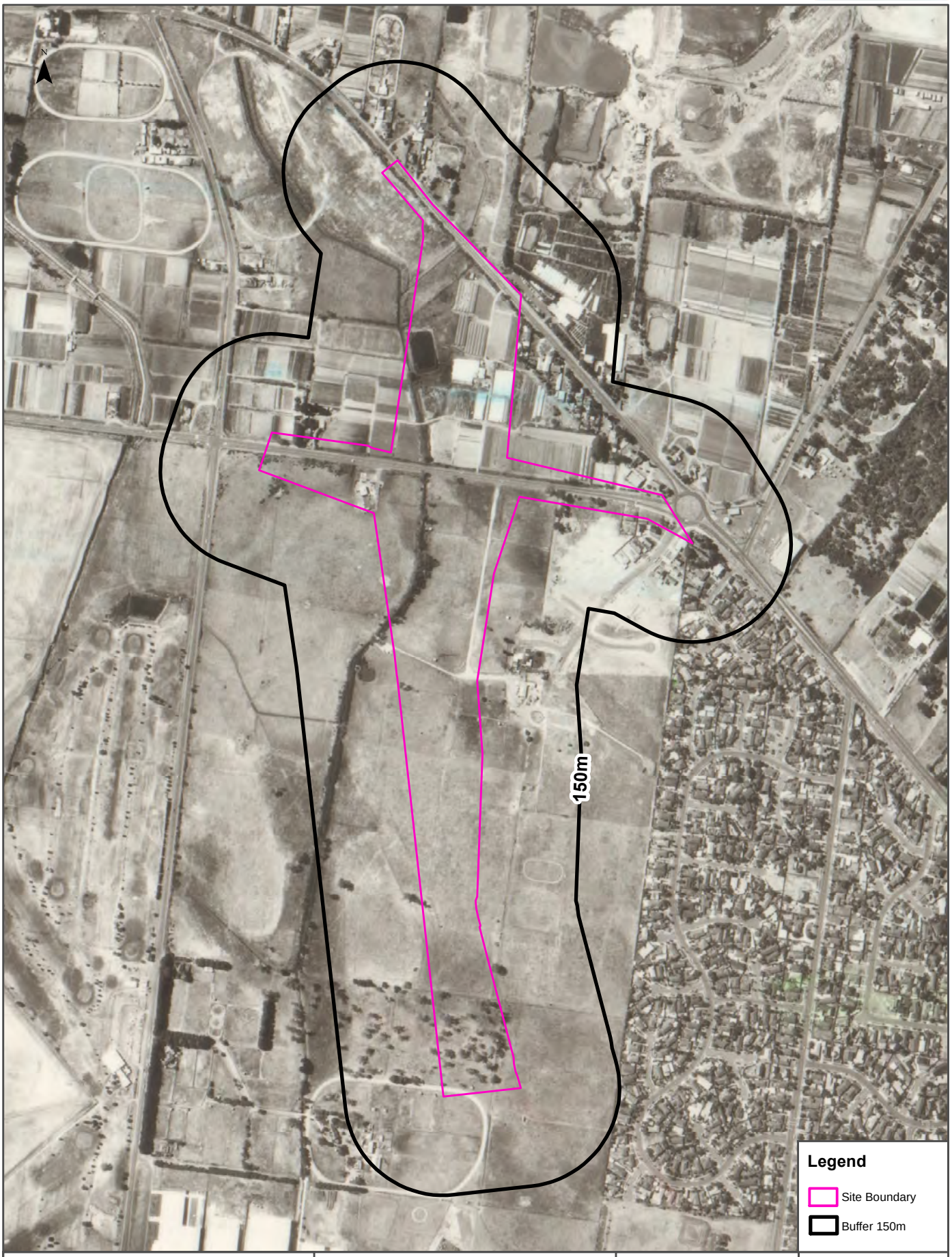


Scale:	Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)	Coordinate System: GDA 1994 MGA Zone 55	Date: 08February 2017

0 100 200 400
Meters

Aerial Imagery 1982

OSAR Proposed Road Alignments - Site 26 (Section 2)



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Meters

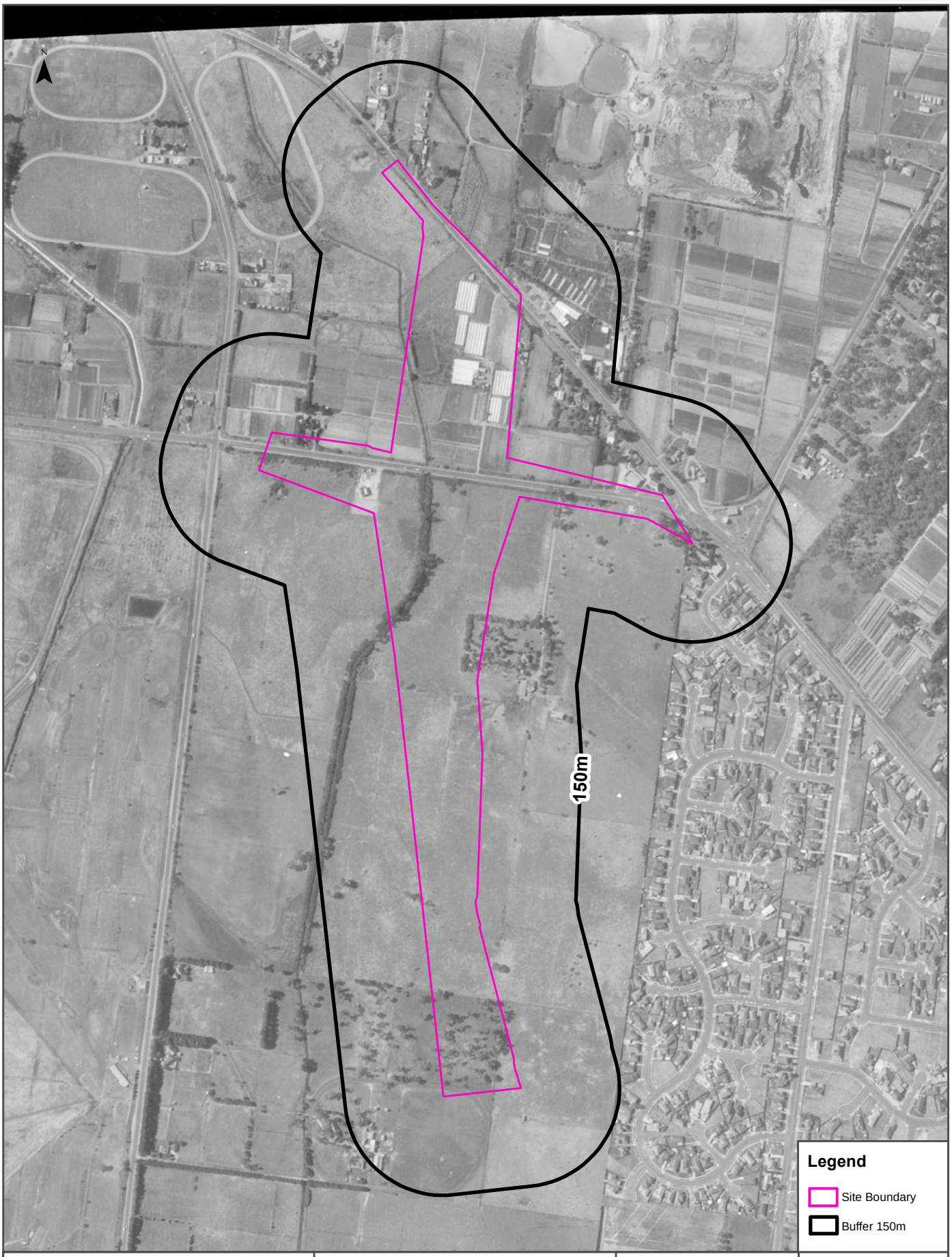
Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)

Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February 2017

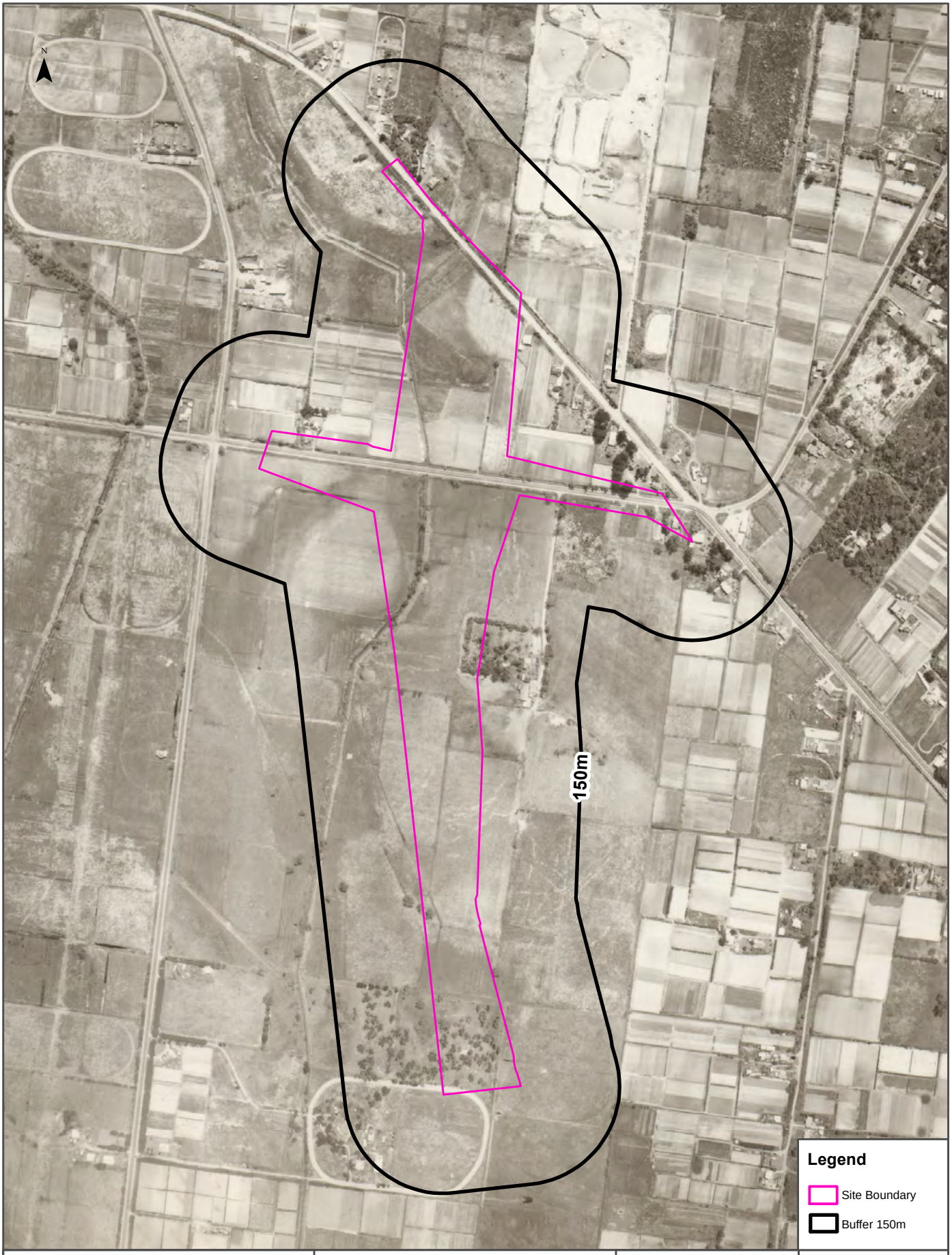
Aerial Imagery 1974

OSAR Proposed Road Alignments - Site 26 (Section 2)



Aerial Imagery 1963

OSAR Proposed Road Alignments - Site 26 (Section 2)



Scale:
0 100 200 400
Meters

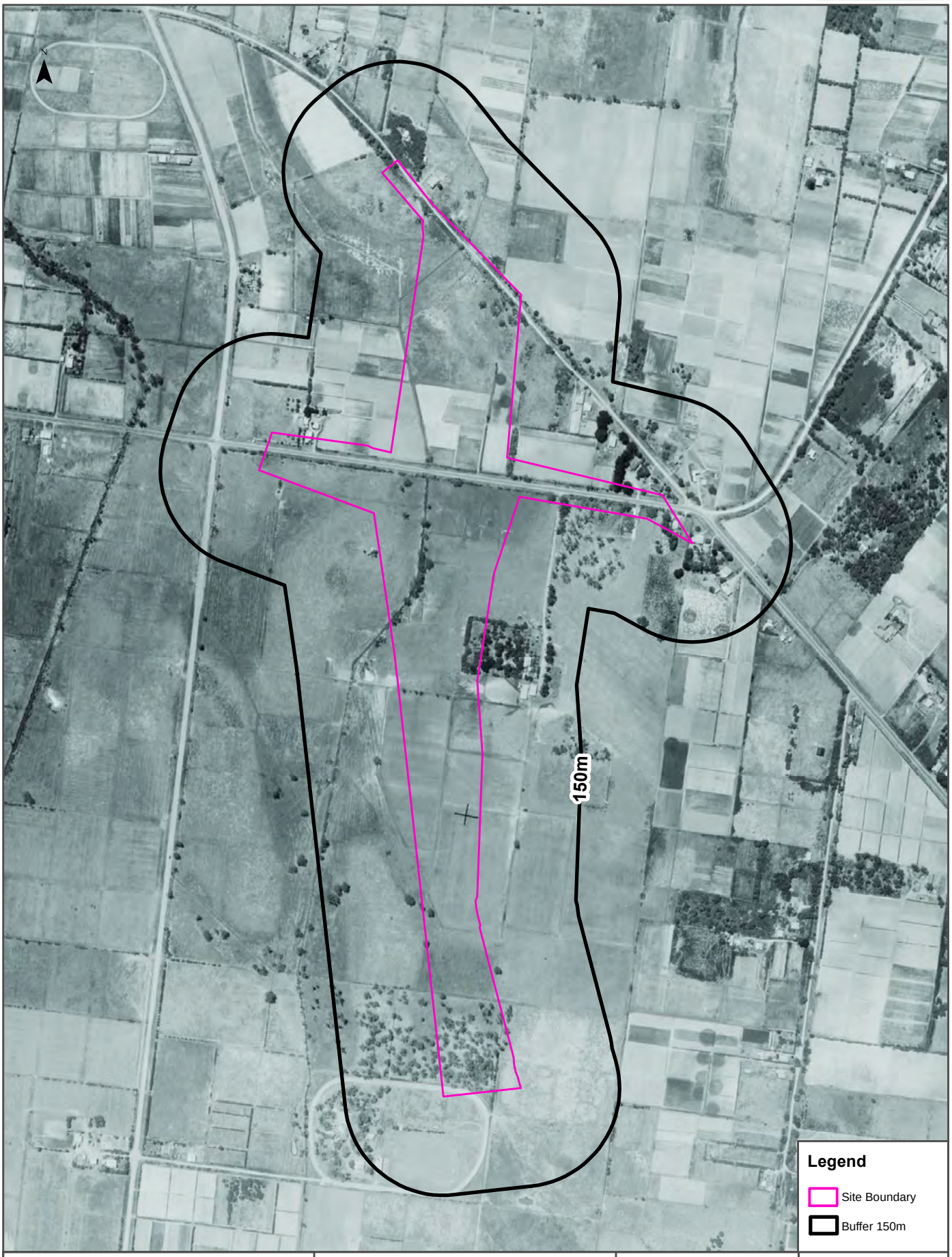
Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)

Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February 2017

Aerial Imagery 1951

OSAR Proposed Road Alignments - Site 26 (Section 2)



Scale:
0 100 200 400
Meters

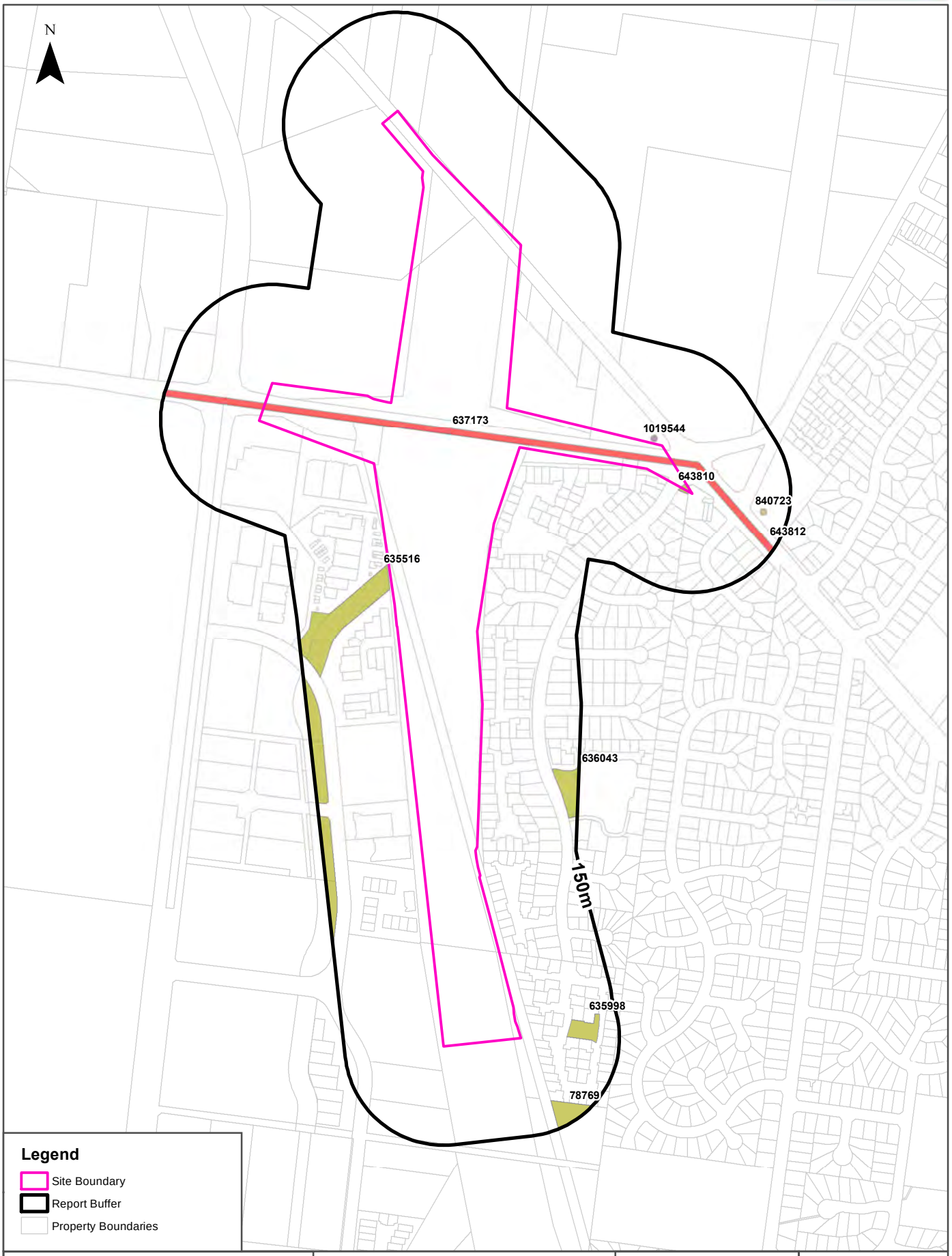
Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)

Coordinate System: GDA 1994 MGA Zone 55

Date: 08February 2017

Features of Interest

OSAR Proposed Road Alignments - Site 26 (Section 2)



Features of Interest

OSAR Proposed Road Alignments - Site 26 (Section 2)

Features of Interest

Features of Interest within 1km of the site:

Feature Id	Feature Type	Feature Sub Type	Name	Distance	Direction
643810	reserve	park		0m	Onsite
637173	pipeline	gas pipeline	Dandenong - Highett	0m	Onsite
1019544	place of worship	church		2m	North East
635516	reserve	park	Melbourne Water Drainage Corridor Linear Reserve	3m	South
635998	reserve	park	Albert Place Reserve	69m	South
78769	reserve	park		105m	South
840723	care facility	child care	Goodlife Health Clubs Childcare Dingley	106m	East
636043	reserve	park	Bardoe Park	108m	South East
643812	reserve	park		149m	East

Hydrogeology & Groundwater

OSAR Proposed Road Alignments - Site 26 (Section 2)

Hydrogeology

Description of aquifers within report buffer:

Description	Distance	Direction
Porous, extensive highly productive aquifers	0m	Onsite

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

Groundwater Salinity

On-site Groundwater Salinity:

Groundwater Salinity	Percent Of Site Area
Less than 500 mg/l	78
500 - 1,000 mg/l	22

Depth to Watertable

On-site Depth to Watertable:

Depth to Watertable	Percent Of Site Area
Less than 5 metres	95
5 to 10 metres	5

Surface Elevation

Approximate on-site Surface Elevation:

Surface Elevation
12 AHDm to 23 AHDm

Basement Elevation

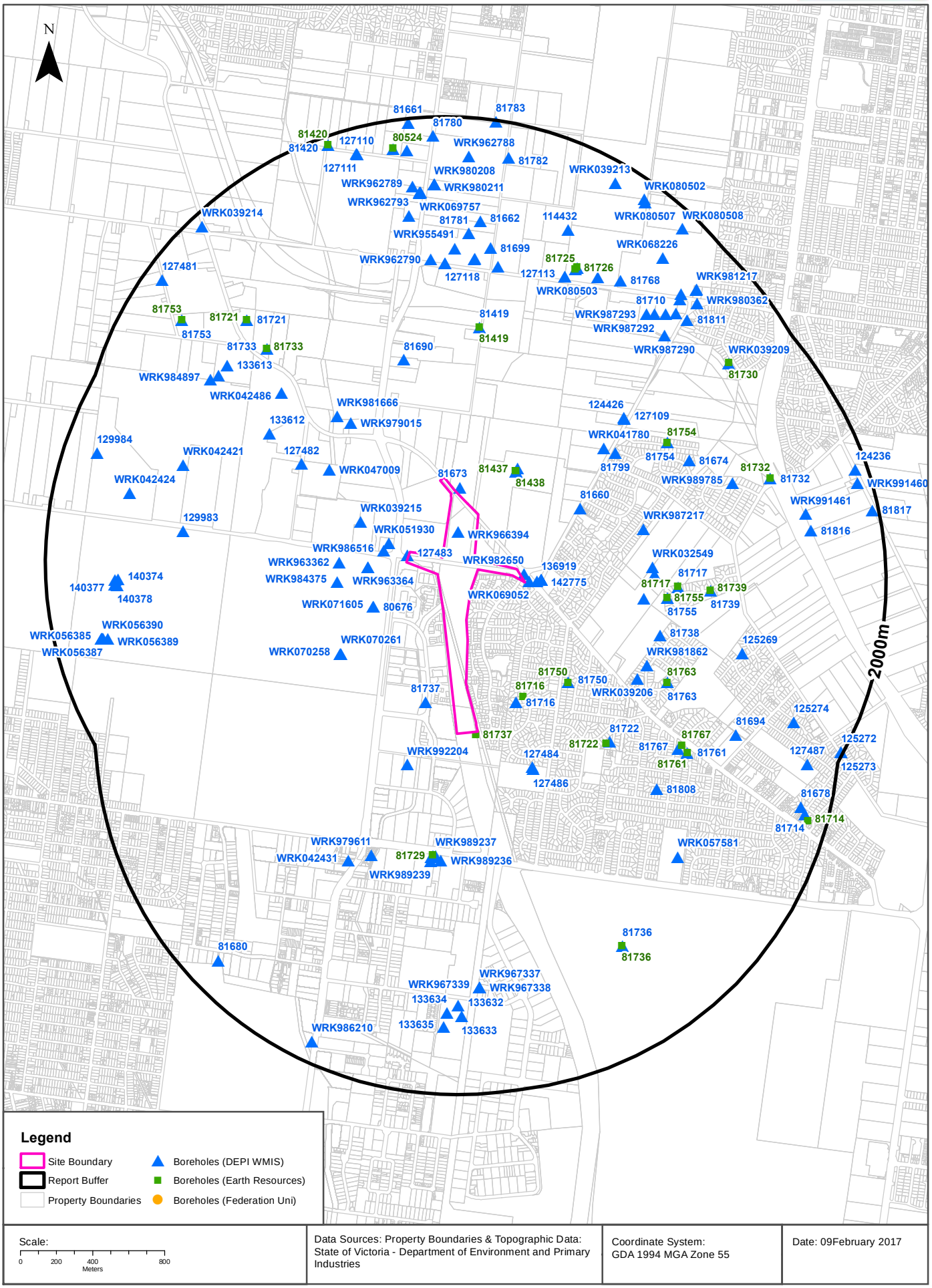
Approximate on-site Basement Elevation:

Basement Elevation - Basement Rocks comprise Lower Palaeozoic basement rocks that form the highlands and the crystalline basement; and Mesozoic rocks of the Otway and Gippsland basins both outcropping and subsurface
-47 AHDm to -24 AHDm

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

Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 2)



Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 2)

Boreholes (DEPI WMIS)

Boreholes from the Department of Environment and Primary Industries' Water Measurement Information System, within the report buffer:

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK966394							0	Onsite
127483	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m FINE GREY SAND 1.00m-2.00m LIGHT ORANGE CLAY 2.00m-4.00m YELLOW AND GREY SANDY CLAY 4.00m-10.00m LIGHT BROWN SANDY CLAY 10.00m-12.00m ORANGE CLAYEY SAND 12.00m-15.00m GREY SAILTY CLAY	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 11.00m-12.00m OUTER LINING - GRAVEL = Bentonite 12.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1104 Quality: 43 WLMP: 5.29m DBNS: 5.34m RWL: 12.46mAHD		1996-04-18	7	North West
WRK982650							19	East
WRK069052	Observation	0.00m-0.40m FILL 0.40m-9.50m CLAY	0.00m-6.00m INNER LINING - CASING = Pvc 6.00m-9.00m INNER LINING - SCREEN = Pvc 9.00m-9.50m INNER LINING - CASING = Pvc 0.00m-5.00m OUTER LINING - GRAVEL = Cement 5.00m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-9.00m OUTER LINING - GRAVEL = Gravel		9.00m-9.50m Clay	2012-08-17	23	East
81673	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-1.22m SAND 1.22m-6.10m CLAYEY SAND 6.10m-6.40m SAND 6.40m-10.67m CLAY 10.67m-14.02m STICKY MARINE CLAY SAND 14.02m-18.29m SANDSTONE PIECES MARINE SILT SAND 18.29m-37.19m MARINE SILT CLAY 37.19m-38.71m DARK MARINE SHELL 38.71m-42.30m DARK MARINE SHELL LITTLE LIMESTONE				1970-01-06	32	North
WRK991278	Groundwater Investigation	0.00m-0.30m topsoil 0.30m-1.50m sand 1.50m-3.60m sandstone 3.60m-8.20m sand	0.00m-4.20m INNER LINING - CASING = Pvc 4.20m-8.20m INNER LINING - SCREEN = Pvc 0.00m-2.50m OUTER LINING - GRAVEL = Cement 2.50m-3.70m OUTER LINING - GRAVEL = Bentonite 3.70m-8.20m OUTER LINING - GRAVEL = Gravel			2009-05-08	64	East
142775	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-7.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	89	East
142772	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc			1998-10-22	89	East
136917	Groundwater Investigation	0.00m-0.80m SANDY SILT, BROWN, MOIST FILL 0.80m-1.00m SAND CLAY, ORANGE BROWN, PAIL BROWN, YELLOW BROWN, STIFF, MO 1.00m-7.50m CLAYEY SAND FINE AND MEDIUM SAND, RED BROWN, YELLOW BROWN AN	0.00m-3.50m INNER LINING - CASING = Pvc Class 18 3.50m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.30m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	89	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
142769	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	89	East
142768	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	89	East
136918	Groundwater Investigation	0.00m-0.80m SANDY SILT, BROWN, DENSE, MOIST FILL 0.80m-7.50m CLAYEY SAND, FINE AND MEDIUM SAND, RED BROWN, YELLOW BROWN,	0.00m-4.00m INNER LINING - CASING = Pvc Class 18 4.00m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.40m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	89	East
136919	Groundwater Investigation	0.00m-0.90m SILTY SAND, BROWN, MOIST FILL 0.90m-7.50m CLAYEY SAND RED BROWN, YELLOW BROWN AND PAIL GREY, MEDIUM GR	0.00m-4.00m INNER LINING - CASING = Pvc Class 18 4.00m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.30m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	89	East
142773	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	89	East
142771	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	89	East
142770	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	89	East
142774	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	89	East
WRK051930	Observation	0.00m-6.00m clay	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 1.00m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-6.00m OUTER LINING - GRAVEL = Gravel		0.00m-3.00m Clay 3.00m-6.00m Clay	2009-10-21	125	North West
WRK986516							138	North West
81737	Domestic	0.00m-3.00m TOP SOIL WITH GREY SAND 3.00m-5.00m GREY SANDY CLAY 5.00m-11.00m GREY CLAY WITH SAND 11.00m-17.00m BROWN SANDY CLAY 17.00m-59.00m BLACK CLAY 59.00m-60.00m WEATHERED MUDSTONE 60.00m-86.00m MUDSTONE	0.00m-59.20m INNER LINING - CASING = Mild Steel 59.20m-86.00m INNER LINING - SCREEN = Mild Steel		59.20m-86.00m Mudstone	1983-12-02	152	South
WRK963364							214	West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK963363							214	West
81716	Domestic	0.00m-2.00m TOP SOIL 2.00m-6.00m CLAY 6.00m-7.00m LIGHT CLAY AND SAND 7.00m-8.00m LIGHT SAND 8.00m-10.00m COARSE SAND	0.00m-7.00m INNER LINING - CASING = Pvc 7.00m-10.00m INNER LINING - SCREEN = Pvc		7.00m-10.00m Clay	1983-06-12	241	South East
WRK071605	Irrigation					2012-10-02	306	West
80676	Not Known					1988-01-01	306	West
81437	Not Known					1985-09-20	314	North East
81438	Not Known					1985-09-20	314	North East
81421	Observation, State Observation Network	0.00m-1.20m SAND 1.20m-6.40m SANDY CLAY YELLOW 6.40m-7.90m SANDS DARK GREY 7.90m-14.90m GREEN MARL SANDY GRAVEL 14.90m-15.20m HARD STONE BAR 15.20m-21.30m GRAVEL CLAY SOME HARD BARS 21.30m-30.50m SILTY MARL GREEN 30.50m-32.00m SILTY MARL SAND GREYT MICA 32.00m-38.40m SILTY MARL SAND GREY 38.40m-39.90m DARKER SILTY CLAY 39.90m-42.10m GREEN MARL FIRM SHELLS 42.10m-44.20m HARD BAR STONE 44.20m-50.29m GREY CLAY TURNED TO STONE (BEDROCK)	0.00m-30.50m INNER LINING - CASING = Pvc 30.50m-42.70m INNER LINING - SCREEN = Pvc 42.70m-50.29m INNER LINING - CASING = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 25.90m-50.29m OUTER LINING - GRAVEL = Gravel	Date/time: 1991-12-04 0000 Quality: 43 WLMP: 4.21m DBNS: 3.34m RWL: 18.36mAHD	30.50m-42.70m Marl	1973-02-21	314	North East
WRK039215	Irrigation	0.00m-5.60m STIFF YELLOW/BROWN CLAY 5.60m-10.70m GREY FINE TO MEDIUM GRAINED SAND 10.70m-29.70m YELLOW/GREY FIRM CLAYEY SAND 29.70m-40.02m YELLOW/WHITE VERY LOOSE COARSE GRAINED SAND &	0.00m-30.00m INNER LINING - CASING = Pvc 30.00m-39.50m INNER LINING - SCREEN = Pvc 39.50m-40.02m INNER LINING - CASING = Pvc 39.00m-40.02m OUTER LINING - GRAVEL = Gravel		30.00m-39.50m Sand	1990-02-20	319	North West
WRK992204	Groundwater Investigation	0.00m-0.50m fill 0.50m-5.00m brighton group sands	0.00m-2.00m INNER LINING - CASING = Pvc 2.00m-5.00m INNER LINING - SCREEN = Pvc 0.00m-0.20m OUTER LINING - GRAVEL = Cement 0.20m-1.50m OUTER LINING - GRAVEL = Bentonite 1.50m-5.00m OUTER LINING - GRAVEL = Gravel			2009-08-10	322	South
WRK046838						2006-08-10	332	North East
127484	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m DARK GREY SANDY SOIL 1.00m-2.00m ORANGY BROWN SANDY CLAY 2.00m-3.00m BROWNY ORANGE SANDY CLAY 3.00m-5.00m ORANGE GRAVELY CLAY 5.00m-13.00m ORANGE & GREY GRAVELY CLAY 13.00m-15.00m GREY SILTY SAND	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 10.00m-11.00m OUTER LINING - GRAVEL = Bentonite 11.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1042 Quality: 43 WLMP: 4.18m DBNS: 4.20m RWL: 6.95mAHD		1996-04-12	359	South East
127486	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m FINE GREY SAND 1.00m-7.00m LIGHT BROWN CLAYEY SAND 7.00m-15.00m BROWN CLAYEY SAND 15.00m-30.00m SANDY MARL	0.00m-27.00m INNER LINING - CASING = Pvc 27.00m-29.00m INNER LINING - SCREEN = Pvc 29.00m-30.00m INNER LINING - CASING = Pvc 26.00m-27.00m OUTER LINING - GRAVEL = Bentonite 27.00m-30.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1043 Quality: 43 WLMP: 4.17m DBNS: 4.24m RWL: 6.88mAHD		1996-04-18	368	South East
WRK963362	Domestic & Stock					2005-11-07	370	West
WRK984375							398	West
81660	Not Known					1970-12-31	484	North East
81750	Domestic	0.00m-0.50m GREY SANDY LOAM 0.50m-3.00m YELLOW CLAY 3.00m-3.15m SANDY LAYER MEDIUM 3.15m-5.00m WHITE GREY CLAY 5.00m-5.07m THIN ROCK LAYER 5.07m-5.45m COARSE SAND WITH SOME FINE CLAY 5.45m-6.00m GREY CLAY	0.00m-5.00m INNER LINING - CASING = Pvc 5.00m-5.45m INNER LINING - SCREEN = Pvc 5.45m-6.00m INNER LINING - SCREEN = Slotted Pvc		5.00m-5.45m Sand 5.45m-6.00m Clay	1984-06-04	550	South East
WRK979015							589	North West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK070261	Observation					2012-07-05	589	South West
WRK070260	Observation					2012-07-04	591	South West
WRK070259	Observation					2012-07-03	592	South West
WRK070258	Observation					2012-07-02	593	South West
WRK047009							616	North West
WRK985144							664	East
WRK981666							672	North West
WRK989237							684	South
81729	Domestic	0.00m-3.05m CLAY 3.05m-12.19m SANDY CLAY BROWN 12.19m-21.34m SAND BROWN 21.34m-36.58m SAND GREY 36.58m-49.38m SAND BLACK	0.00m-36.58m INNER LINING - CASING = Pvc 36.58m-38.10m INNER LINING - SCREEN = Pvc 38.10m-44.50m INNER LINING - CASING = Pvc 42.98m-45.72m INNER LINING - SCREEN = Pvc		36.58m-38.10m Sand 42.98m-45.72m Sand	1982-12-23	687	South
81690	Not Known	0.00m-16.76m GREENY GREY CLAYEY SAND	0.00m-16.76m INNER LINING - CASING = Not Known 10.67m-16.76m INNER LINING - SCREEN = Not Known			1973-02-11	689	North
WRK989238							696	South
WRK989236							705	South
WRK032549	Irrigation	0.00m-4.00m TOP SOIL AND CLAY 4.00m-43.00m SAND 43.00m-50.00m SANDSTONE AND SLATE 50.00m-55.00m SANDSTONE 55.00m-73.00m GRAVEL AND COAL AND SEA SHELLS 73.00m-85.00m SANDSTONE	0.00m-43.00m INNER LINING - CASING = Steel 0.00m-74.00m INNER LINING - CASING = Steel 60.00m-85.00m INNER LINING - SCREEN = Steel			1997-10-03	711	East
WRK987217							718	East
WRK989239							718	South
81791	Not Known	0.00m-0.50m SANDY LOAM 0.50m-1.50m FINE WHITE SAND 1.50m-2.00m DARK BROWN SANDY CLAY 2.00m-15.50m LIGHT GREY & YELLOW SANDY CLAY 15.50m-19.00m DIRTY DRIFT SAND 19.00m-36.00m GREEN MARINE SILT 36.00m-37.00m BROWN COAL 37.00m-44.00m GREEN SILT & SHELL 44.00m-45.00m LIGNIOUS CLAY 45.00m-59.00m SOFT MUDSTONE				1990-09-05	719	East
81722	Domestic	0.00m-1.20m TOP SOIL 1.20m-8.00m CLAY 8.00m-9.00m RIVER SAND 9.00m-0.00m ROCK (SANDSTONE)	0.00m-6.00m INNER LINING - CASING = Pvc 6.00m-9.00m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 0.30m-0.00m OUTER LINING - GRAVEL = Seal		6.00m-9.00m Sand	1983-02-28	731	South East
127482	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m YELLOW AND GREY CLAY 1.00m-8.00m YELLOW SANDY CLAY 8.00m-15.00m SANDY MARL	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 11.00m-12.00m OUTER LINING - GRAVEL = Bentonite 12.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1124 Quality: 43 WLMP: 7.28m DBNS: 7.30m RWL: 11.34mAHD		1996-04-16	771	North West
WRK041780	Dairy						784	North East
81755	Domestic	0.00m-0.30m TOP SOIL 0.30m-7.62m CLAY 7.62m-12.80m SAND AND CLAY	0.00m-11.58m INNER LINING - CASING = Pvc 11.58m-12.80m INNER LINING - SCREEN = Pvc		11.58m-12.80m Sand	1983-06-01	792	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81738	Domestic	0.00m-1.50m GREY LOAM AND SAND 1.50m-3.00m GREY FIRM SAND 3.00m-4.52m GREY FINE SAND AND CLAY 4.52m-6.10m GREY SAND MEDIUM COARSE 6.10m-7.62m GREY COARSE SAND 7.62m-9.10m YELLOW CLAY SOME GRIT 9.10m-10.62m FINE SAND AND CLAY 10.62m-11.30m MEDIUM FINE SAND 11.30m-12.70m GREY MEDIUM COARSE SAND 12.70m-13.70m GREY MEDIUM CORASE SAND SOME CLAY 13.70m-15.20m COARSE GREY SAND WITH CLAY 15.20m-16.70m YELLOW CLAY FINE SAND 16.70m-19.81m COARSE GREY SAND	0.00m-7.62m INNER LINING - CASING = Pvc 7.62m-18.50m INNER LINING - SCREEN = Pvc 18.50m-19.81m INNER LINING - SCREEN = Slotted Pvc		7.62m-18.50m Clay 18.50m-19.81m Sand	1983-09-14	804	East
WRK981862							817	East
WRK039206	Irrigation					1970-12-31	820	South East
WRK979611							822	South
81799	Domestic, Stock					1988-01-01	829	North East
81717	Domestic, Stock	0.00m-1.00m SAND BROWN 1.00m-1.80m SAND GREY 1.80m-3.00m CEMENTED FERRIGINOUS PIECES 3.00m-7.00m CLAYEY SAND 7.00m-8.00m GRAVEL 8.00m-10.00m SANDY CLAY 10.00m-11.00m COFFEE ROCK 11.00m-15.00m SILT GRAVEL AND BLACK SAND 15.00m-15.50m CLAYEY SAND 15.50m-16.20m GRAVEL 16.20m-0.00m ROCK	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-16.20m INNER LINING - SCREEN = Pvc 0.00m-2.00m OUTER LINING - GRAVEL = Cement		12.00m-16.20m Silt	1981-08-13	848	East
81419	Observation, State Observation Network	0.00m-1.50m TOP SOIL SAND 1.50m-4.60m CLAY AND SAND 4.60m-6.10m ORANGE CLAY SAND 6.10m-10.70m SANDY DARK CLAY 10.70m-22.90m GREEN CLAY SAND 22.90m-23.00m GRAVEL 23.00m-23.20m HARD BAR 23.20m-26.20m GREEN CLAY GRAVEL 26.20m-27.40m GREY CLAY 27.40m-39.60m GREEN SILTY CLAY WITH SHELLS 39.60m-42.98m CLAY MUD STONE	0.00m-42.98m INNER LINING - CASING = Pvc	Date/time: 1982-07-26 0000 Quality: 43 WLMP: 6.58m DBNS: 6.55m RWL: 20.12mAHD		1971-11-27	855	North
WRK042431	Irrigation	0.00m-4.60m MEDIUM GRAINED SAND 4.60m-5.60m GREY CLAY 5.60m-12.00m ORANGE/BROWN, VERY FINE SANDSTONE 12.00m-47.50m GREY SILT/SOME SHELLS AT DEPTH 47.50m-48.50m GREY SANDSTONE 48.50m-50.00m DARK GREY/SANDY LIMESTONE 50.00m-51.00m LIGHT GREY HARD LIMESTONE 51.00m-53.50m BROWN CLAY 53.50m-54.00m QUARTZ SAND 54.00m-55.00m BROWN CLAY 55.00m-57.00m COARSE SAND CEMENTED PYRITE 57.00m-59.00m LIGHT GREY CLAY 59.00m-59.50m LIGHT GREY SANDSTONE 59.50m-62.00m LIGHT GREY BASALT 62.00m-66.00m COARSE SAND/WOODY 66.00m-67.00m GREY CLAY	0.00m-59.60m INNER LINING - CASING = Abs Plastic 59.60m-62.00m INNER LINING - SCREEN = Abs Plastic 0.00m-41.00m OUTER LINING - GRAVEL = Cement 41.00m-56.30m OUTER LINING - GRAVEL = Bentonite 56.30m-65.70m OUTER LINING - GRAVEL = Gravel		59.60m-62.00m Basalt	1997-11-25	924	South West
81763	Domestic	0.00m-0.25m TOP SOIL 0.25m-0.75m ORANGE SAND 0.75m-6.00m ORANGE CLAY 6.00m-7.00m GREY CLAY 7.00m-8.00m ORANGE SANDY CLAY 8.00m-9.15m IRON STONE	0.00m-8.95m INNER LINING - CASING = Galvanised Iron 8.95m-9.15m INNER LINING - SCREEN = Galvanised Iron		8.95m-9.15m Ironstone	1982-11-12	964	South East
124426	Groundwater Investigation			Date/time: 1996-09-26 0000 Quality: 47 WLMP: 3.76m DBNS: 2.75m RWL: 27.60mAHD		1995-04-07	967	North East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
127109	Groundwater Investigation	0.00m-9.00m BACK FILL FROM TIP 9.00m-16.00m GREY CLAYEY SAND 16.00m-19.00m GREY SILTY CLAY 19.00m-20.00m MUDSTONE 20.00m-30.00m SANDY MARL	0.30m-27.00m INNER LINING - CASING = Pvc 27.00m-29.00m INNER LINING - SCREEN = Pvc 29.00m-30.00m INNER LINING - CASING = Pvc 25.50m-26.50m OUTER LINING - GRAVEL = Bentonite 26.50m-30.00m OUTER LINING - GRAVEL = Gravel			1995-11-24	967	North East
133612	Irrigation	0.00m-52.00m SILTY SANDS & CLAYEY MARLS SOME FILLING ENCOUNTERED AT 5-9 M 52.00m-150.00m FRIM GREY MUDSTONES	0.30m-52.00m INNER LINING - CASING = Steel 52.00m-150.00m INNER LINING - SCREEN = Steel 0.00m-52.00m OUTER LINING - GRAVEL = Cement		52.00m-150.00m Mudstone	1997-11-24	980	North West
WRK042486	Irrigation	0.00m-0.30m TOP SOIL 0.30m-6.00m CLAY 6.00m-14.00m SANDY CLAY 14.00m-26.00m MARL 26.00m-39.00m LIMESTONE AND CLAY 39.00m-43.00m MARL 43.00m-80.00m SHALE 80.00m-181.00m VERY HARD SHALE	0.00m-63.00m INNER LINING - CASING = Pvc 63.00m-110.00m INNER LINING - CASING = Pvc 10.00m-15.00m OUTER LINING - GRAVEL = Cement 15.00m-62.50m OUTER LINING - GRAVEL = Bentonite 62.50m-63.00m OUTER LINING - GRAVEL = Seal		110.00m-181.00m Shale	2004-03-06	1005	North West
81739	Domestic	0.00m-1.50m GREY SANDY LOAM 1.50m-4.52m YELLOW CLAY 4.52m-9.10m YELLOW ORANGE CLAY 9.10m-10.60m MEDIUM SAND AND MEDIUM COARSE GRAVEL 10.60m-12.10m YELLOW CLAY 12.10m-15.20m YELLOW CLAY, COARSE GRAVEL 15.20m-18.29m GREEN CLAY, SOME GRAVEL 18.29m-19.51m GREEN CLAY - GRAVEL	0.00m-6.40m INNER LINING - CASING = Pvc 6.40m-18.00m INNER LINING - SCREEN = Pvc 18.00m-18.50m INNER LINING - CASING = Pvc 18.50m-19.51m INNER LINING - SCREEN = Pvc		6.40m-18.00m Clay 18.50m-19.51m Clay	1983-12-13	1029	East
81808	Not Known					1988-01-01	1038	South East
81754	Not Known	0.00m-2.00m FINE BLACK SAND 2.00m-8.00m FINE/MED MUDDY ORANGE SAND 8.00m-8.10m LIGNITE 8.10m-30.00m FINE MUDDY GREY SAND				1983-05-10	1089	North East
81767	Domestic	0.00m-0.30m SURFACE SOIL 0.30m-0.60m GREY SAND 0.60m-4.20m CLAY 4.20m-14.00m SANDY CLAY 14.00m-15.80m SLOPPY CLAYEY SAND 15.80m-17.90m CLAYEY SAND WITH PIECES OF IRONSTONE	0.00m-15.80m INNER LINING - CASING = Pvc 15.80m-17.90m INNER LINING - SCREEN = Pvc 4.50m-17.90m OUTER LINING - GRAVEL = Gravel		15.80m-17.90m Sand	1983-09-01	1113	South East
81674	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-1.52m CLAY 1.52m-3.35m SANDY CLAY 3.35m-6.10m SLOPPY CLAYEY SAND 6.10m-7.62m CLAY MOTTLEY 7.62m-10.67m BROWN CLAYEY SAND 10.67m-11.28m BLACK CLAY 11.28m-17.07m MARINE STICKY SAND CLAY 17.07m-27.32m MARINE SAND CLAY SILT 27.32m-29.26m BROWN COAL CLAY 29.26m-38.71m DARK MARINE CLAY LITTLE SHELL 38.71m-39.32m SHELL MARINE CLAY WITH FEW PEBBLES 39.32m-40.23m SILT BROWN CLAY MUDSTONE WITH THIS LAYERS SANDSTONE 40.23m-50.90m SANDSTONE				1970-01-06	1127	North East
81761	Domestic, Stock	0.00m-1.00m FILL BRICK RUBBLE 1.00m-3.00m SAND YELLOW 3.00m-6.00m SANDY CLAY 6.00m-9.00m CLAY 9.00m-13.50m SAND 13.50m-0.00m BEDROCK	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-13.50m INNER LINING - SCREEN = Pvc		12.00m-13.50m Sand	1983-12-31	1164	South East
127117	Groundwater Investigation	0.00m-1.00m GREY SAND 1.00m-2.50m YELLOW AND GREY CLAYEY SAND 2.50m-4.00m YELLOW AND GREY CLAY 4.00m-6.00m YELLOW AND GREY SANDY CLAY 6.00m-9.50m FINE SAND 9.50m-11.00m BROWN COAL 11.00m-15.50m MEDIUM SAND 15.50m-22.00m GREY SILTY CLAY 22.00m-30.00m MARL CLAY	0.00m-25.00m INNER LINING - CASING = Pvc 25.00m-27.00m INNER LINING - SCREEN = Pvc 27.00m-28.00m INNER LINING - CASING = Pvc 23.50m-24.50m OUTER LINING - GRAVEL = Bentonite 24.50m-28.00m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-08 0000 Quality: 47 WLMP: 6.39m DBNS: 6.45m RWL: 22.81mAHD		1995-12-13	1185	North

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
127118	Groundwater Investigation	0.00m-1.00m GREY SAND 1.00m-2.50m YELLOW AND GREY CLAYEY SAND 2.50m-4.00m YELLOW AND GREY CLAY 4.00m-6.00m YELLOW AND GREY SANDY CLAY 6.00m-9.50m FINE SAND 9.50m-10.50m BROWN COAL 10.50m-15.00m MEDIUM SAND 15.00m-16.00m GREY SILTY CLAY	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 10.50m-11.50m OUTER LINING - GRAVEL = Bentonite 11.50m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-07 0000 Quality: 47 WLMP: 1.40m DBNS: 1.44m RWL: 27.82mAHD		1995-12-14	1185	North
WRK990436							1203	North
81733	Not Known	0.00m-0.35m TOP SANDY LOAM 0.35m-12.19m GREEN AND YELLOW CLAY 12.19m-13.00m BROWN WATER BEARING SANDY CLAY 13.00m-21.34m SOFT SANDY CLAY 21.34m-24.60m WATER BEARING GREY SANDY CLAY 24.60m-39.49m MEDIUM HARD SANDY CLAY	0.00m-24.38m INNER LINING - CASING = Galvanised Iron 24.38m-39.49m INNER LINING - SCREEN = Galvanised Iron		24.38m-39.49m Clay	1983-02-20	1206	North West
WRK962790	Groundwater Investigation	0.00m-2.50m DARK BROWN SAND 2.50m-4.00m DARK ORANGE SAND 4.00m-7.00m WET SAND	0.00m-7.00m INNER LINING - CASING = Pvc			2003-09-29	1208	North
WRK962792	Groundwater Investigation	0.00m-2.50m LIGHT ORANGE SAND 2.50m-3.50m PALR GREY SAND 3.50m-7.00m GREY SILTY SAND 7.00m-10.00m FINE CLAYEY SAND 10.00m-11.70m FINE PALE GREY QUARTZ GRAVEL	0.00m-11.70m INNER LINING - CASING = Pvc			2003-09-29	1220	North
WRK962791	Groundwater Investigation	0.00m-0.10m FILL, DARK GREY PEBBLY SAND 0.10m-1.00m LIGHT GREY SAND 1.00m-4.50m DARK GREY SAND 4.50m-5.00m FINE ORANGE SAND 5.00m-7.50m FINE PALE GREY SAND 7.50m-10.00m CLAYEY SAND 10.00m-12.00m LIGHT GREY/BROWN SAND 12.00m-15.00m CLAYEY SAND 15.00m-19.00m SILTY SAND 19.00m-24.50m FINE BROWN/GREY GRAVEL 24.50m-28.00m SILTY CLAY 28.00m-31.00m FINE SANDY GRAVEL 31.00m-33.00m CLAYEY SAND 33.00m-36.00m GRAVEL 36.00m-38.00m GRAVELLY SAND	30.00m-32.00m INNER LINING - CASING = Pvc 32.00m-38.00m INNER LINING - SCREEN = Pvc			2003-09-29	1225	North
129983	Groundwater Investigation, Observation	0.00m-7.00m CLAY 7.00m-11.00m SAND 11.00m-15.00m MUDSTONE 15.00m-33.00m SAND 33.00m-45.00m MUDSTONE 45.00m-54.00m GREEN MUDSTONE 54.00m-58.00m COAL 58.00m-87.00m MUDSTONE 87.00m-90.00m FRACTURED MUDSTONE & BASALT 90.00m-150.00m WEATHERED BASALT	-0.30m-4.20m INNER LINING - CASING = Not Known -0.30m-91.00m INNER LINING - CASING = Not Known 61.00m-91.00m INNER LINING - SCREEN = Not Known			1997-02-07	1249	West
125269	Groundwater Investigation, State Observation Network	0.00m-2.00m DRY SAND 2.00m-8.00m SANDY CLAY 8.00m-11.00m GRAVEL SILT & CLAY 11.00m-17.00m YELLOW SILTY CLAY 17.00m-28.00m GREY SILTY CLAY	0.00m-8.50m INNER LINING - CASING = Pvc 8.50m-10.50m INNER LINING - SCREEN = Pvc 10.50m-13.50m INNER LINING - CASING = Pvc 8.50m-13.50m OUTER LINING - GRAVEL = Gravel 13.50m-14.50m OUTER LINING - GRAVEL = Bentonite	Date/time: 2016-02-23 1019 Quality: 43 WLMP: 6.33m DBNS: 6.33m RWL: 20.88mAHD		1995-01-13	1267	East
WRK955491						2006-02-10	1271	North
WRK989785							1274	East
127114	Groundwater Investigation	0.00m-4.00m FINE GREY SAND 4.00m-7.00m YELLOW AND GREY CLAY 7.00m-9.50m GREY SANDY CLAY	0.20m-6.00m INNER LINING - CASING = Pvc 6.00m-8.00m INNER LINING - SCREEN = Pvc 8.00m-9.00m INNER LINING - CASING = Pvc 4.50m-5.50m OUTER LINING - GRAVEL = Bentonite 5.50m-9.00m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-08 0000 Quality: 47 WLMP: 4.61m DBNS: 3.82m RWL: 26.95mAHD		1995-12-07	1296	North

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
127113	Groundwater Investigation	0.00m-4.00m FINE GREY SAND 4.00m-7.00m YELLOW AND GREY CLAY 7.00m-9.50m GREY SANDY CLAY 9.50m-16.00m FINE GREY SAND 16.00m-19.00m FINE DARK GREY SAND 19.00m-20.00m LIGHNIOUS CLAY	0.30m-17.00m INNER LINING - CASING = Pvc 17.00m-19.00m INNER LINING - SCREEN = Pvc 19.00m-20.00m INNER LINING - CASING = Pvc 15.50m-16.50m OUTER LINING - GRAVEL = Bentonite 16.50m-20.00m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-08 0000 Quality: 47 WLMP: 9.46m DBNS: 8.56m RWL: 22.21mAHD		1995-12-06	1297	North
81699	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-2.74m SAND 2.74m-9.75m SANDY CLAY 9.75m-23.47m SAND WITH LAYER CLAY 23.47m-47.24m MARINE SILT LITTLE SHELL				1973-11-05	1297	North
WRK057581	Irrigation	0.00m-2.50m Sand 2.50m-3.20m sandy Clay 3.20m-6.50m Grey Clay 6.50m-13.30m Brown Sandy Clay 13.30m-18.50m Blue Clay 18.50m-20.50m Fine Sand 20.50m-29.50m Blue Clay 29.50m-32.00m Sand 32.00m-33.00m Blue Clay				2010-09-23	1305	South East
133613	Irrigation	0.00m-50.00m SILTY SANDS & CLAYEY MARLS 50.00m-150.00m SOFT GREY MUDSTONE	-0.30m-50.00m INNER LINING - CASING = Steel 50.00m-150.00m INNER LINING - SCREEN = Steel 0.00m-50.00m OUTER LINING - GRAVEL = Cement		50.00m-150.00m Mudstone	1997-11-22	1342	North West
WRK042421	Irrigation	0.00m-12.00m SAND CLAY 12.00m-18.00m SANDY SILT 18.00m-35.00m MUDSTONE 35.00m-57.00m SLATESTONE 57.00m-91.00m BASALT QUARTZ 91.00m-97.70m BASALT	-0.20m-42.00m INNER LINING - CASING = Steel -0.20m-42.50m INNER LINING - CASING = Steel 42.00m-85.00m INNER LINING - SCREEN = Steel 85.00m-97.70m INNER LINING - SCREEN = Slotted Steel			1993-01-07	1346	North West
WRK058438	Irrigation	0.00m-42.00m SAND 42.00m-55.00m MUD STONE 55.00m-68.00m BASALT 68.00m-87.00m SAND 87.00m-95.00m CLAY 95.00m-108.00m SANDSTONE	0.00m-42.50m INNER LINING - CASING = Steel 45.50m-84.50m INNER LINING - SLOT = Steel 0.00m-42.50m OUTER LINING - GRAVEL = Cement		0.00m-42.50m Mudstone 45.50m-84.50m Basalt	2009-09-21	1357	North West
81781	Not Known	0.00m-3.40m NO RETURNS 3.40m-4.90m SAND FINE/MEDIUM 4.90m-6.40m NO RETURNES 6.40m-11.00m SAND FINE/CLAYEY 11.00m-12.50m SAND FINE/MEDIUM 12.50m-26.20m SAND MEDIUM/COARSE LIGNEOUS 26.20m-32.30m SAND FINE/COARSE GRAVEL 32.30m-33.10m CLAY SANDY 33.10m-36.40m SAND GRAVEL CALCARESUS NODULES 36.40m-36.90m CLAY SILTY 36.90m-41.50m SAND FINE SILTY 41.50m-42.20m SAND MED/COARSE 42.20m-46.00m SAND FINE SILTY CLAYEY 46.00m-47.60m SAND FINE LIMESTONE FRAGMENTS CALCARESUS BANDS	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-33.00m INNER LINING - SCREEN = Pvc 33.00m-47.60m INNER LINING - CASING = Pvc		3.00m-33.00m Sand	1990-02-03	1359	North
81725	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-3.00m SAND 3.00m-9.10m SANDY CLAY 9.10m-15.20m CLAYEY SAND AND LIGNITE 15.20m-16.80m CONSOLIDATED LIGNITE AND SAND 16.80m-17.10m COARSE SAND AND LIGNITE 17.10m-17.40m FINE SAND AND LIGNITE 17.40m-18.90m MEDIUM COARSE SAND AND LIGNITE 18.90m-22.30m SILT WITH LAYERS OF GREY CLAY 22.30m-23.50m MARINE CLAY 23.50m-24.40m COARSE SAND 24.40m-39.60m MARINE SILT 39.60m-43.90m GREY AND GREEN SANDSTONE				1983-04-28	1362	North
81726	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-5.80m SANDY CLAY 5.80m-17.10m CLAYEY SAND 17.10m-17.70m GREY CLAY 17.70m-19.50m SLOPPY GREY SANDY CLAY 19.50m-21.30m STICKY MARINE CLAY 21.30m-21.90m FINE MARINE CLAYEY SAND 21.90m-22.60m FINE MARINE SAND 22.60m-23.80m MARINE SILT				1983-05-09	1375	North

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK984897							1391	North West
81721	Stock	0.00m-0.35m TOP SANDY LOAM 0.35m-3.00m GREY CLAY 3.00m-7.00m BROWN SOFT CLAY 7.00m-9.50m GREEN CLAY 9.50m-16.20m HARD BROWN SANDY COAL CLAY 16.20m-21.00m WATER BEARING HARD AND MEDIUM HARD SANDSTONE 21.00m-27.00m SOFT SANDSTONE 27.00m-30.00m VERY SOFT GREEN SANDY CLAY 30.00m-33.00m WATER BEARING GRAVELY SOFT CLAY	0.00m-29.50m INNER LINING - CASING = Not Known 29.50m-31.20m INNER LINING - SCREEN = Not Known		29.50m-31.20m Sandstone	1983-01-05	1392	North West
WRK080503	Observation	0.00m-3.00m CLAY 3.00m-12.00m SAND	0.00m-7.50m OUTER LINING - GRAVEL = Cement 7.50m-8.50m OUTER LINING - GRAVEL = Bentonite 8.50m-12.00m OUTER LINING - GRAVEL = Gravel		9.00m-12.00m Sand	2014-07-17	1397	North East
WRK967339							1409	South
WRK967338							1409	South
WRK967337							1409	South
81694	Miscellaneous	0.00m-4.26m FINE GREY-BROWN SAND 4.26m-7.92m FIRM YELLOW BROWN SANDY CLAY 7.92m-13.72m BROWN SILTY FINE-MEDIUM SAND	0.00m-13.72m INNER LINING - CASING = Not Known 8.22m-13.72m INNER LINING - SCREEN = Not Known			1973-04-18	1428	South East
WRK987290	Groundwater Investigation	0.00m-0.70m FILL - GRAVEL 0.70m-1.20m BROWN SAND 1.20m-5.90m CLAYEY SAND 5.90m-7.00m SAND	0.00m-0.40m OUTER LINING - GRAVEL = Cement 0.40m-0.80m OUTER LINING - GRAVEL = Bentonite			2008-07-16	1429	North East
81736	Domestic	0.00m-0.30m TOP SOIL 0.30m-0.91m WHITE SAND 0.91m-3.61m CLAY 3.61m-7.01m CLAY AND FINE SAND 7.01m-9.71m SHELL GRIT AND SHALE WITH COARSE PARTS 9.71m-11.84m COARSE WATER BEARING CLAY 11.84m-16.15m CLAY SHELL GRIT AND SHALE 16.15m-24.38m SHELL, GRIT AND SHALE	0.00m-22.86m INNER LINING - CASING = Pvc 22.86m-24.38m INNER LINING - SCREEN = Pvc		22.86m-24.38m Clay	1983-08-10	1431	South East
81662	Domestic					1970-12-31	1434	North
WRK987293	Groundwater Investigation	0.00m-0.16m 0.16M CONCRETE 0.16m-0.30m FILL: SANDY GRAVEL 0.30m-0.80m FILL: SILTY SAND FINE GRAINED 0.80m-4.20m SILTY CLAY (CH) STIFF 4.20m-5.00m SANDY CLAY				2008-07-14	1438	North East
WRK962793	Groundwater Investigation	0.00m-2.00m DARK BROWN/GREY SAND 2.00m-4.00m ORANGE/BROWN SAND 4.00m-7.00m FINE GREY SAND 7.00m-7.50m COARSE SAND 7.50m-8.50m PALE GREY SANDY SILT 8.50m-12.50m SILTY SAND 12.50m-13.00m BLACK SILTY SAND	0.00m-13.00m INNER LINING - CASING = Pvc			2003-09-29	1463	North
81768	Not Known	0.00m-0.50m DARK BROWN SAND 0.50m-1.60m STIFF BROWN CLAY 1.60m-2.00m FIRM YELLOW-BROWN CLAY 2.00m-5.50m STIFF YELLOW-ORANGE CLAY AND FINE SAND 5.50m-8.50m GREY FINE TO COURSE SAND WITH DARK GREY CLAY LENSES	0.00m-7.80m INNER LINING - CASING = Pvc 7.80m-8.50m INNER LINING - SCREEN = Pvc 0.20m-8.50m OUTER LINING - GRAVEL = Gravel		7.80m-8.50m Sand	1985-09-24	1465	North East
WRK987292	Groundwater Investigation	0.00m-0.30m CONCRETE	0.00m-0.40m OUTER LINING - GRAVEL = Cement 0.40m-1.00m OUTER LINING - GRAVEL = Bentonite 1.00m-6.00m OUTER LINING - GRAVEL = Gravel			2008-07-15	1473	North East
81732	Domestic, Stock	0.00m-3.00m SANDY LOAM 3.00m-10.60m MOTTLED CLAY FIRM SANDY 10.60m-39.30m SAND, SILTY FIRM (FINE) 39.30m-42.60m SANDSTONE PIECES AND FINE SAND	0.00m-39.30m INNER LINING - CASING = Steel 39.30m-42.60m INNER LINING - SCREEN = Steel		39.30m-42.60m Sandstone	1982-11-12	1474	East
133632	Groundwater Investigation	0.00m-0.90m FILL CLAYEY SILT 0.90m-3.50m SANDY CLAY 3.50m-6.00m CLAYEY SAND				1998-01-21	1504	South

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81710	Irrigation	0.00m-1.00m FIRM CLAYEY SAND 1.00m-6.10m VEREY STIFF SANDY CLAY 6.10m-15.20m SOFT CLAYEY SAND 15.20m-26.00m COARSE & FINE SAND 26.00m-29.00m BLUE SILT LIMESTONE PIECES & COARSE SAND 29.00m-30.50m HARD LIMESTONE BROKEN & SOME SAND 30.50m-33.50m MEDIUM HARD BLUE SHALE (CLAYEY) 33.50m-82.50m MEDIUM HARD BLUE SHALE WITH HARD LAYERS OF SANDSTONE 82.50m-152.50m HARD SANDSTONE	0.00m-34.00m INNER LINING - CASING = Steel 0.00m-76.50m INNER LINING - CASING = Steel 76.50m-152.50m INNER LINING - SCREEN = Steel			1979-01-12	1517	North East
114432	Groundwater Investigation	0.00m-12.00m SAND GREY / BROWN MEDIUM 12.00m-23.50m COARSE SAND SOME GRAVEL GREY	-0.50m-8.00m INNER LINING - CASING = Pvc 8.00m-23.50m INNER LINING - SCREEN = Pvc 0.00m-6.00m OUTER LINING - GRAVEL = Cement 6.00m-7.00m OUTER LINING - GRAVEL = Bentonite 7.00m-23.00m OUTER LINING - GRAVEL = Gravel		8.00m-23.50m Sand	1992-08-04	1534	North
133634	Groundwater Investigation	0.00m-1.00m FILL FRAVEL & SANDY CLAY 1.00m-5.50m SANDY CLAY 5.50m-6.00m CLAYEY SAND				1998-01-21	1545	South
WRK987291	Groundwater Investigation	0.00m-0.30m FILL - GRAVEL 0.30m-4.60m SANDY CLAY 4.60m-6.00m CLAYEY SAND 6.00m-6.50m SAND	0.00m-0.70m OUTER LINING - GRAVEL = Cement 0.70m-1.50m OUTER LINING - GRAVEL = Bentonite 1.50m-6.50m OUTER LINING - GRAVEL = Gravel			2008-07-14	1561	North East
133633	Groundwater Investigation	0.00m-1.30m FILL SAND & SANDY CLAY 1.30m-6.00m SANDY CLAY				1998-01-21	1564	South
WRK042424	Irrigation					1996-05-31	1579	West
81811	Not Known					1988-01-01	1581	North East
WRK069757	Observation					2012-08-02	1583	North
WRK069758	Observation					2012-08-03	1584	North
WRK069756	Observation					2012-08-02	1584	North
WRK069754	Observation	0.00m-5.00m CLAY	0.00m-2.00m INNER LINING - CASING = Pvc 2.00m-5.00m INNER LINING - SCREEN = Pvc 0.00m-1.50m OUTER LINING - GRAVEL = Bentonite 1.50m-5.00m OUTER LINING - GRAVEL = Gravel		2.00m-5.00m Clay	2012-08-02	1584	North
WRK069755	Observation					2012-08-02	1585	North
WRK991461							1599	East
140374	Groundwater Investigation	0.00m-1.00m SAND, SOME SILT & GRAVEL, DARK BROWN, LOOSE 1.00m-2.00m SANDY CLAY, FINE TO COARSE SAND, SOFT TO FIRM 2.00m-6.00m SANDY CLAY, LIGHT GREY, SAND FINE-MEDIUM, SOFT TO FIRM	0.00m-1.50m INNER LINING - CASING = Pvc Class 18 1.50m-6.00m INNER LINING - SCREEN = Pvc Class 18			1999-04-13	1599	West
140378	Groundwater Investigation	0.00m-1.00m SILTY SAND, DARK BROWN, FINE-COARSE GRAINED, MOIST 1.00m-3.00m SAND, SOME CLAY, GREY/ORANGE/BROWN, SAND FINE TO COARSE, MOI 3.00m-5.00m SANDY CLAY, ORANGE/GREY, FINE TO COARSE SAND, STIFF	0.00m-2.00m INNER LINING - CASING = Pvc Class 18 2.00m-5.00m INNER LINING - SCREEN = Pvc Class 18			1999-04-13	1607	West
81816	Groundwater Investigation	0.00m-1.00m SAND FINE WHITE 1.00m-2.74m SILTY SAND BROWN 2.74m-10.70m FINE SANDY CLAY BROWN/RED 10.70m-12.00m COARSE CLAYEY SAND BROWN 12.00m-17.45m MEDIUM GRAIN SANDY GREY 17.45m-20.00m SAND DARK BROWN/BLACK FINE TO MEDIUM	-0.30m-10.00m INNER LINING - CASING = Pvc 10.00m-20.00m INNER LINING - SCREEN = Pvc 10.00m-20.00m OUTER LINING - GRAVEL = Gravel			1991-09-03	1608	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
140376	Groundwater Investigation	0.00m-1.00m SAND , SOME SILT & CLAY, DARK BROWN, FINE TO MEDIUM GRAINED, 1.00m-2.00m SANDY CLAY, GREY/ORANGE, FINE-MEDIUM SAND, SOFT TO FIRM 2.00m-3.00m SAND WITH SOME CLAY, FINE-MEDIUM SAND, MOIST 3.00m-4.00m SANDY CLAY, ORANGE/GREY, FINE-MEDIUM SAND, MOIST 4.00m-5.00m SANDY CLAY, ORANGE/GREY, FINE-COARSE SAND, FIRM TO STIFF	0.00m-3.00m INNER LINING - CASING = Pvc Class 18 3.00m-5.00m INNER LINING - SCREEN = Pvc Class 18			1999-04-13	1617	West
140377	Groundwater Investigation	0.00m-1.00m SAND, SOME SILT & CLAY, BROWN/ORANGE, FINE TO MEDIUM GRAINED 1.00m-2.00m CLAYEY SAND, MOTLLED GREY & ORANGE, SAND FINE TO COARSE, MOI 2.00m-3.00m SAND, SOME CLAY, FINE TO MEDIUM GRAINED, MOIST 3.00m-4.00m SANDY CLAY, ORANGE/GREY, FINE TO COARSE SAND, FIRM TO STIFF 4.00m-5.00m SANDY CLAY, ORANGE/GREY, FINE TO COASE SAND, FIR TO STIFF	0.00m-2.00m INNER LINING - CASING = Pvc Class 18 2.00m-5.00m INNER LINING - SCREEN = Pvc Class 18			1999-04-13	1620	West
WRK039209	Irrigation	0.00m-0.60m TOP SOIL 0.60m-3.00m SANDY CLAY RED 3.00m-27.40m COARSE SAND AND CLAY 27.40m-36.50m CLAY 36.50m-38.40m PEAT 38.40m-60.96m SANDSTONE	0.00m-38.40m INNER LINING - CASING = Steel 38.40m-60.96m INNER LINING - SCREEN = Steel		38.40m-60.96m Sandstone	1983-02-22	1621	North East
WRK962789	Groundwater Investigation	0.00m-0.10m GARDEN BED, GRASS & MULCH 0.10m-2.00m FINE BLACK/GREY SAND 2.00m-4.00m FINE SAND 4.00m-5.00m DARK BROWN SAND 5.00m-8.00m PALE SAND 8.00m-11.50m CLAYEY SAND 11.50m-14.00m BROWN SAND	0.00m-14.00m INNER LINING - CASING = Pvc			2003-09-29	1621	North
WRK980211	Domestic & Stock		0.00m-7.00m INNER LINING - CASING = Pvc 7.00m-11.50m INNER LINING - SLOT = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.50m OUTER LINING - GRAVEL = Bentonite 6.50m-11.50m OUTER LINING - GRAVEL = Gravel			2007-04-02	1624	North
WRK980212	Domestic & Stock		0.00m-14.00m INNER LINING - CASING = Pvc 14.00m-18.00m INNER LINING - SLOT = Pvc 0.00m-11.50m OUTER LINING - GRAVEL = Cement 11.50m-13.00m OUTER LINING - GRAVEL = Bentonite 13.00m-18.00m OUTER LINING - GRAVEL = Gravel			2007-04-03	1624	North
WRK980210	Domestic & Stock		0.00m-14.00m INNER LINING - CASING = Pvc 14.00m-18.00m INNER LINING - SLOT = Pvc 0.00m-11.50m OUTER LINING - GRAVEL = Cement 11.50m-13.00m OUTER LINING - GRAVEL = Bentonite 13.00m-18.00m OUTER LINING - GRAVEL = Gravel			2007-04-03	1624	North
WRK980213	Domestic & Stock		0.00m-23.00m INNER LINING - CASING = Pvc 23.00m-26.00m INNER LINING - SLOT = Pvc 0.00m-21.00m OUTER LINING - GRAVEL = Cement 21.00m-22.00m OUTER LINING - GRAVEL = Bentonite 22.00m-26.00m OUTER LINING - GRAVEL = Gravel			2007-04-05	1624	North
WRK980205	Domestic & Stock		0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SLOT = Pvc 0.00m-5.00m OUTER LINING - GRAVEL = Cement 5.00m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel			2007-04-02	1624	North

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK980209	Domestic & Stock		0.00m-23.00m INNER LINING - CASING = Pvc 23.00m-26.00m INNER LINING - SLOT = Pvc 0.00m-21.00m OUTER LINING - GRAVEL = Cement 21.00m-22.00m OUTER LINING - GRAVEL = Bentonite 22.00m-26.00m OUTER LINING - GRAVEL = Gravel			2007-04-05	1624	North
WRK980208	Domestic & Stock		0.00m-7.00m INNER LINING - CASING = Pvc 7.00m-11.50m INNER LINING - SLOT = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.50m OUTER LINING - GRAVEL = Bentonite 6.50m-11.50m OUTER LINING - GRAVEL = Gravel			2007-04-02	1624	North
133635	Groundwater Investigation	0.00m-1.50m FILL SANDY LOAM 1.50m-2.00m CLAY 2.00m-6.50m SANDY CLAY				1998-01-21	1625	South
WRK981683							1631	North East
WRK986702	Domestic & Stock	0.00m-0.10m TOP SOIL 0.10m-7.50m SANDY CLAYS	0.00m-8.00m INNER LINING - CASING = Pvc Class 18 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-7.50m OUTER LINING - GRAVEL = Bentonite			2008-06-17	1656	North East
125274	Groundwater Investigation, State Observation Network	0.00m-1.00m DRY SAND 1.00m-6.00m SANDY CLAY 6.00m-10.00m GRAVEL SAND & CLAY (WET) 10.00m-12.00m SANDY CLAY 12.00m-35.00m GREY SANDY CLAY	0.00m-8.00m INNER LINING - CASING = Pvc 8.00m-10.00m INNER LINING - SCREEN = Pvc 10.00m-24.00m INNER LINING - CASING = Pvc 6.00m-7.00m OUTER LINING - GRAVEL = Bentonite 7.00m-12.00m OUTER LINING - GRAVEL = Gravel 24.00m-24.50m OUTER LINING - GRAVEL = Bentonite	Date/time: 2016-02-23 0952 Quality: 43 WLMP: 1.89m DBNS: 1.89m RWL: 20.83mAHD		1995-01-29	1677	East
81753	Domestic	0.00m-1.50m GREY BLACK LOAM 1.50m-3.00m BROWN SAND 3.00m-5.00m SAND GREY SILT, SOME GRAVEL 5.00m-7.00m SAND AND FINE GRAVEL 7.00m-9.00m SANDY CLAY 9.00m-13.70m COARSE GRAVEL AND SAND	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-12.40m INNER LINING - SCREEN = Pvc 12.40m-13.70m INNER LINING - SCREEN = Slotted Pvc		12.00m-12.40m Gravel 12.40m-13.70m Gravel	1985-04-01	1684	North West
WRK980362							1684	North East
WRK056389	Observation					2010-12-03	1707	West
WRK068226	Observation	0.00m-9.00m CLAY	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-9.00m INNER LINING - SCREEN = Pvc 0.00m-1.50m OUTER LINING - GRAVEL = Cement 1.50m-2.50m OUTER LINING - GRAVEL = Bentonite 3.50m-9.00m OUTER LINING - GRAVEL = Gravel		3.00m-9.00m Clay	2012-02-02	1715	North East
WRK056387	Observation					2010-12-03	1733	West
WRK057334	Domestic & Stock	67.00m-68.00m siltstone	0.00m-61.50m INNER LINING - CASING = Pvc 61.50m-67.50m INNER LINING - SCREEN = Pvc 67.50m-68.00m INNER LINING - CASING = Pvc 45.00m-48.00m OUTER LINING - GRAVEL = Cement 58.00m-60.00m OUTER LINING - GRAVEL = Bentonite 60.00m-61.00m OUTER LINING - GRAVEL = Seal		61.50m-67.50m Siltstone	2010-06-02	1734	North East
WRK981217							1736	North East
WRK056392	Observation					2010-12-03	1738	West
WRK056390	Observation					2010-12-03	1738	West
WRK056386	Observation					2010-12-03	1738	West
WRK056391	Observation					2010-12-03	1740	West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK056385	Observation	0.00m-0.40m top soil 0.40m-1.50m sand 1.50m-7.50m sandy clay	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-7.50m INNER LINING - SCREEN = Pvc 0.00m-1.50m OUTER LINING - GRAVEL = Cement 1.50m-2.50m OUTER LINING - GRAVEL = Bentonite 2.50m-7.50m OUTER LINING - GRAVEL = Gravel		3.00m-7.50m Sand	2010-12-03	1741	West
WRK056388	Observation					2010-12-03	1741	West
WRK962788	Groundwater Investigation	0.00m-4.00m FINE GRAIN SAND 4.00m-5.50m FINE LIGHT GREY SAND 5.50m-6.00m LIGHT GREY CLAYEY SAND 6.00m-11.00m FINE PALE GREY SAND 11.00m-13.00m GREY SAND 13.00m-16.00m GRAVEL				2003-09-25	1786	North
81782	Not Known	0.00m-1.80m NO RETURNS 1.80m-4.90m SAND FINE SILTY ORANGE 4.90m-6.40m NO RETURNS 6.40m-10.20m SAND COARSE WHITE SILTY 10.20m-20.70m SAND MED TO COARSE BROWN 20.70m-20.80m SAND MED TO COARSE GRAVEL GREY 20.80m-26.80m SAND GINE SILTY GREY 26.80m-27.30m GRAVEL GREY 27.30m-28.20m SAND MED SILTY GREY/GREEN 28.20m-28.80m GRAVEL/SAND MED TO COARSE 28.80m-29.30m CLAY SILTY GREEN 29.30m-30.80m SAND FINE TO COARSE GREEN 30.80m-31.40m SAND MED CLAYEY GREEN 31.40m-33.80m SAND COARSE MINOR GRAVEL 33.80m-41.50m SILT SAND CLAY CALCASEOUS BANDS CLAY NODULES	0.00m-8.00m INNER LINING - CASING = Pvc 8.00m-33.00m INNER LINING - SCREEN = Pvc 33.00m-41.50m INNER LINING - CASING = Pvc		8.00m-33.00m Sand	1990-02-06	1807	North
129984	Groundwater Investigation, Observation	0.00m-16.00m CLAY 16.00m-41.00m SAND 41.00m-56.00m MUDSTONE 56.00m-70.00m CLAY & COAL 70.00m-95.00m FRACTURED ROCK 95.00m-130.00m FRACTURED ROCK	-0.30m-48.00m INNER LINING - CASING = Not Known -0.30m-95.00m INNER LINING - CASING = Not Known 77.00m-95.00m INNER LINING - SCREEN = Not Known			1997-03-02	1817	West
81680	Not Used - Capped	0.00m-12.19m YELLOW GREY CLAY 12.19m-21.34m SANDY GRAVEL AND CLAY 21.34m-47.24m LIGHT GREY SANDY CLAY 47.24m-47.55m SMALL BAND OF LIMESTONE 47.55m-53.34m COARSE SAND - SHELL AND WOOD 53.34m-55.78m DECOMPOSED BASALT 55.78m-60.96m HARD BASALT	0.00m-56.08m INNER LINING - CASING = Not Known 0.00m-56.08m OUTER LINING - GRAVEL = Cement			1973-01-13	1822	South West
WRK042465	Irrigation					1970-12-31	1826	North
127487	Groundwater Investigation, Observation, State Observation Network	0.00m-0.50m FINE GREY SNAD 0.50m-2.00m BROWN SANDY CLAY 2.00m-4.00m YELLOW SANDY CLAY 4.00m-15.00m ORANGE CLAYEY SAND	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 11.00m-12.00m OUTER LINING - GRAVEL = Bentonite 12.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1005 Quality: 43 WLMP: 5.74m DBNS: 5.79m RWL: 18.39mAHD		1996-04-19	1832	South East
81678	Domestic, Stock	0.00m-0.91m DARK SANDY SOIL 0.91m-2.44m GREY AND BROWN SAND CLAY 2.44m-4.57m GREY BROWN CLAY 4.57m-7.31m FATTY FINE COARSE SAND 7.31m-11.28m FINE FATTY CLAYED SAND 11.28m-12.19m FINE AND COARSE SAND 12.19m-14.02m FINE AND COARSE SAND	0.00m-11.27m INNER LINING - CASING = Not Known 11.27m-12.80m INNER LINING - SCREEN = Not Known			1972-11-30	1836	South East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
80524	Not Known	0.00m-1.00m TOP SOIL 1.00m-8.00m GREY AND ORANGE CLAY 8.00m-9.00m BROWN MED COARSE SAND 9.00m-14.00m BROWN FINE/MED/COARSE SAND AND LIGNETIC SAND 14.00m-20.00m SANDY GREY AND ORANGE CLAY 20.00m-45.00m GREEN SILT AND LIMESTONE LAYERS 45.00m-46.00m DARK GREY SILTY CLAY 46.00m-51.00m GREEN SILT 51.00m-57.00m BROWN AND GREY CLAY AND WOOD 57.00m-59.00m COAL 59.00m-63.50m GREEN SILT AND GREY CLAY 63.50m-64.20m GRANODORITE				1983-09-29	1844	North
127111	Groundwater Investigation	0.00m-2.00m FINE GREY SAND 2.00m-4.20m BROWN AND GREY CLAY 4.20m-7.20m YELLOW AND GREY SANDY CLAY 7.20m-10.20m FINE GREY SAND 10.20m-10.50m DARK GREY CLAY	0.00m-7.50m INNER LINING - CASING = Pvc 7.50m-9.50m INNER LINING - SCREEN = Pvc 9.50m-10.50m INNER LINING - CASING = Pvc 6.00m-7.00m OUTER LINING - GRAVEL = Bentonite 7.00m-10.50m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-07 0000 Quality: 47 WLMP: 5.47m DBNS: 5.54m RWL: 27.40mAHD		1995-11-30	1855	North
127110	Groundwater Investigation	0.00m-2.00m FINE GREY SAND 2.00m-4.00m BROWN AND GREY SAND 4.00m-7.00m YELLOW AND GREY SANDY CLAY 7.00m-10.20m FINE GREY SAND 10.20m-11.00m DARK GREY CLAY 11.00m-19.00m FINE SAND 19.00m-23.00m FINE SAND AND GRAVEL 23.00m-25.00m FINE CLAYEY SAND 25.00m-30.00m SANDY CLAY	0.00m-17.00m INNER LINING - CASING = Pvc 17.00m-19.00m INNER LINING - SCREEN = Pvc 19.00m-20.00m INNER LINING - CASING = Pvc 15.50m-16.50m OUTER LINING - GRAVEL = Bentonite 16.50m-20.00m OUTER LINING - GRAVEL = Gravel	Date/time: 1996-10-07 0000 Quality: 47 WLMP: 8.31m DBNS: 8.35m RWL: 24.59mAHD		1995-11-30	1857	North
81714	Domestic, Stock	0.00m-3.05m TOP SOIL 3.05m-6.10m SAND 6.10m-12.19m CLAY RED 12.19m-18.29m CLAY BROWN 18.29m-24.38m GRAVEL 24.38m-39.62m GREY CLAY - ROCK LAYERS 39.62m-42.67m SAND WHITE	0.00m-18.29m INNER LINING - CASING = Pvc Class 9 18.29m-30.48m INNER LINING - SCREEN = Pvc Class 9 30.48m-41.15m INNER LINING - CASING = Pvc Class 9 41.15m-42.67m INNER LINING - SCREEN = Pvc Class 9		18.29m-30.48m Gravel 41.15m-42.67m Sand	1983-02-27	1865	South East
WRK986210							1885	South
WRK039213	Miscellaneous	0.00m-0.30m TOP SOIL 0.30m-2.40m GREY CLAY & FINE SAND 2.40m-3.60m YELLOW CLAY 3.60m-6.60m CLAY & FINE SAND 6.60m-12.10m COARSE SAND & PET 12.10m-24.00m FINE WHITE SAND 24.00m-33.40m SAND & CLAY 33.40m-40.00m FINE SAND 40.00m-43.50m GREY SANDSTONE 43.50m-76.00m BLUE/GREY SAND,STONE WITH FRACTURES	0.00m-41.00m INNER LINING - CASING = Mild Steel 42.50m-68.00m INNER LINING - SCREEN = Mild Steel			1989-10-23	1886	North
WRK080507	Observation	0.00m-3.00m CLAY 3.00m-10.00m CLAY/SAND	0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.50m OUTER LINING - GRAVEL = Bentonite 6.50m-10.00m OUTER LINING - GRAVEL = Gravel		7.00m-10.00m Sand	2014-07-17	1888	North East
81780	Not Known	0.00m-6.10m NO RETURNS 6.10m-9.10m CLAY 9.10m-11.40m SAND 11.40m-15.20m SAND LIGNEOUS NODULES 15.20m-16.80m SAND MINOR GRAVEL 16.80m-18.30m NO RETURNS 18.30m-22.10m SAND MINOR GRAVEL 22.10m-22.90m SAND 22.90m-24.40m NO RETURNS 24.40m-29.70m SAND MINOR GRAVEL 29.70m-30.50m CLAY 30.50m-36.60m SAND 36.60m-41.20m SAND CLAYEY/SILTY	0.00m-7.70m INNER LINING - CASING = Pvc 7.70m-28.70m INNER LINING - SCREEN = Pvc 28.70m-41.20m INNER LINING - CASING = Pvc		7.70m-28.70m Sand	1990-01-31	1893	North
WRK080502	Observation	0.00m-4.00m CLAY 4.00m-35.00m CLAY/SAND 35.00m-42.00m SILTSTONE	0.00m-39.00m INNER LINING - CASING = Pvc Class 9 0.00m-37.00m OUTER LINING - GRAVEL = Cement 37.00m-38.00m OUTER LINING - GRAVEL = Bentonite 38.00m-42.00m OUTER LINING - GRAVEL = Gravel		39.00m-42.00m Siltstone	2014-07-17	1897	North East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
127481	Groundwater Investigation, Observation, State Observation Network	0.00m-2.00m DARK GREY SAND 2.00m-7.00m YELLOW GREY CLAYEY SAND 7.00m-10.00m FINE YELLOW SAND 10.00m-15.00m FINE BROWN SAND	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 11.00m-12.00m OUTER LINING - GRAVEL = Bentonite 12.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1145 Quality: 43 WLMP: 3.01m DBNS: 3.06m RWL: 22.18mAHD		1996-04-17	1901	North West
WRK080508	Observation	0.00m-1.00m CLAY 1.00m-15.00m FILL 15.00m-20.00m SAND	0.00m-15.50m OUTER LINING - GRAVEL = Cement 15.50m-16.50m OUTER LINING - GRAVEL = Bentonite 16.50m-20.00m OUTER LINING - GRAVEL = Gravel		17.00m-20.00m Sand	2014-07-17	1907	North East
WRK991460	Groundwater Investigation	0.00m-5.00m clay 5.00m-7.00m coarse sands	0.00m-4.00m INNER LINING - CASING = Pvc 4.00m-7.00m INNER LINING - SCREEN = Pvc 2.00m-3.00m OUTER LINING - GRAVEL = Cement 3.00m-7.00m OUTER LINING - GRAVEL = Seal			2009-06-23	1921	East
124236	Groundwater Investigation		0.00m-13.80m INNER LINING - CASING = Pvc 13.80m-17.80m INNER LINING - SCREEN = Pvc 0.00m-9.80m OUTER LINING - GRAVEL = Cement 9.80m-10.50m OUTER LINING - GRAVEL = Bentonite 10.50m-18.00m OUTER LINING - GRAVEL = Gravel			1993-12-07	1931	East
WRK039214	Irrigation	0.00m-6.50m GREY STICKY SILTY SAND 6.50m-26.00m BLACK MED GRAINED SAND 26.00m-28.90m BLACK-GREY COARSE SAND AND GRAVEL 28.90m-35.60m YELLOW/BROWN CLAYEY SAND 35.60m-40.50m GREY/BROWN MED GRAINED SAND 40.50m-52.50m VERY LOOSE MED GRAINED GREY/WHITE SAND 52.50m-54.38m SOFT TO HARD GREY/BROWN WEATHERED ROCK	0.00m-54.38m INNER LINING - CASESCRN = Not Known			1990-07-29	1932	North West
81420	Observation	0.00m-1.50m SAND 1.50m-4.60m SANDY CLAY 4.60m-9.10m SAND 9.10m-10.70m DARK CLAY COAL 10.70m-13.70m SANDY CLAY 13.70m-14.30m BAND BLACK COAL 14.30m-18.30m SAND SOME COARSE GRAVEL 18.30m-25.30m GREEN SILTY CLAY 25.30m-27.40m COURSE GRAVEL CLAY 27.40m-29.60m SILTY SAND 29.60m-33.20m HARD BAND STONE 33.20m-44.80m FINE SILTY SANDS 44.80m-45.40m BAND HARD STONE 45.40m-47.20m GREEN DIRTY MARL SAND 47.20m-48.80m SILTY CLAY 48.80m-49.40m BAND OF HARD STONE 49.40m-50.00m GREEN CLAY 50.00m-50.60m STONE 50.60m-56.40m BROWN CLAY 56.40m-58.20m DECOM CLAY COAL 58.20m-60.96m MUDSTONE	0.00m-60.96m INNER LINING - CASING = Pvc	Date/time: 1975-10-22 0000 Quality: 47 WLMP: 6.33m DBNS: 6.30m RWL: 27.34mAHD		1973-01-31	1951	North
81817	Groundwater Investigation	0.00m-1.00m SAND BROWN GREY 1.00m-4.00m CLAYEY BROWN MEDIUM SAND 4.00m-6.00m CLAYEY MEDIUM GREY SAND 6.00m-6.75m COARSE GREY SAND 6.75m-10.50m FINE GREY SAND 10.50m-19.67m DARK BROWN & GREY FINE & COARSE SAND SOME BLACK	-0.30m-10.00m INNER LINING - CASING = Pvc 10.00m-19.67m INNER LINING - SCREEN = Pvc 10.00m-19.67m OUTER LINING - GRAVEL = Gravel			1991-09-04	1964	East
81661	Domestic					1970-12-31	1975	North
125273	Groundwater Investigation, State Observation Network	0.00m-0.50m DRY SAND 0.50m-2.00m CLAY 2.00m-5.50m SANDY CLAY 5.50m-8.00m SANDY SILT & GRAVEL 8.00m-11.00m GRAVEL & CLAY (WET) 11.00m-12.00m SANDY CLAY	0.00m-8.00m INNER LINING - CASING = Pvc 8.00m-11.00m INNER LINING - SCREEN = Pvc 11.00m-12.00m INNER LINING - CASING = Pvc 5.00m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-12.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 0939 Quality: 43 WLMP: 6.20m DBNS: 6.20m RWL: 19.91mAHD		1995-01-26	1987	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
125272	Groundwater Investigation, State Observation Network	0.00m-0.50m DRY SAND 0.50m-2.00m CLAY 2.00m-5.50m SANDY CLAY 5.50m-8.00m SAND SILT & CLAY 8.00m-11.00m GRAVEL & CLAY (WET) 11.00m-16.00m SANDY CLAY 16.00m-18.00m GREY SILT SANDY CLAY 18.00m-23.50m DIRTY SAND & GRAVEL (WET) 23.50m-40.00m GREY SILTY CLAY	0.00m-20.50m INNER LINING - CASING = Pvc 20.50m-22.50m INNER LINING - SCREEN = Pvc 22.50m-40.00m INNER LINING - CASING = Pvc 17.00m-0.00m OUTER LINING - GRAVEL = Seal	Date/time: 2016-02-23 0940 Quality: 43 WLMP: 7.35m DBNS: 7.35m RWL: 18.76mAHD		1995-01-26	1987	East
81783	Not Known	0.00m-6.40m NO RETURNS 6.40m-9.50m SILT SANDY 9.50m-14.00m SAND FINE/MEDIUM 14.00m-14.90m SAND FINE/COARSE 14.90m-22.40m SAND FINE/COARSE 22.40m-23.60m SAND COARSE MINOR GRAVEL 23.60m-33.90m SAND FINE/COARSE MIN GRAVEL 33.90m-44.50m SAND FINE/MED 44.50m-47.60m SILT CLAY CALCAREOUS BANDS	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-36.00m INNER LINING - SCREEN = Pvc 36.00m-47.60m INNER LINING - CASING = Pvc		3.00m-36.00m Sand	1990-02-09	1992	North

Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 2)

Boreholes (Earth Resources Database)

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

Bore Id	Bore Type	Company	Usage	Method	Status	Drill Date	Depth	Elevation	Accuracy (m)	Dist (m)	Direct
81737		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		02/12/1983	86.00		100	14	South
81716		Private Individual/Corporation	Domestic water supply	Hand Auger		12/06/1983	10.00		100	286	South East
81421		Department of Manufacturing & Industry Development	Groundwater Observation	Percussion (cable)		21/02/1973	51.82	21.70	100	313	North East
81437		Department of Manufacturing & Industry Development		Hand Auger	Abandoned	20/09/1985	4.00		100	313	North East
81438		Department of Manufacturing & Industry Development		Hand Auger	Abandoned	20/09/1985	2.90		100	313	North East
81750		Private Individual/Corporation	Domestic water supply	Hand Auger		04/06/1984	6.00		100	547	South East
81729		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		23/12/1982	49.38		100	686	South
81722		Private Individual/Corporation	Domestic water supply	Hand Auger		28/02/1983	9.00		100	709	South East
81755		Private Individual/Corporation	Domestic water supply	Hand Auger		01/06/1983	12.80		100	790	East
81717		Private Individual/Corporation	Domestic water supply	Hand Auger		13/08/1981	16.20		100	846	East
81419		Department of Manufacturing & Industry Development	Groundwater Observation	Percussion (cable)		27/11/1971	42.98	26.70	100	855	North
81763		Private Individual/Corporation	Domestic water supply	Percussion (cable)		12/11/1982	9.15		100	961	South East
81739		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		13/12/1983	19.51		100	1026	East
81754		Private Individual/Corporation		Percussion (cable)	Abandoned	10/05/1983	30.00		100	1088	North East
81767		Private Individual/Corporation	Domestic water supply	Percussion (cable)		01/09/1983	17.90		100	1128	South East
81761		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		31/12/1983	13.50		100	1162	South East
81733		Private Individual/Corporation		Percussion (cable)	Abandoned	20/02/1983	39.49		100	1209	North West
81725		Private Individual/Corporation		Percussion (cable)	Abandoned	28/04/1983	43.90		100	1362	North
81726		Private Individual/Corporation		Percussion (cable)	Abandoned	09/05/1983	23.80		100	1375	North
81721		Private Individual/Corporation	Stock/Poultry water supply	Percussion (cable)		05/01/1983	33.00		100	1395	North West

Bore Id	Bore Type	Company	Usage	Method	Status	Drill Date	Depth	Elevation	Accuracy (m)	Dist (m)	Direct
81736		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		10/08/1983	24.38		100	1429	South East
81732		Private Individual/Corporation	Domestic & Stock water supply	Rotary (diamond/drag bit)		12/11/1982	42.60		100	1473	East
81730		Private Individual/Corporation	Irrigation	Air Percussion/Air Rotary		22/02/1983	60.96		100	1619	North East
81753		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		01/04/1985	13.70		100	1687	North West
80524		Private Individual/Corporation		Percussion (cable)	Abandoned	29/09/1983	64.50		100	1845	North
81714		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		27/02/1983	42.67		100	1893	South East
81420		Department of Manufacturing & Industry Development	Groundwater Observation	Percussion (cable)		31/01/1973	60.96	33.67	100	1952	North

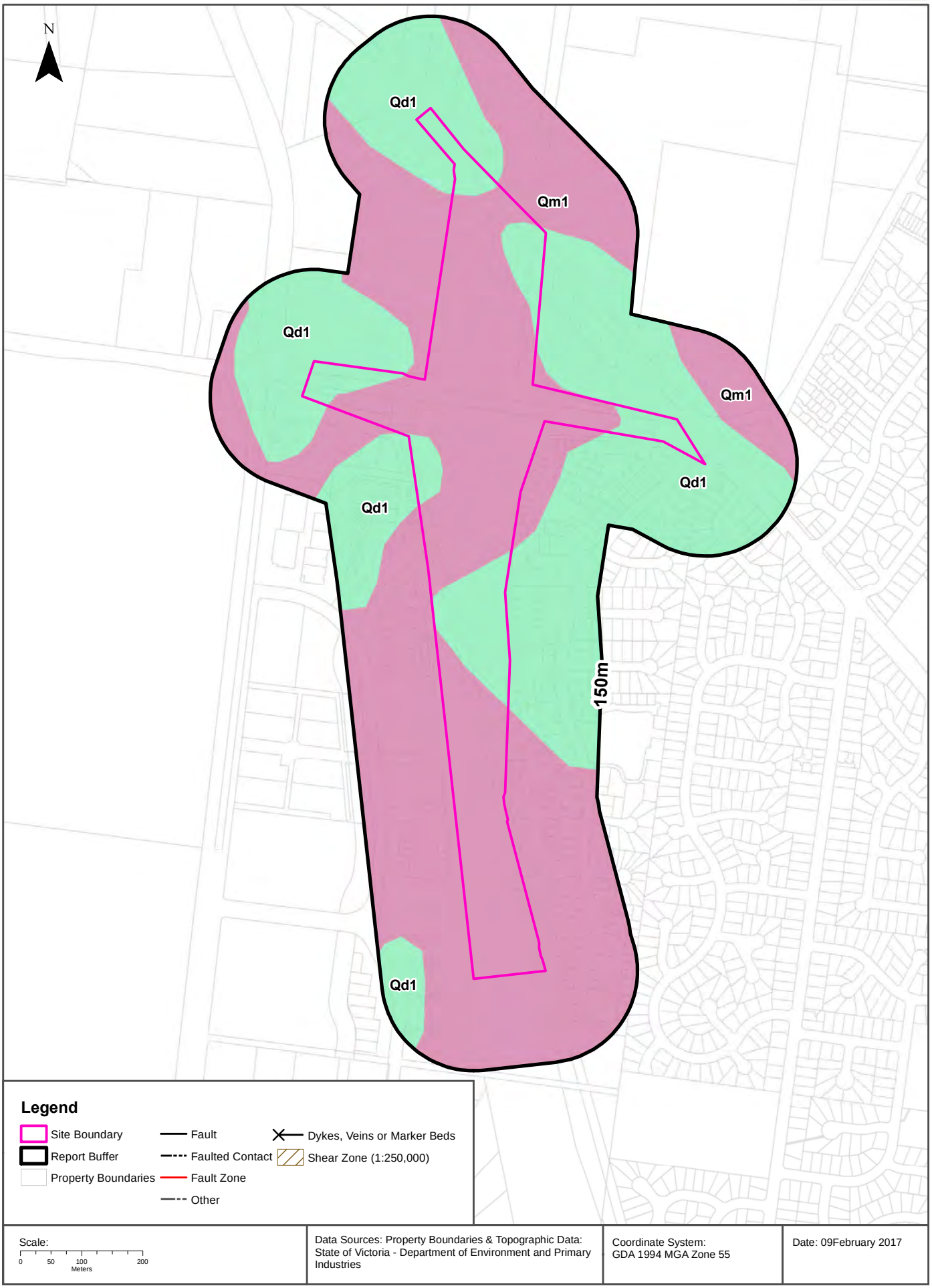
Boreholes (Federation University)

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

Bore Id	Authority	Type	Uses	Initial TD	Log	Dist (m)	Direct
N/A	No records within buffer						

Geology 1:50,000

OSAR Proposed Road Alignments - Site 26 (Section 2)



Geology

OSAR Proposed Road Alignments - Site 26 (Section 2)

Geological Units

What are the Geological Units onsite?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Qd1	inland dune deposits (Qd1): generic	Sand, silt, clay: friable to consolidated; well sorted; includes both lunette deposits and deposits of longitudinal dunes	Quaternary to Quaternary	sand (significant); silt material (significant); clay lithology (significant)	1:50,000
Qm1	swamp and lake deposits (Qm1): generic	Grey to black carbonaceous mud, silt, clay, minor peat: generally unconsolidated; rare dolomite	Pleistocene to Holocene	mud (major proportion); silt material (significant); clay lithology (significant); peat (minor proportion)	1:50,000

What are the Geological Units within the report buffer?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Qd1	inland dune deposits (Qd1): generic	Sand, silt, clay: friable to consolidated; well sorted; includes both lunette deposits and deposits of longitudinal dunes	Quaternary to Quaternary	sand (significant); silt material (significant); clay lithology (significant)	1:50,000
Qm1	swamp and lake deposits (Qm1): generic	Grey to black carbonaceous mud, silt, clay, minor peat: generally unconsolidated; rare dolomite	Pleistocene to Holocene	mud (major proportion); silt material (significant); clay lithology (significant); peat (minor proportion)	1:50,000

Geology

OSAR Proposed Road Alignments - Site 26 (Section 2)

Geological Structures

What are the Geological Faults or Faulted Contacts onsite?

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:50,000

What are the Dykes, Marker Beds and Veins onsite?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:50,000

What are the Shear Zones onsite (1:250,000 scale)?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

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

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:50,000

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

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:50,000

What are the Shear Zones within the report buffer (1:250,000 scale)?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

Coastal Acid Sulfate Soils

OSAR Proposed Road Alignments - Site 26 (Section 2)

Coastal Acid Sulfate Soils

What are the on-site Coastal Acid Sulfate Soil types?

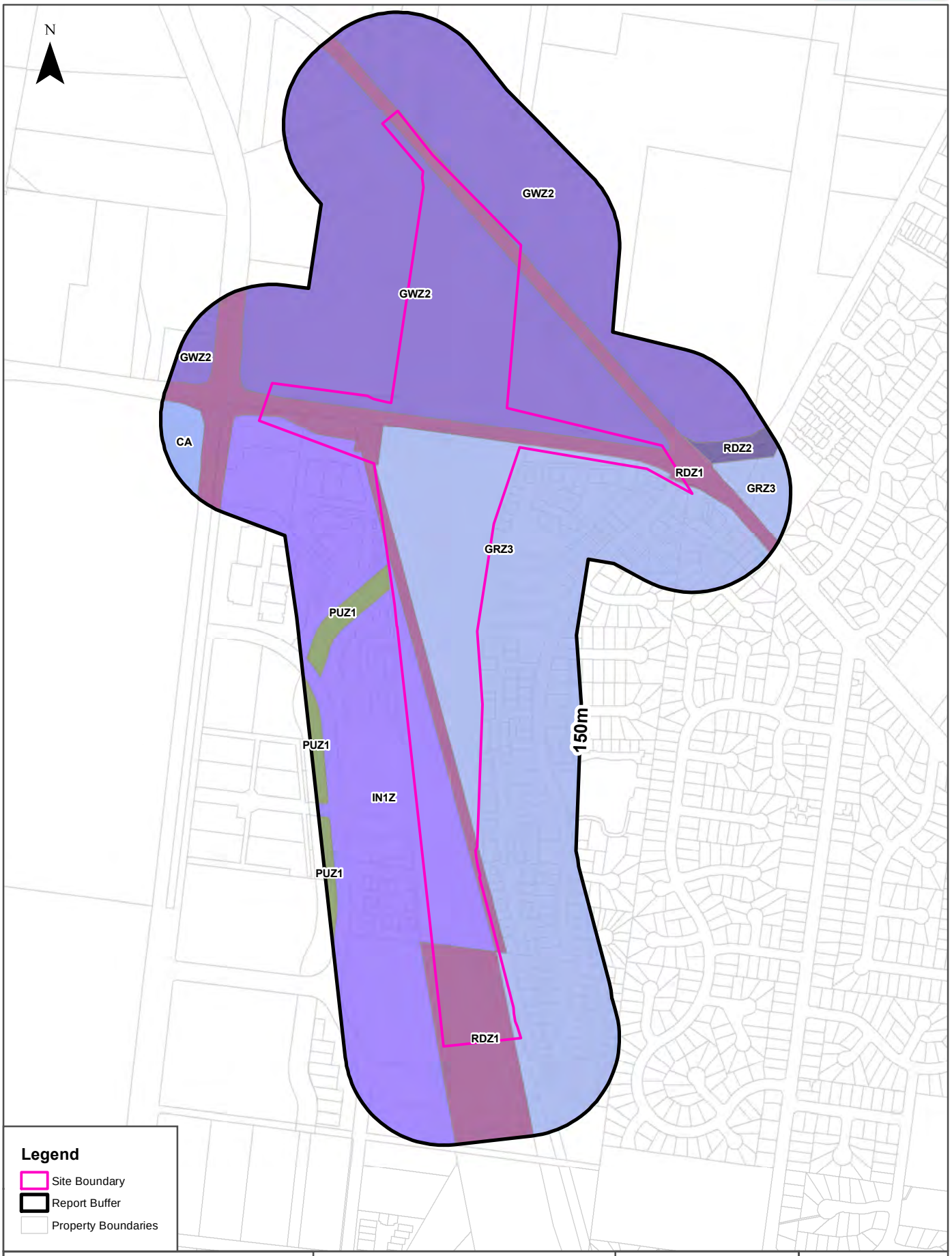
Coastal Acid Sulfate Soil Types
There are no Acid Sulfate areas onsite

What are the Coastal Acid Sulfate Soil types within the report buffer?

Coastal Acid Sulfate Soil Types	Distance	Direction
There are no Acid Sulfate areas within the report buffer		

Planning Zones

OSAR Proposed Road Alignments - Site 26 (Section 2)



Planning Zones

OSAR Proposed Road Alignments - Site 26 (Section 2)

Planning Zones

Planning zones within the report buffer:

Zone Code	Description	Distance	Direction
GRZ3	GENERAL RESIDENTIAL ZONE - SCHEDULE 3	0m	Onsite
GWZ2	GREEN WEDGE ZONE - SCHEDULE 2	0m	Onsite
RDZ1	ROAD ZONE - CATEGORY 1	0m	Onsite
IN1Z	INDUSTRIAL 1 ZONE	0m	Onsite
PUZ1	PUBLIC USE ZONE - SERVICE AND UTILITY	3m	South West
RDZ2	ROAD ZONE - CATEGORY 2	33m	North East
GRZ3	GENERAL RESIDENTIAL ZONE - SCHEDULE 3	46m	North East
CA	COMMONWEALTH LAND NOT CONTROLLED BY PLANNING SCHEME	84m	West
GWZ2	GREEN WEDGE ZONE - SCHEDULE 2	93m	North West
PUZ1	PUBLIC USE ZONE - SERVICE AND UTILITY	131m	South West
PUZ1	PUBLIC USE ZONE - SERVICE AND UTILITY	134m	South

Planning Overlays

OSAR Proposed Road Alignments - Site 26 (Section 2)

Planning Overlays

OSAR Proposed Road Alignments - Site 26 (Section 2)

Planning Overlays

Planning overlays within the report buffer:

Zone Code	Description	Distance	Direction
PAO1	PUBLIC ACQUISITION OVERLAY 1	0m	Onsite
SBO	SPECIAL BUILDING OVERLAY	0m	Onsite
DDO5	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 5	0m	Onsite
HO3	HERITAGE OVERLAY (HO3)	0m	Onsite
DDO4	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 4	42m	South West
SBO	SPECIAL BUILDING OVERLAY	50m	East
AEO1	AIRPORT ENVIRONS OVERLAY (AEO1)	67m	West
LSIO	LAND SUBJECT TO INUNDATION OVERLAY	69m	North West
SBO	SPECIAL BUILDING OVERLAY	133m	South West

Cultural Heritage Sensitivity

OSAR Proposed Road Alignments - Site 26 (Section 2)

Cultural Heritage Sensitivity

Areas of Cultural Heritage Sensitivity as specified in Division 3 of Part 2 in the Aboriginal Heritage Regulations 2007, within the report buffer:

Map Id	Culturally Sensitive	Distance	Direction
N/A	No records in buffer		

Natural Hazards

OSAR Proposed Road Alignments - Site 26 (Section 2)

Bushfire Prone Areas

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

Map ID	Feature	Plan No	LGA	Gazetted Date	Distance	Direction
N/A	No records within buffer					

Fire History

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

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

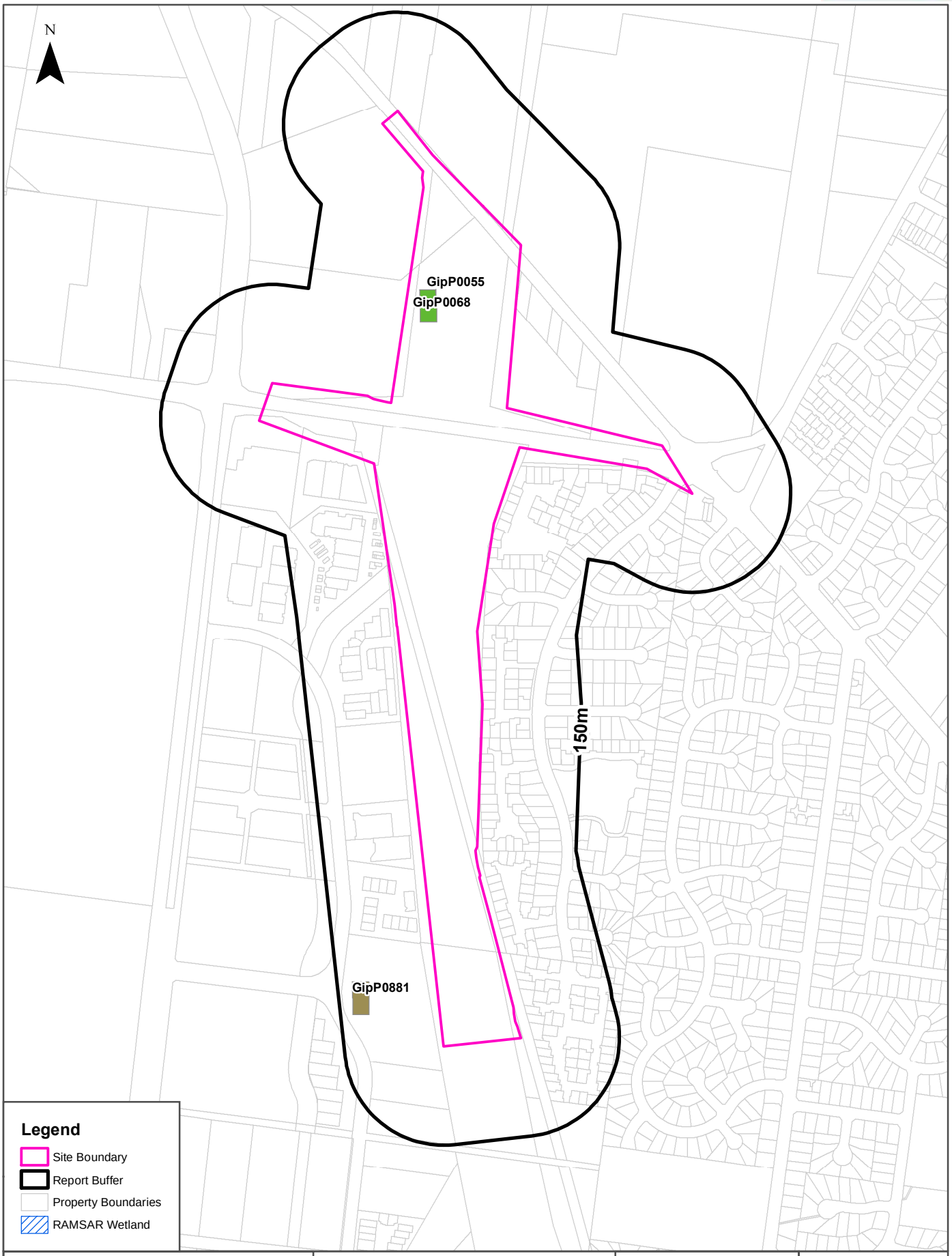
Flood - 1 in 100 year modelled flood extent

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

Feature	Source	Method	Scale	Modified Date	Distance	Direction
N/A	No records within buffer					

Ecological Constraints - Native Vegetation 2005 & RAMSAR Wetlands

OSAR Proposed Road Alignments - Site 26 (Section 2)



Ecological Constraints

OSAR Proposed Road Alignments - Site 26 (Section 2)

Native Vegetation (Modelled 2005 Ecological Vegetation Classes)

What native vegetation exists within the report buffer?

Veg Code	EVC Name	EVCCode	Group	Subgroup	Bioregion	Conservation Status	Geographic Occurance	Distance
GipP0055	Plains Grassy Woodland	0055	Plains Woodlands or Forests	Freely-draining	Gippsland Plain	Endangered	Common	0m
GipP0068	Creekline Grassy Woodland	0068	Riverine Grassy Woodlands or Forests	Creekline and/or swampy	Gippsland Plain	Endangered	Minor	0m
GipP0881	Damp Sands Herb-rich Woodland/Heathy Woodland Mosaic	0881	Herb-rich Woodlands	Damp Sands	Gippsland Plain	Vulnerable	not applicable	102m

RAMSAR Wetlands

What RAMSAR wetland areas exist within the report buffer?

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

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Environmental Risk and Planning Report

Proposed Road Alignments - Mordialloc Bypass (Section 3)

Report Buffer: 150m

Report Date: 09 Feb 2017 10:20:11

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Location Confidences

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

LC Code	Location Confidence
1	Georeferenced to the site location / premise or part of site
2	Georeferenced with the confidence of the general/approximate area
3	Georeferenced to the road or rail
4	Georeferenced to the road intersection
5	Feature is a buffered point
6	Land adjacent to Georeferenced Site
7	Georeferenced to a network of features

Dataset Listing

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

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Topographic and Cadastre data	State Government Victoria - Department of Environment, Land, Water & Planning	06/02/2017	06/02/2017	Quarterly	-	-	-
Current Priority Sites	Environment Protection Authority (Vic)	06/02/2017	31/12/2016	Monthly	0	0	0
Former Priority Sites & other Pollution Notices	Environment Protection Authority (Vic)	06/02/2017	05/01/2017	Monthly	0	0	0
EPA Environmental Audit Reports	Environment Protection Authority (Vic)	06/02/2017	24/11/2016	Monthly	0	0	0
Groundwater Zones with Restricted Uses	Environment Protection Authority (Vic)	06/02/2017	27/01/2017	Monthly	0	0	0
Licensed Activities	Environment Protection Authority (Vic)	06/02/2017	29/01/2017	Monthly	0	0	0
Former Licensed Activities	Environment Protection Authority (Vic)	06/02/2017	29/01/2017	Monthly	0	0	0
Works Approvals	Environment Protection Authority (Vic)	06/02/2017	06/02/2017	Monthly	0	0	0
National Waste Management Site Database	Geoscience Australia	06/02/2017	15/11/2012	Quarterly	0	0	0
Statewide Waste and Resource Recovery Infrastructure Plan Facilities	State Government Victoria - Department of Sustainability	27/11/2014	31/12/2012	None planned	0	0	0
EPA Prescribed Industrial Waste	Environment Protection Authority (Vic)	04/01/2017	04/01/2017	Quarterly	0	0	0
UBD Business to Business Directory 1991	Hardie Grant			Not required	0	47	60
UBD Business to Business Directory 1991 - Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1980	Hardie Grant			Not required	14	21	21
UBD Business Directory 1980 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1960 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1950	Hardie Grant			Not required	0	0	0
UBD Business Directory 1950 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
Features of Interest	State Government Victoria - Department of Environment, Land, Water & Planning	03/02/2017	27/01/2017	Quarterly	2	9	11
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1	1	1
Groundwater Salinity	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	2	-	-
Depth to Watertable	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	1	-	-
Surface Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	1	-	-
Basement Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	1	-	-
Groundwater Boreholes WMIS	State Government Victoria - Department of Environment, Land, Water & Planning	29/04/2016	28/04/2016	Annually	0	4	122
Groundwater Boreholes Earth Resources Database	The State of Victoria, Department of Economic Development, Jobs, Transport and Resources	29/04/2016	17/02/2010	As required	1	2	20
Groundwater Boreholes Fed Uni	Federation University Australia	29/04/2016	07/01/2014	As required	0	0	0
Geological Units 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1	-	2
Geological Structures 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	-	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Dykes and Marker Beds 50k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	0	0
Shear zones 250k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	-	0
Coastal Acid Sulfate Soils	The State of Victoria, Department of Economic Development, Jobs, Transport and Resources	15/07/2016	30/03/2011	None planned	0	0	0
Planning Scheme Zones	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	4	6	6
Planning Scheme Overlay	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	5	7	8
Cultural Heritage Sensitivity	State Government Victoria - Department of Planning and Community Development	03/02/2017	27/01/2017	Quarterly	0	0	0
Bushfire Prone Area	State Government Victoria - Department of Transport, Planning and Local Infrastructure	27/01/2017	27/01/2017	Quarterly	1	1	1
Fire History	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	0	0	0
Flood - 1 in 100 Year Modelled Flood Extent	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	0	0	0
Native Vegetation (Modelled 2005 Ecological Vegetation Classes)	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	31/12/2005	None planned	2	2	3
RAMSAR Wetlands	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	24/06/2013	None planned	0	0	0

Aerial Imagery 2016

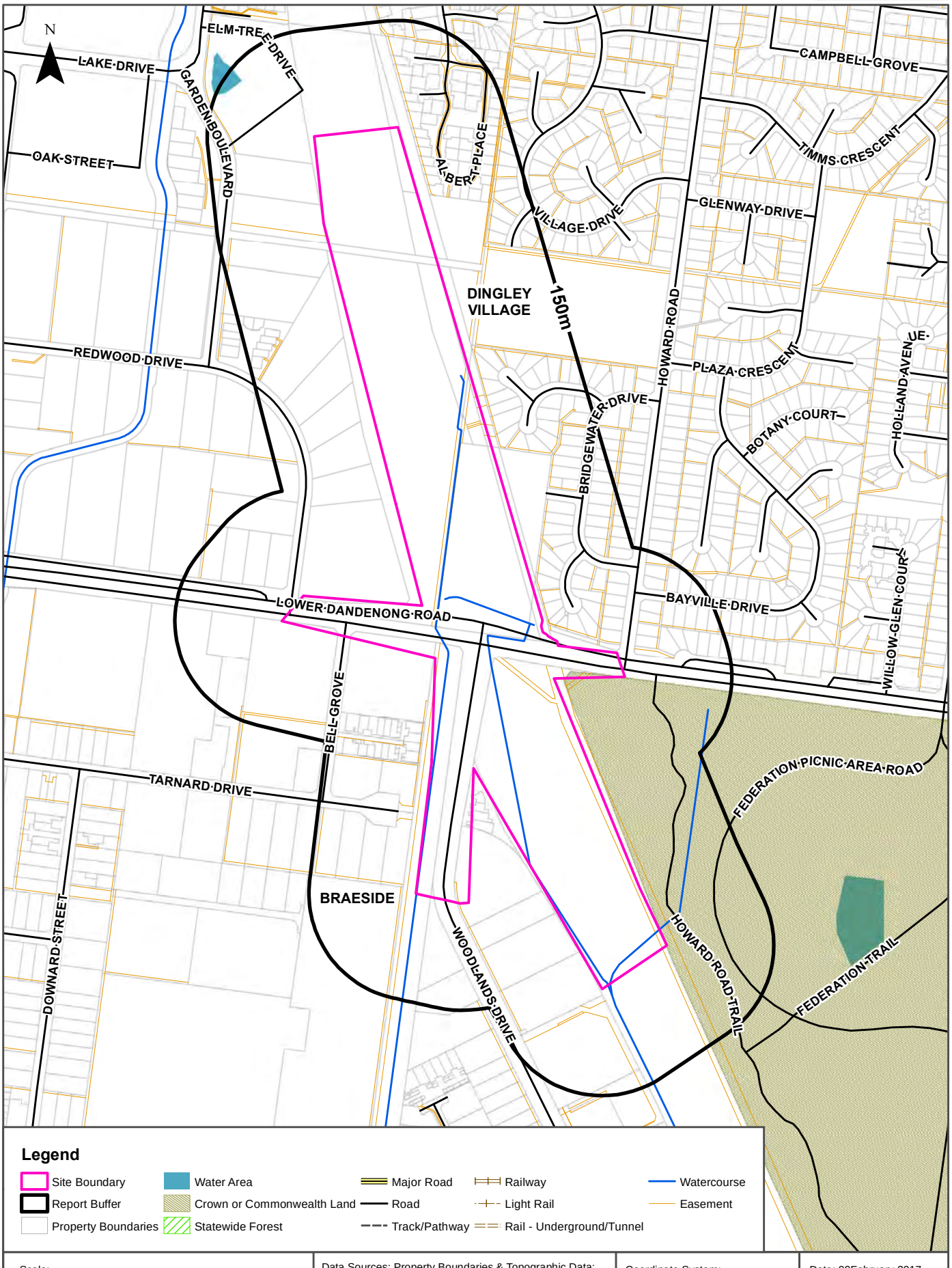
OSAR Proposed Road Alignments - Site 26 (Section 3)

Scale:	Data Sources: Aerial Imagery © 2016 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 55	Date: 08February, 2017

0 75 150 300
Meters

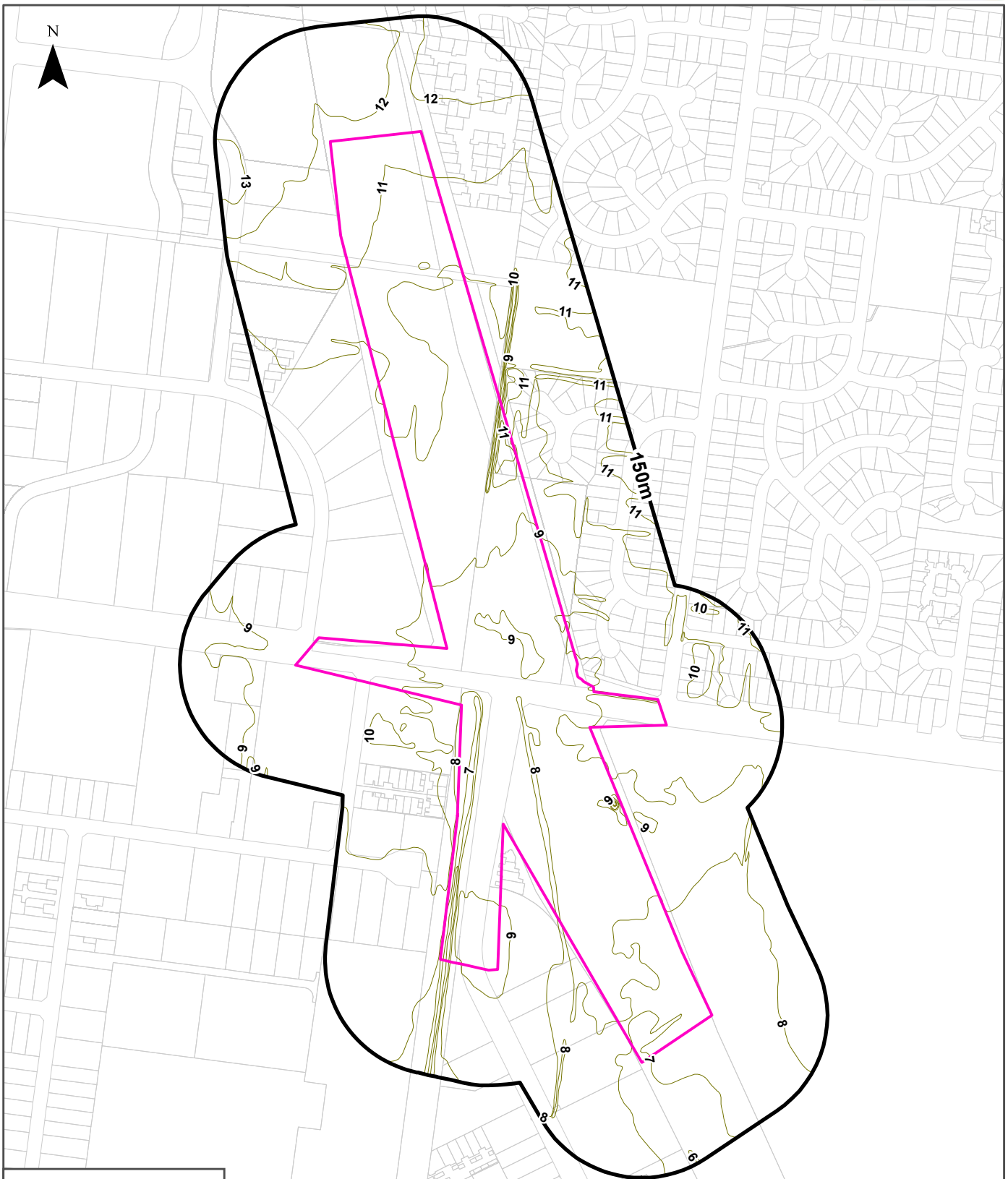
Topographic Data

OSAR Proposed Road Alignments - Site 26 (Section 3)



Elevation Contours (m AHD)

OSAR Proposed Road Alignments - Site 26 (Section 3)



EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 3)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

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

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

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

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

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

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 3)

EPA Environmental Audits

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

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

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

EPA Groundwater Zones with Restricted Uses

What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

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

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

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 3)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

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

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

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

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

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

EPA Works Approvals

What EPA works approvals exist within the report buffer?

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

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

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 3)

National Waste Management Site Database

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

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

Waste Management Facilities Data Source: Australian Government Geoscience Australia

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

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

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

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

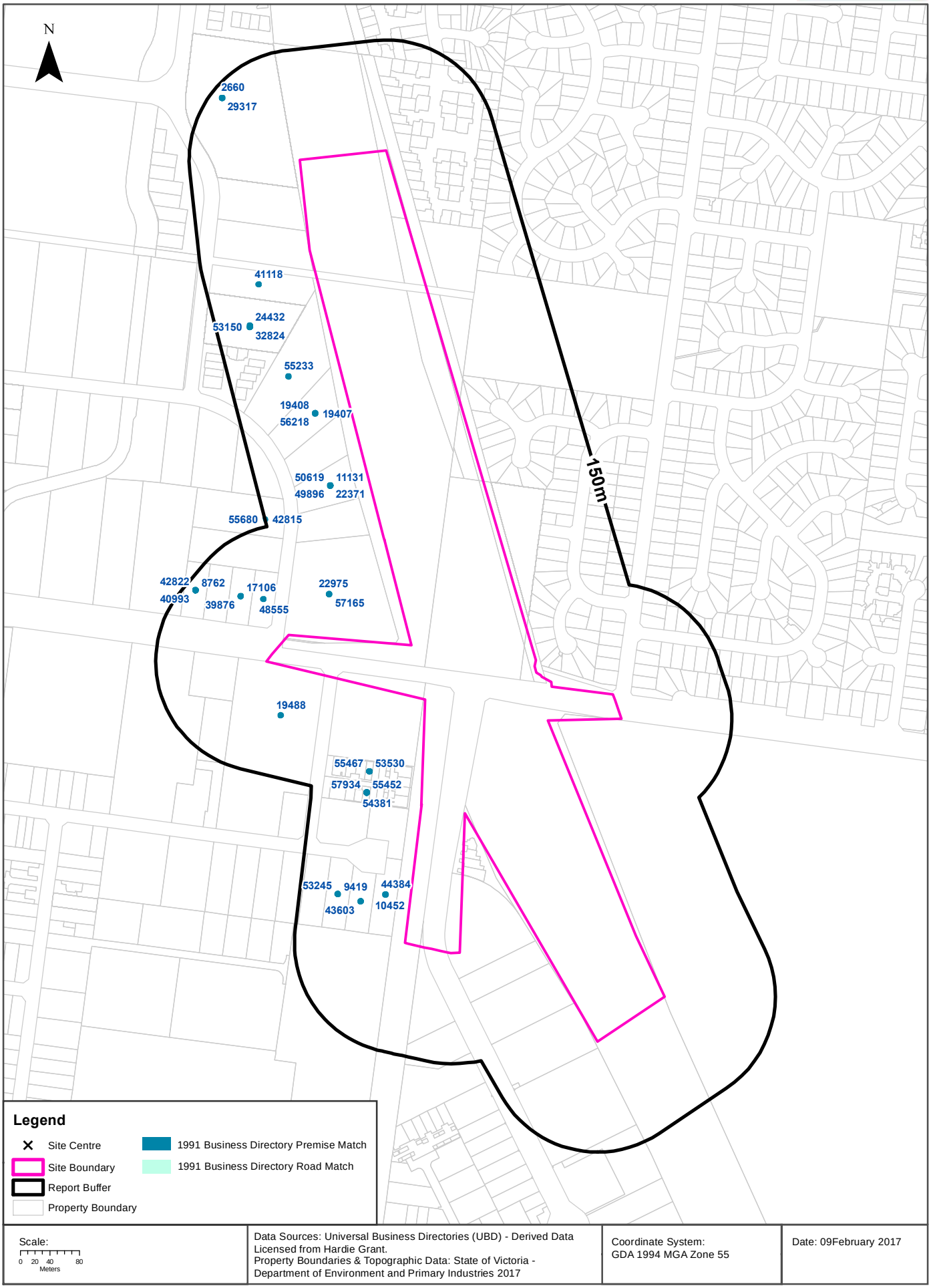
EPA Prescribed industrial waste sites within the report buffer:

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

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Historical Business to Business Directory Activity 1991

OSAR Proposed Road Alignments - Site 26 (Section 3)



Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 3)

1991 Business to Business Directory Records

1991 UBD Business Directory Records within 150m of the site:

Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
Tank &/or Tankstand Mfrs. &/or Dists	Proscon Plastics PTY LTD	62 Tarnard Dr., Braeside. 3195	44384	Premise Match	32m	South
Mouldings Mfrs. &for Dists.	Proscon Plastics Pty. Ltd.,	62 Tarnard Dr., Braeside. 3195	10452	Premise Match	32m	South
Tank &/or Tankstand Mfrs. &/or Dists	Proscon Plastics Pty. Ltd.,	62 Tarnard Dr., Braeside. 3195	10451	Premise Match	32m	South
Tube Benders	Bundy Tubing Company (Australia) Pty Ltd	51 Redwood Dr Dingley 3172	19407	Premise Match	46m	North West
Tube-Metal-Mfrs &/or Dists	Bundy Tubing Company (Australia) Pty Ltd	51 Redwood Dr Dingley 3172	8933	Premise Match	46m	North West
Tube-Steel-Mfrs &or Dists	Bundy Tubing Company (Australia) Pty Ltd	51 Redwood Dr Dingley 3172	56218	Premise Match	46m	North West
Steel Fabricators	Bundy Tubing Company (Australia) PTY LTD,	51 Redwood Dr. Dingley 3172	19408	Premise Match	46m	North West
Ventilating Equipment &/or Systems Mfrs &/or Dists	Oates Airconditioning Equipment Pty Ltd	65 Redwood Dr Dingley 3172	11131	Premise Match	51m	North West
Air Conditioning Equipment & Parts Mfrs. &/or Imps &/or Dists	Oates Airconditioning Equipment Pty Ltd	65 Redwood Dr., Dnigley 3172	50619	Premise Match	51m	North West
Manhole Covers &/or Gratings	Oates Airconditioning Equipment Pty Ltd	65 Redwood Dr Dingley 3172	22371	Premise Match	51m	North West
Heating Equipment &/or System Mfrs &/or Dists &/or Installers	Qates airconditioning Equipment Pty Ltd	65 Redwood Dr Dingley 3172	49896	Premise Match	51m	North West
Motor Electrical Equipment Mfrs &/or Dists	Hella Australia Pty Limited	95 Redwood Dr Dingley 3172	57165	Premise Match	58m	West
Motor Accessories Mfrs &/or Imps &/or W/salers	Hella -Australia Pty Limited	95 Redwood Dr Dingley 3172	22975	Premise Match	58m	West
Bottle Caps Seals &/or Corks Mfrs &/or Imps &/or Dists	Mauri closures pty.ltd	407 lower dandenomng rd,dingley 3172	48555	Premise Match	58m	West
Packaging Materials Mfrs. &/or Dists.	A.B M. Plastics (Australia) Pty. Ltd.,	60 Tarnard Dr., Braeside. 3195	339	Premise Match	65m	South
Plastic Bag Mfrs. &/or Dists	A.B.M. Plastics (Australia) Pty. Ltd.,	60 Tarnard Dr, Braeside. 3195	43603	Premise Match	65m	South
Hardware Mfrs &/or Dists &/or W/salers	Danks John & Sons Pty Ltd	414 Lower Dandenong Rd Braeside 3195	19488	Premise Match	65m	South West
Plastic Moulders	B.T.R. Nylex Rotomould,	43 Redwood Dr., Dingley. 3172	55233	Premise Match	69m	North West
Electroplaters	Electromech Plating Works Pty Ltd	Factory 5/9 Bell Gr Braeside 3195	25771	Premise Match	70m	South West
Furniture Removalist & / or Storage	T.C. Printing Pty. Ltd.,	4/9 Bell Gr., Braeside. 3195	340	Premise Match	70m	South West
Builders &/or Building Contractors	Wakker jan constructions pty ltd	factory 8/9 bell gr braeside 3195	53530	Premise Match	70m	South West
Ceiling Systems &/or Ceilings - Domestic &/or Industrial - Mfrs &/or Contractors	Wakker Jan constructions pty ltd	Factory 8/9 Bell Gr Braeside 3195	55467	Premise Match	70m	South West
Computer Flooring	Wakker, Jan constructions pty. Ltd.,	factory 8/9 Bell Gr., Braeside 3195	49484	Premise Match	70m	South West
Partition Mfrs. &/or Dists.	Weldor. Jan Constructions Pty. Ltd.,	Factory 8/9 Bell Gr., BraesIds. 3195	23890	Premise Match	70m	South West
Engineers - Precision	A T I M Engineering Pty Ltd	Factory 2/11 Bell Gr Braeside 3195	51551	Premise Match	73m	South West
Engineers - Printing	A T I M Engineering Pty Ltd	Factory 2/11 Bell Gr Braeside 3195	46844	Premise Match	73m	South West
Engineers - Machining To The Trade	A T I M Engineering Pty Ltd	Factory 2/11 Bell Gr Braeside 3195	49530	Premise Match	73m	South West

Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
Machine Tool Reconditioners	A T I M Engineering Pty Ltd	Factory 2/11 Bell Gr Braeside 3195	22875	Premise Match	73m	South West
Engineers - Jobbing	A.T I M Engineering Pty Ltd	Factory 2/11 Bell Gr Braeside 3195	22748	Premise Match	73m	South West
Engineers - General	A.T.M. Engineering Pty Ltd	Factory 2/11 Bell Gr Braeside 3195	51552	Premise Match	73m	South West
Go-Kart Mfrs &/or Dists	Baron Engine Developments	Factory 7/11 Bell Gr Braeside 3195	24085	Premise Match	73m	South West
Engineers - Manufacturing	Engineering Pty Ltd	Factory 2/11 Bell Gr Braeside 3195	23327	Premise Match	73m	South West
Die & Press Tool Makers	foiur star tooling pty ltd	8/11 bell gr braeside 3195	57934	Premise Match	73m	South West
Toolmakers	Four Star Tooling Pty Ltd	Factory 8/11 Bell Gr Braeside 3195	13131	Premise Match	73m	South West
Plastic Mfrs. &/or Moulders Machiner7 Mfrs. &/or Dists.	Four Star Tooling Pty. Ltd.,	Factory 8/11 Bell Gr., Braeside. 3195	24734	Premise Match	73m	South West
Boat Launch &/or Yacht Builders &/or Designers &/or Repairers	smallcraft design service pty ltd	3/11 bell gr braeside 3195	14078	Premise Match	73m	South West
Blind Mfrs &/or Specialists	smallcraft design service pty.ltd	3/11 bell gr braeside 3195	14079	Premise Match	73m	South West
Blind Mfrs &/or Specialists	South East Yacht Services	Factory 3/11 Bell Gr, Braeside 3195	50922	Premise Match	73m	South West
Boat Launch &/or Yacht Accessories Mfrs &/or Dists	south east yacht services factory	3/11 bell gr braeside 3195	50923	Premise Match	73m	South West
Boat Launch &/or Yacht Builders &/or Designers &/or Repairers	south east yacht services factory	3/11 bell gr braeside 3195	55452	Premise Match	73m	South West
Motor Cycle Accessories &/or Spare Parts Mfrs &/or Imps &/or Dists	V Twin	Factory 5/11 Bell Gr Braeside 3195	53401	Premise Match	73m	South West
Motor Engine Reconditioners	V- Twin	Factory 5/11 Bell Gr. Braeside. 3195	54381	Premise Match	73m	South West
Concrete - Pre-cast	Hicrete Precast Pty.Ltd..,	4 Garden Blvde.,Dingley 3172	41118	Premise Match	77m	North West
Plastic Bottle &/or Container Mfrs. &/or Dists.	Blow Moulded Plastics,	403 lower Dandenong Rd., Oingley. 3172	17106	Premise Match	82m	West
Plastic Moulders	Blow Moulded Plastics,	403 Lower Dandenong Rd., Oingley. 3172	39876	Premise Match	82m	West
Carport &/or Awning Mfrs &/or Erectors	clifton garages pty ltd	58 tarnard dr braeside 3195	9419	Premise Match	97m	South West
Garage Mfrs &/or Dists &/or Installers	Clitton Garages Pty Ltd	58 Tarnard Dr Braeside 3195	53245	Premise Match	97m	South West
Public Address System Mfrs. &/or Suppliers &/or Installers	COMSOUND AUSTRALIA	Factory 19, 2 Garden Boulevarde South, Dingley 3172	24432	Premise Match	102m	North West
Electrical Contractors	Braeside Electrical Contracting Services Pty Ltd	Factory 19/2 Garden Blvde Dingley 3172	52437	Premise Match	103m	North West
Electrical Contractors	Byrne, R. P. Pty Ltd	Factory 19/2 Garden Blvde Dingley 3172	53150	Premise Match	103m	North West
Die & Press Tool Makers	wacner enterprise pty ltd	factory 22/2 garden bldve,dingley 3172	32824	Premise Match	103m	North West
Pump & Pumping Equipment Mfrs &/or Dists	Warman International Ltd	Unit 1 Business Centre 14 Garden Blvd Dingley 3172	29317	Premise Match	133m	North West
Mining Machinery &/or Equipment Mfrs &/or Imps &/or Dists	Warman International Lts	Unit 1 Business Centre 14 Garden Blvd Dingley 3172	2660	Premise Match	133m	North West
Builders Supplies	white timber & trading	395 lower dandenong rd dingley 3172	8762	Premise Match	134m	West
Builders Hardware Mfrs &/or Imps &/or Dists	whites timber & trading	395 lower dandenong rd dingley 3172	40993	Premise Match	134m	West
Timber Agents & Brokers	Whites Timber & Trading	395 L9wer Dandenong Rd., Dingley. 3172	42821	Premise Match	134m	West
Timber Exporters &/or Importers.	Whites Timber & Trading	395 Lower Dandenong Rd., Dingley. 3172	41110	Premise Match	134m	West
Timber Merchants &/or Sawmillers	Whites Timber & Trading	395 Lower Dandenong Rd., DIngley. 3172	42822	Premise Match	134m	West
Shop &/or Office Fitters	Herschell-Stent Pty Ltd	42 Redwood Dr Dingley 3172	42815	Premise Match	148m	North West
Shop &/or Office Fittings Mfrs &/or Dists	Herschell-Stent Pty Ltd	42 Redwood Dr Dingley 3172	55680	Premise Match	148m	North West

Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 3)

1991 Business to Business Directory Garages & Service Stations

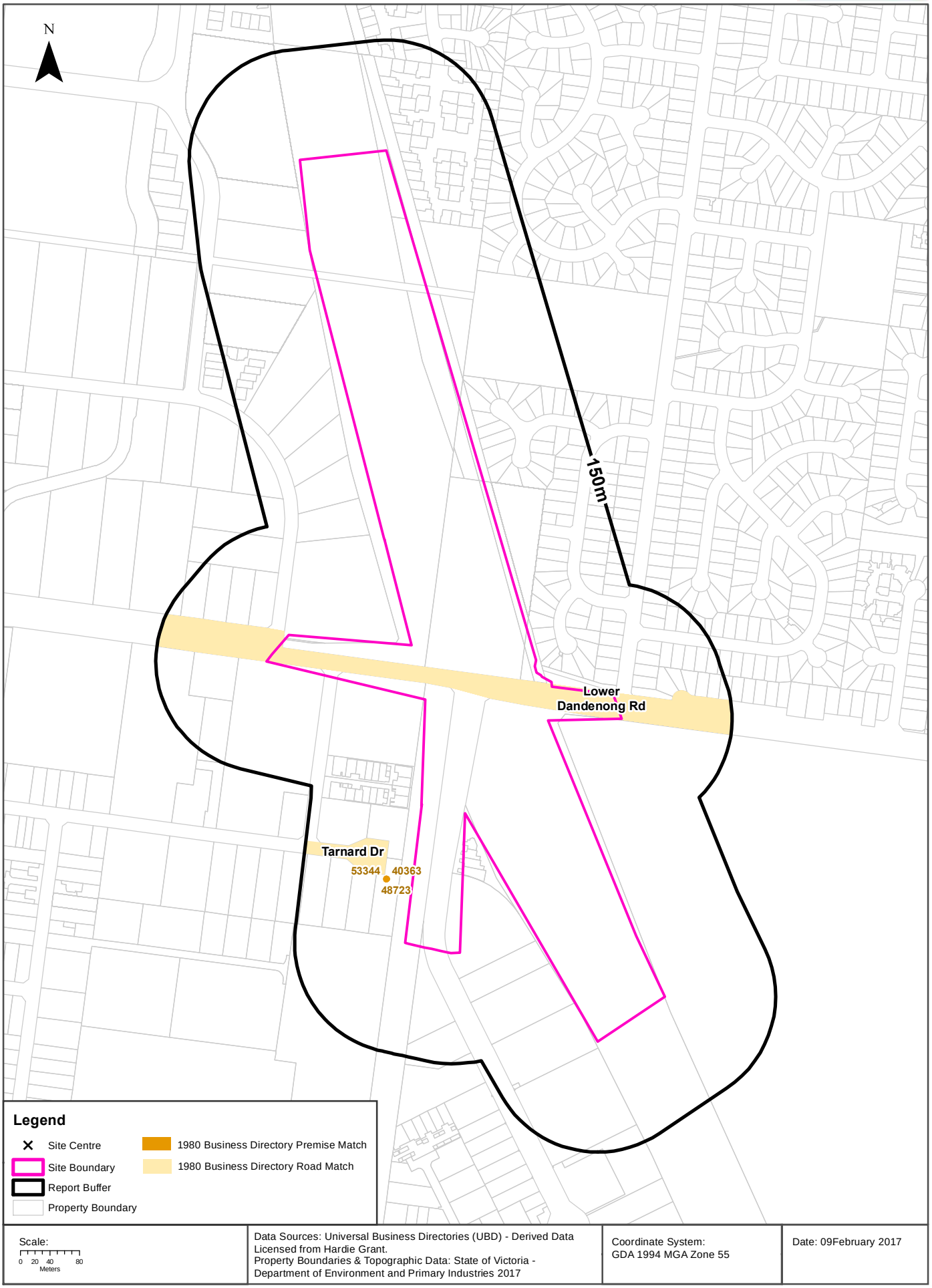
1991 UBD Business Directory Garages & Service Stations within 1km of the site:

Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer					

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directory Activity 1980

OSAR Proposed Road Alignments - Site 26 (Section 3)



Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 3)

1980 Business Directory Records

1980 UBD Business Directory Records within 150m of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
HARDWARE - WHOLESALE. ZENITH HARDWARE	Danks, John & Son Pty. Ltd., Lower Dandenong Rd., Braeside.	31769	Road Match	0m	-
MATTRESS &/OR BEDDING MFRS. &/OR DISTS.	Dunlopillo Pty. Ltd., Lower Dandenong Rd., Braeside.	36127	Road Match	0m	-
MOTOR CAR & TRUCK IMPS. &/OR DISTS.	Datsun (Distribution) Pty. Ltd., Lower Dandenong Rd., Braeside.	38587	Road Match	0m	-
MOTOR CAR &/OR TRUCK MFRS. &/OR IMPS. &/OR DISTS.	Datsun (Distribution) Pty. Ltd., Lower Dandenong Rd., Braeside.	38645	Road Match	0m	-
MOTOR CAR &/OR TRUCK MFRS. &/OR IMPS. &/OR DISTS.	Nissan Motor Co. (Aust.) Pty. Ltd., Lower Dandenong Rd., Braeside.	38646	Road Match	0m	-
BRASS SHEETS, RODS, WIRE MFRS. &/OR DISTS.	Danks, John & Son Pty Ltd , Lower Dandenong Rd., Braeside	8238	Road Match	0m	-
FURNITURE MFRS. &/OR W/SALERS.	Dunlopillo Pty. Ltd., Lower Dandenong Rd Braeside.	27161	Road Match	0m	-
RUBBER - LATEX FOAM PRODUCTS MANUFACTURERS.	Dunlopillo Pty. Ltd., Lower Dandenong Rd., Braeside.	14314	Road Match	0m	-
RUBBER GOODS MFRS. INDUSTRIAL.	Dunlopillo Pty. Ltd., Lower Dandenong Rd., Braeside.	48742	Road Match	0m	-
RUBBER SEATING MFRS.	Dunlopillo Pty. Ltd., Lower Dandenong Rd., Braeside.	48782	Road Match	0m	-
RUBBER SPONGE MANUFACTURERS.	Dunlopillo Pty. Ltd., Lower Dandenong Rd., Braeside.	48785	Road Match	0m	-
SHEET METAL WORKERS.	Danks, John & Son Pty. Ltd., Lower Dandenong Rd., Braeside.	49685	Road Match	0m	-
PUMP MFRS. & SPECIALISTS.	Danks, John & Son Pty. Ltd., Lower Dandenong Rd., Braeside.	46885	Road Match	0m	-
TOOL STOCKISTS.	Danks, John & Son Pty. Ltd., Lower Dandenong Rd., Braeside.	54506	Road Match	0m	-
PLASTIC - GRINDING.	Plasti-Grind Pty. Ltd., 62 Tarnard Dr., Braeside.	44936	Premise Match	33m	South
PLASTIC - GRINDING.	Plasti-Grind Pty. Ltd. 62 Tarnard Drive, Braeside.	44935	Premise Match	33m	South
TANKS - CHEMICAL.	Roto Plastics Pty. Ltd., 62 Tarnard Dr., Braeside.	53344	Premise Match	33m	South
PLASTIC MOULDERS.	Roto Plastics Pty. Ltd., 62 Tarnard Dr., Braeside.	45181	Premise Match	33m	South
MOULDINGS.	Roto Plastics Pty. Ltd., 62 Tarnard Dr., Braeside.	40363	Premise Match	33m	South
ROTATIONAL MOULDING	Roto Plastics Pty. Ltd. 62 Tarnard Drive, Braeside	48723	Premise Match	33m	South
FURNITURE MFRS. &/OR W/SALERS.	Grimes. John, Furniture Pty. Ltd., Tarnard Drive Braeside.	27183	Road Match	39m	South West

1980 Business Directory Drycleaners, Garages & Service Stations

Drycleaners, Garages & Service Stations from the 1980 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 3)

1960 Business Directory Drycleaners, Garages & Service Stations

Drycleaners, Garages & Service Stations from the 1960 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Business Directory Records

1950 UBD Business Directory Records within 150m of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Business Directory Drycleaners, Garages & Service Stations

Drycleaners, Garages & Service Stations from the 1950 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Aerial Imagery 2009

OSAR Proposed Road Alignments - Site 26 (Section 3)

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Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February, 2017

Aerial Imagery 2005

OSAR Proposed Road Alignments - Site 26 (Section 3)

Scale:
0 75 150 300
Meters

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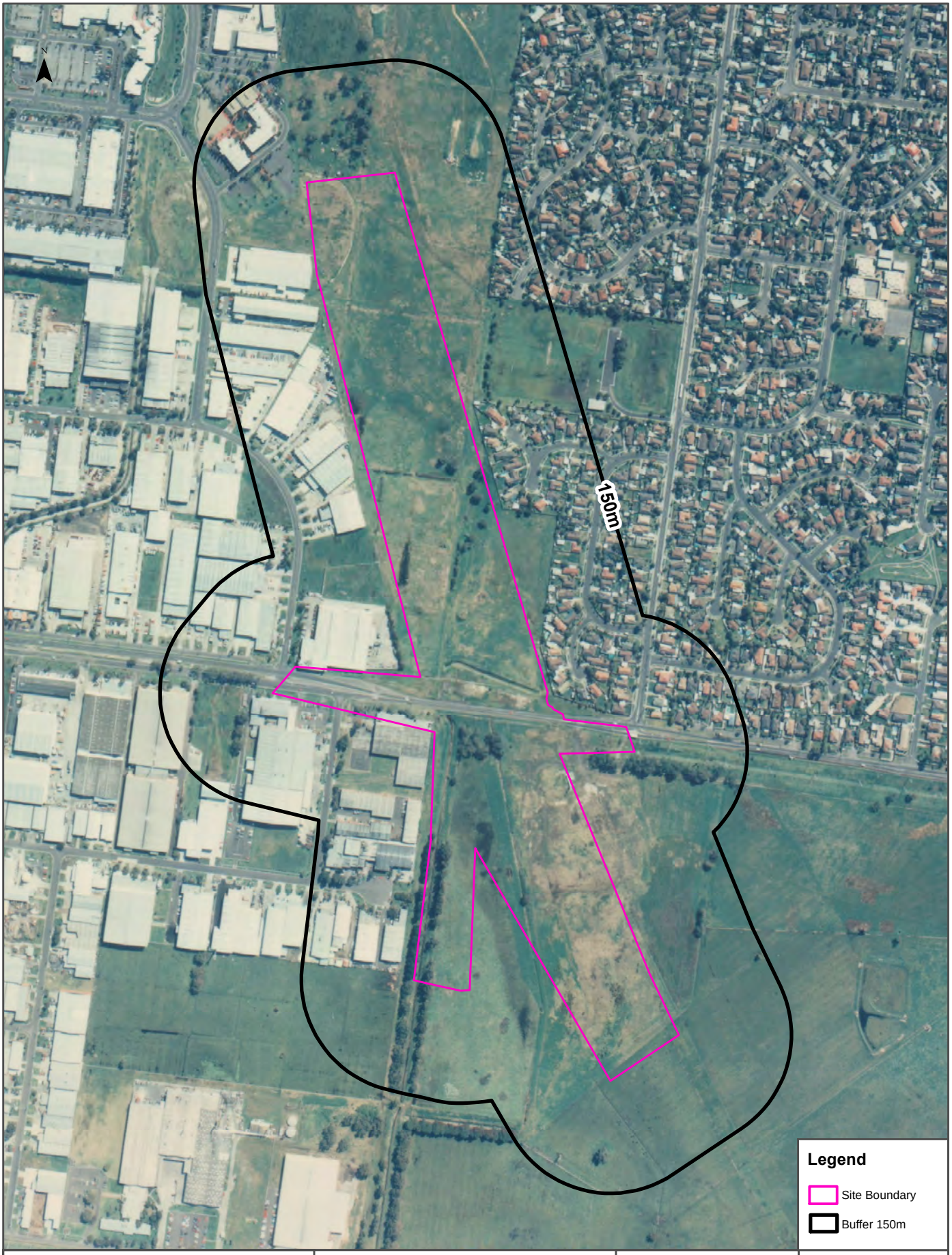
Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February, 2017

Aerial Imagery 1991

OSAR Proposed Road Alignments - Site 26 (Section 3)



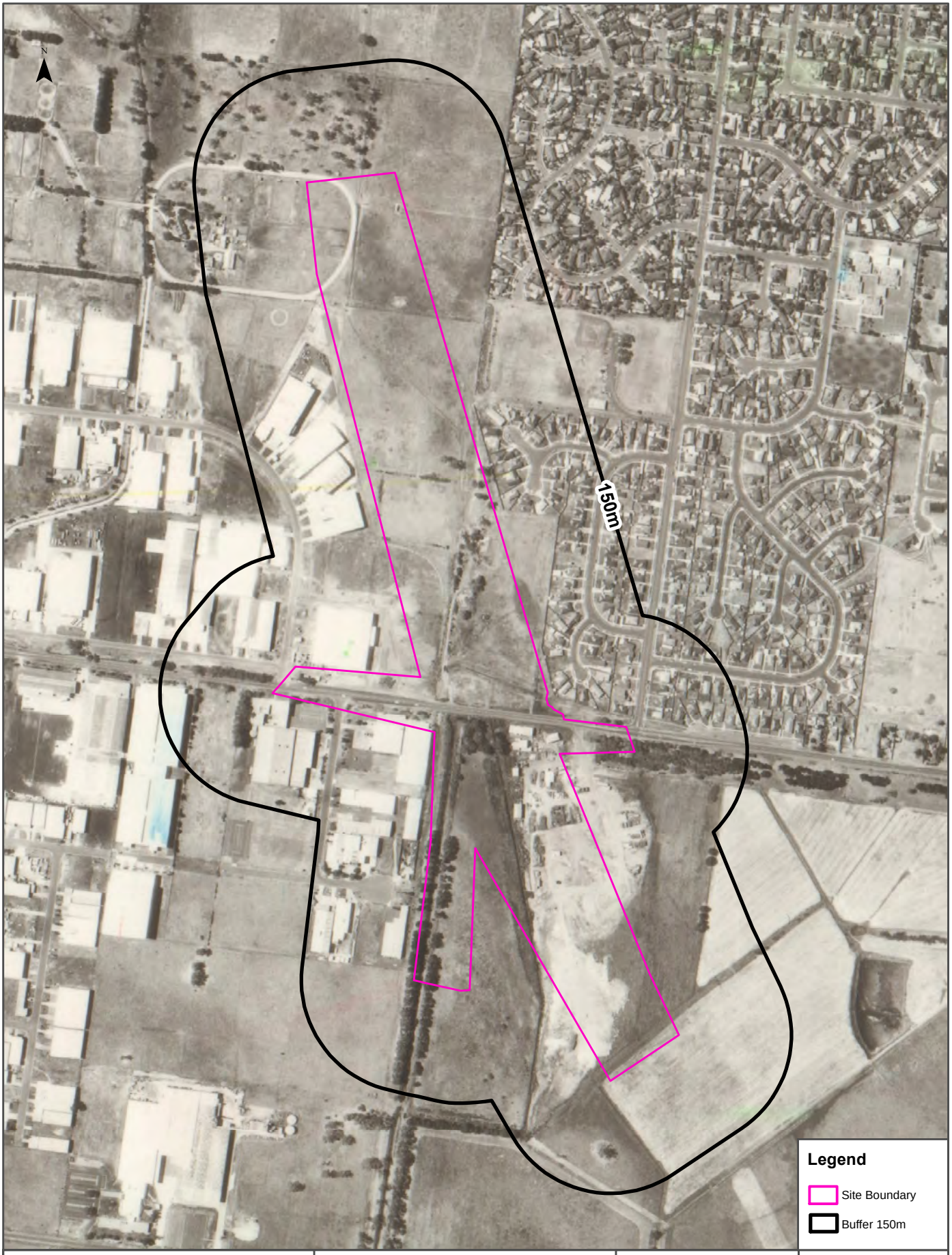
Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)

Coordinate System: GDA 1994 MGA Zone 55

Date: 08February 2017

Aerial Imagery 1982

OSAR Proposed Road Alignments - Site 26 (Section 3)



Scale:
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Meters

Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)

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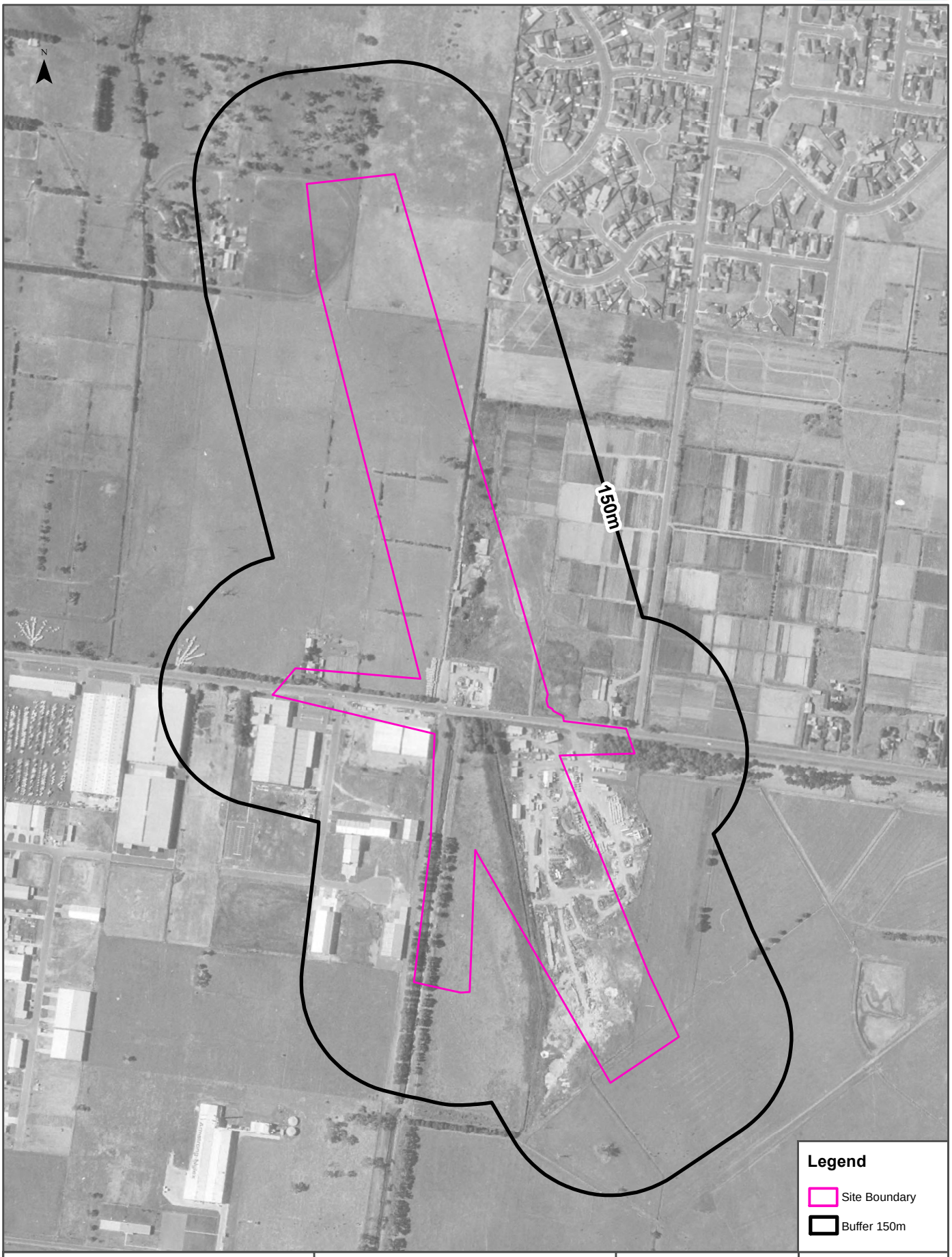
Date: 08February 2017

Aerial Imagery 1974

OSAR Proposed Road Alignments - Site 26 (Section 3)



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Coordinate System: GDA 1994 MGA Zone 55

Date: 08February 2017

Aerial Imagery 1966

OSAR Proposed Road Alignments - Site 26 (Section 3)

Scale:
0 75 150 300
Meters

Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)

Coordinate System: GDA 1994 MGA Zone 55

Date: 08February 2017

Aerial Imagery 1963

OSAR Proposed Road Alignments - Site 26 (Section 3)

Scale:
0 75 150 300
Meters

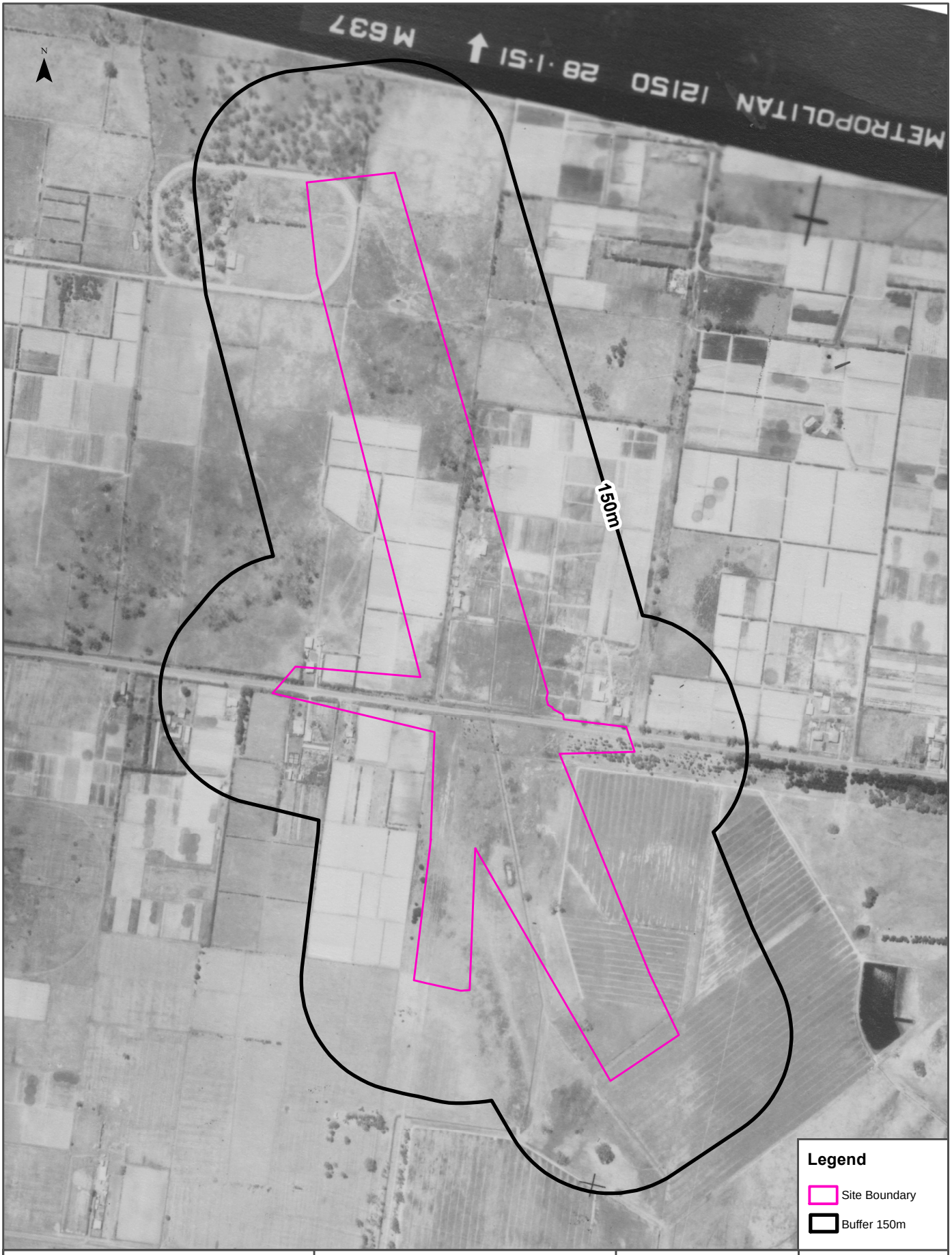
Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)

Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February 2017

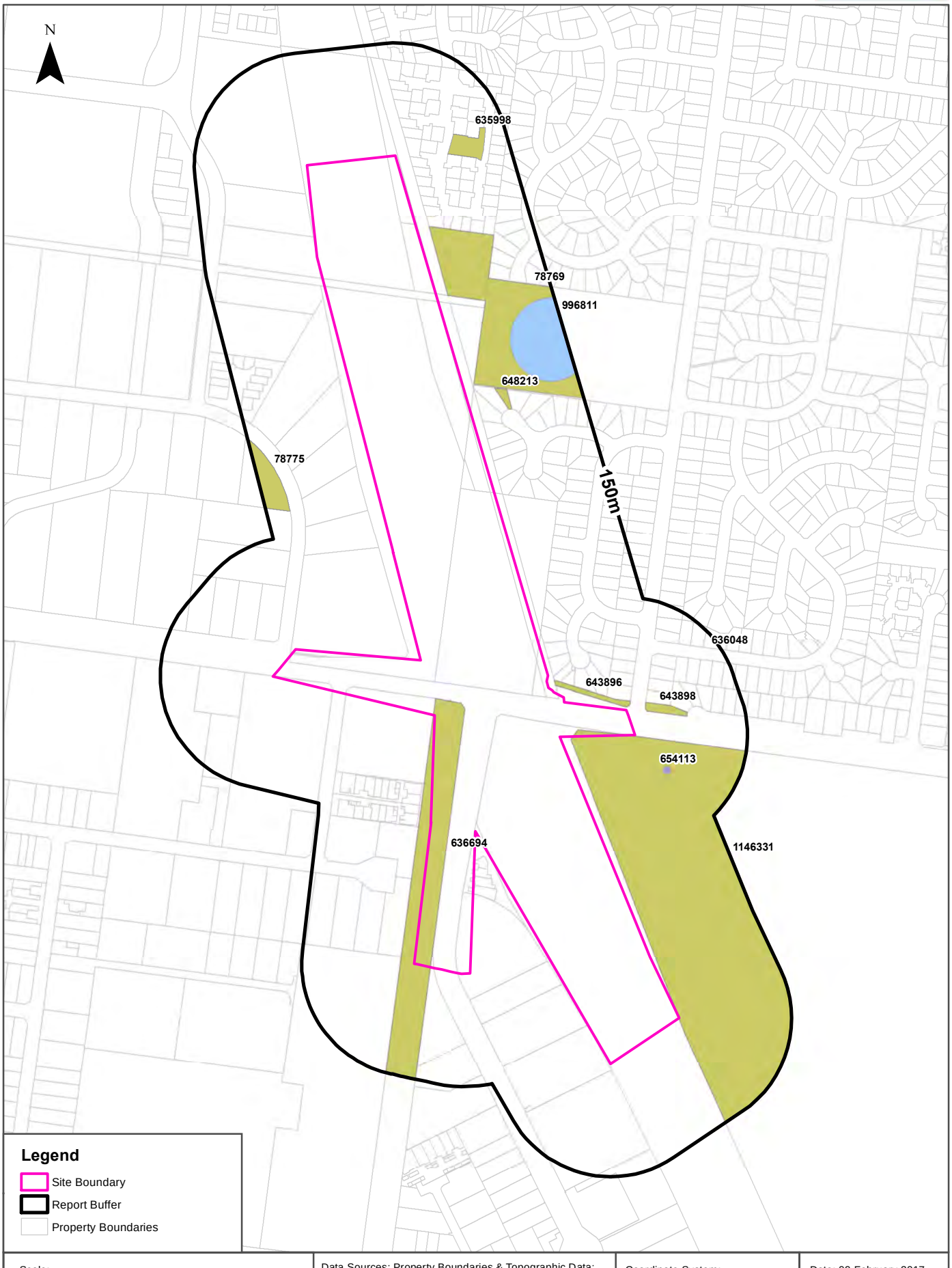
Aerial Imagery 1951

OSAR Proposed Road Alignments - Site 26 (Section 3)



Features of Interest

OSAR Proposed Road Alignments - Site 26 (Section 3)



Features of Interest

OSAR Proposed Road Alignments - Site 26 (Section 3)

Features of Interest

Features of Interest within 1km of the site:

Feature Id	Feature Type	Feature Sub Type	Name	Distance	Direction
636694	reserve	park	Woodlands Industrial Estate Linear Reserve	0m	Onsite
1146331	reserve	conservation park	Braeside Park	0m	Onsite
643896	reserve	park		4m	South East
78769	reserve	park		14m	North
643898	reserve	park		24m	East
648213	reserve	park		39m	North
654113	sign	emergency marker	BSP410	58m	South East
635998	reserve	park	Albert Place Reserve	67m	North
996811	sport facility	sports ground		75m	North
78775	reserve	park		119m	North West
636048	reserve	park	Bayville Drive Reserve	148m	East

Hydrogeology & Groundwater

OSAR Proposed Road Alignments - Site 26 (Section 3)

Hydrogeology

Description of aquifers within report buffer:

Description	Distance	Direction
Porous, extensive highly productive aquifers	0m	Onsite

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

Groundwater Salinity

On-site Groundwater Salinity:

Groundwater Salinity	Percent Of Site Area
500 - 1,000 mg/l	56
1,000 - 3,500 mg/l	44

Depth to Watertable

On-site Depth to Watertable:

Depth to Watertable	Percent Of Site Area
Less than 5 metres	100

Surface Elevation

Approximate on-site Surface Elevation:

Surface Elevation
8 AHDm to 12 AHDm

Basement Elevation

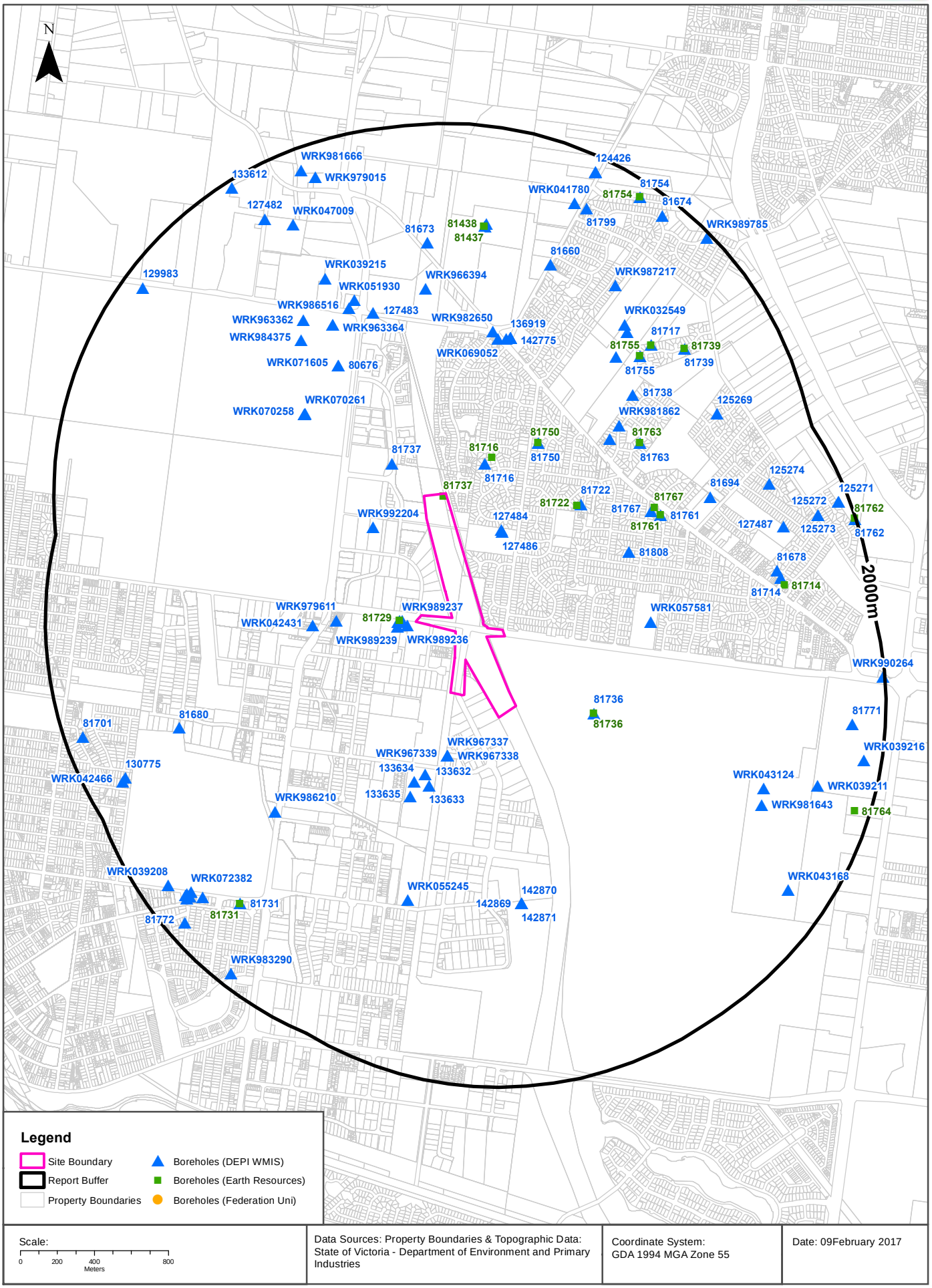
Approximate on-site Basement Elevation:

Basement Elevation - Basement Rocks comprise Lower Palaeozoic basement rocks that form the highlands and the crystalline basement; and Mesozoic rocks of the Otway and Gippsland basins both outcropping and subsurface
-47 AHDm to -41 AHDm

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

Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 3)



Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 3)

Boreholes (DEPI WMIS)

Boreholes from the Department of Environment and Primary Industries' Water Measurement Information System, within the report buffer:

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK989236							47	West
WRK989237							73	West
81729	Domestic	0.00m-3.05m CLAY 3.05m-12.19m SANDY CLAY BROWN 12.19m-21.34m SAND BROWN 21.34m-36.58m SAND GREY 36.58m-49.38m SAND BLACK	0.00m-36.58m INNER LINING - CASING = Pvc 36.58m-38.10m INNER LINING - SCREEN = Pvc 38.10m-44.50m INNER LINING - CASING = Pvc 42.98m-45.72m INNER LINING - SCREEN = Pvc		36.58m-38.10m Sand 42.98m-45.72m Sand	1982-12-23	87	West
WRK989238							96	West
WRK989239							101	West
127486	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m FINE GREY SAND 1.00m-7.00m LIGHT BROWN CLAYEY SAND 7.00m-15.00m BROWN CLAYEY SAND 15.00m-30.00m SANDY MARL	0.00m-27.00m INNER LINING - CASING = Pvc 27.00m-29.00m INNER LINING - SCREEN = Pvc 29.00m-30.00m INNER LINING - CASING = Pvc 26.00m-27.00m OUTER LINING - GRAVEL = Bentonite 27.00m-30.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1043 Quality: 43 WLMP: 4.17m DBNS: 4.24m RWL: 6.88mAHD		1996-04-18	232	North East
127484	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m DARK GREY SANDY SOIL 1.00m-2.00m ORANGY BROWN SANDY CLAY 2.00m-3.00m BROWNY ORANGE SANDY CLAY 3.00m-5.00m ORANGE GRAVELY CLAY 5.00m-13.00m ORANGE & GREY GRAVELY CLAY 13.00m-15.00m GREY SILTY SAND	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 10.00m-11.00m OUTER LINING - GRAVEL = Bentonite 11.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1042 Quality: 43 WLMP: 4.18m DBNS: 4.20m RWL: 6.95mAHD		1996-04-12	233	North East
81737	Domestic	0.00m-3.00m TOP SOIL WITH GREY SAND 3.00m-5.00m GREY SANDY CLAY 5.00m-11.00m GREY CLAY WITH SAND 11.00m-17.00m BROWN SANDY CLAY 17.00m-59.00m BLACK CLAY 59.00m-60.00m WEATHERED MUDSTONE 60.00m-86.00m MUDSTONE	0.00m-59.20m INNER LINING - CASING = Mild Steel 59.20m-86.00m INNER LINING - SCREEN = Mild Steel		59.20m-86.00m Mudstone	1983-12-02	245	North West
81716	Domestic	0.00m-2.00m TOP SOIL 2.00m-6.00m CLAY 6.00m-7.00m LIGHT CLAY AND SAND 7.00m-8.00m LIGHT SAND 8.00m-10.00m COARSE SAND	0.00m-7.00m INNER LINING - CASING = Pvc 7.00m-10.00m INNER LINING - SCREEN = Pvc		7.00m-10.00m Clay	1983-06-12	264	North
WRK992204	Groundwater Investigation	0.00m-0.50m fill 0.50m-5.00m brighton group sands	0.00m-2.00m INNER LINING - CASING = Pvc 2.00m-5.00m INNER LINING - SCREEN = Pvc 0.00m-0.20m OUTER LINING - GRAVEL = Cement 0.20m-1.50m OUTER LINING - GRAVEL = Bentonite 1.50m-5.00m OUTER LINING - GRAVEL = Gravel			2009-08-10	291	North West
WRK967337							336	South
WRK967338							336	South
WRK967339							336	South

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81736	Domestic	0.00m-0.30m TOP SOIL 0.30m-0.91m WHITE SAND 0.91m-3.61m CLAY 3.61m-7.01m CLAY AND FINE SAND 7.01m-9.71m SHELL GRIT AND SHALE WITH COARSE PARTS 9.71m-11.84m COARSE WATER BEARING CLAY 11.84m-16.15m CLAY SHELL GRIT AND SHALE 16.15m-24.38m SHELL, GRIT AND SHALE	0.00m-22.86m INNER LINING - CASING = Pvc 22.86m-24.38m INNER LINING - SCREEN = Pvc		22.86m-24.38m Clay	1983-08-10	422	South East
WRK979611							427	West
133632	Groundwater Investigation	0.00m-0.90m FILL CLAYEY SILT 0.90m-3.50m SANDY CLAY 3.50m-6.00m CLAYEY SAND				1998-01-21	461	South
133633	Groundwater Investigation	0.00m-1.30m FILL SAND & SANDY CLAY 1.30m-6.00m SANDY CLAY				1998-01-21	514	South
133634	Groundwater Investigation	0.00m-1.00m FILL FRAVEL & SANDY CLAY 1.00m-5.50m SANDY CLAY 5.50m-6.00m CLAYEY SAND				1998-01-21	519	South
WRK042431	Irrigation	0.00m-4.60m MEDIUM GRAINED SAND 4.60m-5.60m GREY CLAY 5.60m-12.00m ORANGE/BROWN, VERY FINE SANDSTONE 12.00m-47.50m GREY SILT/SOME SHELLS AT DEPTH 47.50m-48.50m GREY SANDSTONE 48.50m-50.00m DARK GREY/SANDY LIMESTONE 50.00m-51.00m LIGHT GREY HARD LIMESTONE 51.00m-53.50m BROWN CLAY 53.50m-54.00m QUARTZ SAND 54.00m-55.00m BROWN CLAY 55.00m-57.00m COARSE SAND CEMENTED PYRITE 57.00m-59.00m LIGHT GREY CLAY 59.00m-59.50m LIGHT GREY SANDSTONE 59.50m-62.00m LIGHT GREY BASALT 62.00m-66.00m COARSE SAND/WOODY 66.00m-67.00m GREY CLAY	0.00m-59.60m INNER LINING - CASING = Abs Plastic 59.60m-62.00m INNER LINING - SCREEN = Abs Plastic 0.00m-41.00m OUTER LINING - GRAVEL = Cement 41.00m-56.30m OUTER LINING - GRAVEL = Bentonite 56.30m-65.70m OUTER LINING - GRAVEL = Gravel		59.60m-62.00m Basalt	1997-11-25	556	West
81750	Domestic	0.00m-0.50m GREY SANDY LOAM 0.50m-3.00m YELLOW CLAY 3.00m-3.15m SANDY LAYER MEDIUM 3.15m-5.00m WHITE GREY CLAY 5.00m-5.07m THIN ROCK LAYER 5.07m-5.45m COARSE SAND WITH SOME FINE CLAY 5.45m-6.00m GREY CLAY	0.00m-5.00m INNER LINING - CASING = Pvc 5.00m-5.45m INNER LINING - SCREEN = Pvc 5.45m-6.00m INNER LINING - SCREEN = Slotted Pvc		5.00m-5.45m Sand 5.45m-6.00m Clay	1984-06-04	568	North East
133635	Groundwater Investigation	0.00m-1.50m FILL SANDY LOAM 1.50m-2.00m CLAY 2.00m-6.50m SANDY CLAY				1998-01-21	601	South
81722	Domestic	0.00m-1.20m TOP SOIL 1.20m-8.00m CLAY 8.00m-9.00m RIVER SAND 9.00m-0.00m ROCK (SANDSTONE)	0.00m-6.00m INNER LINING - CASING = Pvc 6.00m-9.00m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 0.30m-0.00m OUTER LINING - GRAVEL = Seal		6.00m-9.00m Sand	1983-02-28	683	North East
WRK070259	Observation					2012-07-03	781	North West
WRK070261	Observation					2012-07-05	781	North West
WRK070260	Observation					2012-07-04	781	North West
WRK070258	Observation					2012-07-02	782	North West
WRK057581	Irrigation	0.00m-2.50m Sand 2.50m-3.20m sandy Clay 3.20m-6.50m Grey Clay 6.50m-13.30m Brown Sandy Clay 13.30m-18.50m Blue Clay 18.50m-20.50m Fine Sand 20.50m-29.50m Blue Clay 29.50m-32.00m Sand 32.00m-33.00m Blue Clay				2010-09-23	790	East
81808	Not Known					1988-01-01	800	East
80676	Not Known					1988-01-01	843	North West
WRK071605	Irrigation					2012-10-02	843	North West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK069052	Observation	0.00m-0.40m FILL 0.40m-9.50m CLAY	0.00m-6.00m INNER LINING - CASING = Pvc 6.00m-9.00m INNER LINING - SCREEN = Pvc 9.00m-9.50m INNER LINING - CASING = Pvc 0.00m-5.00m OUTER LINING - GRAVEL = Cement 5.00m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-9.00m OUTER LINING - GRAVEL = Gravel		9.00m-9.50m Clay	2012-08-17	880	North
WRK991278	Groundwater Investigation	0.00m-0.30m topsoil 0.30m-1.50m sand 1.50m-3.60m sandstone 3.60m-8.20m sand	0.00m-4.20m INNER LINING - CASING = Pvc 4.20m-8.20m INNER LINING - SCREEN = Pvc 0.00m-2.50m OUTER LINING - GRAVEL = Cement 2.50m-3.70m OUTER LINING - GRAVEL = Bentonite 3.70m-8.20m OUTER LINING - GRAVEL = Gravel			2009-05-08	893	North
WRK982650							910	North
142768	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	911	North
142771	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	911	North
136918	Groundwater Investigation	0.00m-0.80m SANDY SILT, BROWN, DENSE, MOIST FILL 0.80m-7.50m CLAYEY SAND, FINE AND MEDIUM SAND, RED BROWN, YELLOW BROWN,	0.00m-4.00m INNER LINING - CASING = Pvc Class 18 4.00m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.40m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	911	North
136919	Groundwater Investigation	0.00m-0.90m SILTY SAND, BROWN, MOIST FILL 0.90m-7.50m CLAYEY SAND RED BROWN, YELLOW BROWN AND PAIL GREY, MEDIUM GR	0.00m-4.00m INNER LINING - CASING = Pvc Class 18 4.00m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.30m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	911	North
142769	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	911	North
142770	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	911	North
142773	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	911	North

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
136917	Groundwater Investigation	0.00m-0.80m SANDY SILT, BROWN, MOIST FILL 0.80m-1.00m SAND CLAY, ORANGE BROWN, PAIL BROWN, YELLOW BROWN, STIFF, MO 1.00m-7.50m CLAYEY SAND FINE AND MEDIUM SAND, RED BROWN, YELLOW BROWN AN	0.00m-3.50m INNER LINING - CASING = Pvc Class 18 3.50m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.30m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	911	North
142774	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	911	North
142775	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-7.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	911	North
142772	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc			1998-10-22	911	North
WRK039206	Irrigation					1970-12-31	931	North East
WRK981862							1005	North East
142870	Groundwater Investigation	0.00m-12.50m SANDY CLAY	0.00m-5.00m INNER LINING - CASING = Pvc 5.00m-12.50m INNER LINING - SCREEN = Pvc 0.00m-4.00m OUTER LINING - GRAVEL = Cement 4.00m-4.50m OUTER LINING - GRAVEL = Bentonite 4.50m-12.50m OUTER LINING - GRAVEL = Gravel			1999-10-18	1014	South
142869	Groundwater Investigation	0.00m-14.40m SANDY CLAY	0.00m-11.40m INNER LINING - CASING = Pvc 11.40m-14.40m INNER LINING - SCREEN = Pvc 10.40m-10.90m OUTER LINING - GRAVEL = Bentonite 10.90m-14.40m OUTER LINING - GRAVEL = Gravel			1999-11-03	1014	South
142871	Groundwater Investigation	0.00m-12.50m SANDY CLAY	0.00m-5.00m INNER LINING - CASING = Pvc 5.00m-12.00m INNER LINING - SCREEN = Pvc 0.00m-4.00m OUTER LINING - GRAVEL = Cement 4.00m-4.50m OUTER LINING - GRAVEL = Bentonite 4.50m-12.50m OUTER LINING - GRAVEL = Gravel			1999-10-18	1014	South
81767	Domestic	0.00m-0.30m SURFACE SOIL 0.30m-0.60m GREY SAND 0.60m-4.20m CLAY 4.20m-14.00m SANDY CLAY 14.00m-15.80m SLOPPY CLAYEY SAND 15.80m-17.90m CLAYEY SAND WITH PIECES OF IRONSTONE	0.00m-15.80m INNER LINING - CASING = Pvc 15.80m-17.90m INNER LINING - SCREEN = Pvc 4.50m-17.90m OUTER LINING - GRAVEL = Gravel		15.80m-17.90m Sand	1983-09-01	1025	North East
127483	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m FINE GREY SAND 1.00m-2.00m LIGHT ORANGE CLAY 2.00m-4.00m YELLOW AND GREY SANDY CLAY 4.00m-10.00m LIGHT BROWN SANDY CLAY 10.00m-12.00m ORANGE CLAYEY SAND 12.00m-15.00m GREY SAILTY CLAY	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 11.00m-12.00m OUTER LINING - GRAVEL = Bentonite 12.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1104 Quality: 43 WLMP: 5.29m DBNS: 5.34m RWL: 12.46mAHD		1996-04-18	1026	North
WRK963363							1048	North West
WRK963364							1048	North West
81761	Domestic, Stock	0.00m-1.00m FILL BRICK RUBBLE 1.00m-3.00m SAND YELLOW 3.00m-6.00m SANDY CLAY 6.00m-9.00m CLAY 9.00m-13.50m SAND 13.50m-0.00m BEDROCK	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-13.50m INNER LINING - SCREEN = Pvc		12.00m-13.50m Sand	1983-12-31	1053	North East
WRK984375							1072	North West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81763	Domestic	0.00m-0.25m TOP SOIL 0.25m-0.75m ORANGE SAND 0.75m-6.00m ORANGE CLAY 6.00m-7.00m GREY CLAY 7.00m-8.00m ORANGE SANDY CLAY 8.00m-9.15m IRON STONE	0.00m-8.95m INNER LINING - CASING = Galvanised Iron 8.95m-9.15m INNER LINING - SCREEN = Galvanised Iron		8.95m-9.15m Ironstone	1982-11-12	1083	North East
WRK986516							1093	North
WRK055245	Observation		0.00m-2.00m INNER LINING - CASING = Pvc 2.00m-8.00m INNER LINING - SCREEN = Pvc 0.00m-1.50m OUTER LINING - GRAVEL = Bentonite 1.50m-8.00m OUTER LINING - GRAVEL = Gravel			2010-02-23	1104	South
WRK966394							1112	North
WRK051930	Observation	0.00m-6.00m clay	0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 1.00m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-6.00m OUTER LINING - GRAVEL = Gravel		0.00m-3.00m Clay 3.00m-6.00m Clay	2009-10-21	1122	North
81738	Domestic	0.00m-1.50m GREY LOAM AND SAND 1.50m-3.00m GREY FIRM SAND 3.00m-4.52m GREY FINE SAND AND CLAY 4.52m-6.10m GREY SAND MEDIUM COARSE 6.10m-7.62m GREY COARSE SAND 7.62m-9.10m YELLOW CLAY SOME GRIT 9.10m-10.62m FINE SAND AND CLAY 10.62m-11.30m MEDIUM FINE SAND 11.30m-12.70m GREY MEDIUM COARSE SAND 12.70m-13.70m GREY MEDIUM CORASE SAND SOME CLAY 13.70m-15.20m COARSE GREY SAND WITH CLAY 15.20m-16.70m YELLOW CLAY FINE SAND 16.70m-19.81m COARSE GREY SAND	0.00m-7.62m INNER LINING - CASING = Pvc 7.62m-18.50m INNER LINING - SCREEN = Pvc 18.50m-19.81m INNER LINING - SCREEN = Slotted Pvc		7.62m-18.50m Clay 18.50m-19.81m Sand	1983-09-14	1140	North East
WRK986210							1144	South West
WRK963362	Domestic & Stock					2005-11-07	1152	North West
WRK985144							1177	North East
81755	Domestic	0.00m-0.30m TOP SOIL 0.30m-7.62m CLAY 7.62m-12.80m SAND AND CLAY	0.00m-11.58m INNER LINING - CASING = Pvc 11.58m-12.80m INNER LINING - SCREEN = Pvc		11.58m-12.80m Sand	1983-06-01	1284	North East
WRK039215	Irrigation	0.00m-5.60m STIFF YELLOW/BROWN CLAY 5.60m-10.70m GREY FINE TO MEDIUM GRAINED SAND 10.70m-29.70m YELLOW/GREY FIRM CLAYEY SAND 29.70m-40.02m YELLOW/WHITE VERY LOOSE COARSE GRAINED SAND &	0.00m-30.00m INNER LINING - CASING = Pvc 30.00m-39.50m INNER LINING - SCREEN = Pvc 39.50m-40.02m INNER LINING - CASING = Pvc 39.00m-40.02m OUTER LINING - GRAVEL = Gravel		30.00m-39.50m Sand	1990-02-20	1290	North West
81791	Not Known	0.00m-0.50m SANDY LOAM 0.50m-1.50m FINE WHITE SAND 1.50m-2.00m DARK BROWN SANDY CLAY 2.00m-15.50m LIGHT GREY & YELLOW SANDY CLAY 15.50m-19.00m DIRTY DRIFT SAND 19.00m-36.00m GREEN MARINE SILT 36.00m-37.00m BROWN COAL 37.00m-44.00m GREEN SILT & SHELL 44.00m-45.00m LIGNIOUS CLAY 45.00m-59.00m SOFT MUDSTONE				1990-09-05	1310	North East
WRK032549	Irrigation	0.00m-4.00m TOP SOIL AND CLAY 4.00m-43.00m SAND 43.00m-50.00m SANDSTONE AND SLATE 50.00m-55.00m SANDSTONE 55.00m-73.00m GRAVEL AND COAL AND SEA SHELLS 73.00m-85.00m SANDSTONE	0.00m-43.00m INNER LINING - CASING = Steel 0.00m-74.00m INNER LINING - CASING = Steel 60.00m-85.00m INNER LINING - SCREEN = Steel			1997-10-03	1328	North East
81694	Miscellaneous	0.00m-4.26m FINE GREY-BROWN SAND 4.26m-7.92m FIRM YELLOW BROWN SANDY CLAY 7.92m-13.72m BROWN SILTY FINE-MEDIUM SAND	0.00m-13.72m INNER LINING - CASING = Not Known 8.22m-13.72m INNER LINING - SCREEN = Not Known			1973-04-18	1332	North East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81673	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-1.22m SAND 1.22m-6.10m CLAYEY SAND 6.10m-6.40m SAND 6.40m-10.67m CLAY 10.67m-14.02m STICKY MARINE CLAY SAND 14.02m-18.29m SANDSTONE PIECES MARINE SILT SAND 18.29m-37.19m MARINE SILT CLAY 37.19m-38.71m DARK MARINE SHELL 38.71m-42.30m DARK MARINE SHELL LITTLE LIMESTONE				1970-01-06	1357	North
81660	Not Known					1970-12-31	1358	North
81717	Domestic, Stock	0.00m-1.00m SAND BROWN 1.00m-1.80m SAND GREY 1.80m-3.00m CEMENTED FERRIGINOUS PIECES 3.00m-7.00m CLAYEY SAND 7.00m-8.00m GRAVEL 8.00m-10.00m SANDY CLAY 10.00m-11.00m COFFEE ROCK 11.00m-15.00m SILT GRAVEL AND BLACK SAND 15.00m-15.50m CLAYEY SAND 15.50m-16.20m GRAVEL 16.20m-0.00m ROCK	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-16.20m INNER LINING - SCREEN = Pvc 0.00m-2.00m OUTER LINING - GRAVEL = Cement		12.00m-16.20m Silt	1981-08-13	1368	North East
81680	Not Used - Capped	0.00m-12.19m YELLOW GREY CLAY 12.19m-21.34m SANDY GRAVEL AND CLAY 21.34m-47.24m LIGHT GREY SANDY CLAY 47.24m-47.55m SMALL BAND OF LIMESTONE 47.55m-53.34m COARSE SAND - SHELL AND WOOD 53.34m-55.78m DECOMPOSED BASALT 55.78m-60.96m HARD BASALT	0.00m-56.08m INNER LINING - CASING = Not Known 0.00m-56.08m OUTER LINING - GRAVEL = Cement			1973-01-13	1400	West
WRK043124	Not Known					1988-01-01	1410	South East
WRK981643							1430	South East
WRK987217							1448	North East
81438	Not Known					1985-09-20	1456	North
81437	Not Known					1985-09-20	1456	North
81421	Observation, State Observation Network	0.00m-1.20m SAND 1.20m-6.40m SANDY CLAY YELLOW 6.40m-7.90m SANDS DARK GREY 7.90m-14.90m GREEN MARL SANDY GRAVEL 14.90m-15.20m HARD STONE BAR 15.20m-21.30m GRAVEL CLAY SOME HARD BARS 21.30m-30.50m SILTY MARL GREEN 30.50m-32.00m SILTY MARL SAND GREYT MICA 32.00m-38.40m SILTY MARL SAND GREY 38.40m-39.90m DARKER SILTY CLAY 39.90m-42.10m GREEN MARL FIRM SHELLS 42.10m-44.20m HARD BAR STONE 44.20m-50.29m GREY CLAY TURNED TO STONE (BEDROCK)	0.00m-30.50m INNER LINING - CASING = Pvc 30.50m-42.70m INNER LINING - SCREEN = Pvc 42.70m-50.29m INNER LINING - CASING = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 25.90m-50.29m OUTER LINING - GRAVEL = Gravel	Date/time: 1991-12-04 0000 Quality: 43 WLMP: 4.21m DBNS: 3.34m RWL: 18.36mAHD	30.50m-42.70m Marl	1973-02-21	1456	North
WRK046838						2006-08-10	1473	North
81739	Domestic	0.00m-1.50m GREY SANDY LOAM 1.50m-4.52m YELLOW CLAY 4.52m-9.10m YELLOW ORANGE CLAY 9.10m-10.60m MEDIUM SAND AND MEDIUM COARSE GRAVEL 10.60m-12.10m YELLOW CLAY 12.10m-15.20m YELLOW CLAY, COARSE GRAVEL 15.20m-18.29m GREEN CLAY, SOME GRAVEL 18.29m-19.51m GREEN CLAY - GRAVEL	0.00m-6.40m INNER LINING - CASING = Pvc 6.40m-18.00m INNER LINING - SCREEN = Pvc 18.00m-18.50m INNER LINING - CASING = Pvc 18.50m-19.51m INNER LINING - SCREEN = Pvc		6.40m-18.00m Clay 18.50m-19.51m Clay	1983-12-13	1507	North East
81678	Domestic, Stock	0.00m-0.91m DARK SANDY SOIL 0.91m-2.44m GREY AND BROWN SAND CLAY 2.44m-4.57m GREY BROWN CLAY 4.57m-7.31m FATTY FINE COARSE SAND 7.31m-11.28m FINE FATTY CLAYED SAND 11.28m-12.19m FINE AND COARSE SAND 12.19m-14.02m FINE AND COARSE SAND	0.00m-11.27m INNER LINING - CASING = Not Known 11.27m-12.80m INNER LINING - SCREEN = Not Known			1972-11-30	1511	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81714	Domestic, Stock	0.00m-3.05m TOP SOIL 3.05m-6.10m SAND 6.10m-12.19m CLAY RED 12.19m-18.29m CLAY BROWN 18.29m-24.38m GRAVEL 24.38m-39.62m GREY CLAY - ROCK LAYERS 39.62m-42.67m SAND WHITE	0.00m-18.29m INNER LINING - CASING = Pvc Class 9 18.29m-30.48m INNER LINING - SCREEN = Pvc Class 9 30.48m-41.15m INNER LINING - CASING = Pvc Class 9 41.15m-42.67m INNER LINING - SCREEN = Pvc Class 9		18.29m-30.48m Gravel 41.15m-42.67m Sand	1983-02-27	1522	East
125269	Groundwater Investigation, State Observation Network	0.00m-2.00m DRY SAND 2.00m-8.00m SANDY CLAY 8.00m-11.00m GRAVEL SILT & CLAY 11.00m-17.00m YELLOW SILTY CLAY 17.00m-28.00m GREY SILTY CLAY	0.00m-8.50m INNER LINING - CASING = Pvc 8.50m-10.50m INNER LINING - SCREEN = Pvc 10.50m-13.50m INNER LINING - CASING = Pvc 8.50m-13.50m OUTER LINING - GRAVEL = Gravel 13.50m-14.50m OUTER LINING - GRAVEL = Bentonite	Date/time: 2016-02-23 1019 Quality: 43 WLMP: 6.33m DBNS: 6.33m RWL: 20.88mAHD		1995-01-13	1527	North East
81731	Not Known	0.00m-7.62m FINE BLUE CLAY 7.62m-11.27m FINE ORANGE CLAY 11.27m-44.80m MED/COARSE SILTY SAND 44.80m-52.70m SILTY SILURIAN CLAY 52.70m-122.00m HARD SANDSTONE	0.00m-54.00m INNER LINING - CASING = Steel 54.00m-122.00m INNER LINING - SCREEN = Steel		54.00m-122.00m Sandstone	1983-02-16	1609	South West
127487	Groundwater Investigation, Observation, State Observation Network	0.00m-0.50m FINE GREY SNAD 0.50m-2.00m BROWN SANDY CLAY 2.00m-4.00m YELLOW SANDY CLAY 4.00m-15.00m ORANGE CLAYEY SAND	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 11.00m-12.00m OUTER LINING - GRAVEL = Bentonite 12.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1005 Quality: 43 WLMP: 5.74m DBNS: 5.79m RWL: 18.39mAHD		1996-04-19	1614	East
WRK047009							1627	North West
125274	Groundwater Investigation, State Observation Network	0.00m-1.00m DRY SAND 1.00m-6.00m SANDY CLAY 6.00m-10.00m GRAVEL SAND & CLAY (WET) 10.00m-12.00m SANDY CLAY 12.00m-35.00m GREY SANDY CLAY	0.00m-8.00m INNER LINING - CASING = Pvc 8.00m-10.00m INNER LINING - SCREEN = Pvc 10.00m-24.00m INNER LINING - CASING = Pvc 6.00m-7.00m OUTER LINING - GRAVEL = Bentonite 7.00m-12.00m OUTER LINING - GRAVEL = Gravel 24.00m-24.50m OUTER LINING - GRAVEL = Bentonite	Date/time: 2016-02-23 0952 Quality: 43 WLMP: 1.89m DBNS: 1.89m RWL: 20.83mAHD		1995-01-29	1642	North East
WRK039211	Irrigation	0.00m-0.30m SURFACE SANDY SOIL 0.30m-4.00m FINE SAND 4.00m-30.50m CLAYEY SAND & STONE PIECES 30.50m-37.00m SILTY ORANGE SAND 37.00m-41.00m SILTY GREY SAND 41.00m-47.00m FIRM GREY MUDSTONE 47.00m-130.00m MEDIUM HARD BLUE SHALE 130.00m-162.00m HD BL SHALE SOME FRACS. - ALTER.TO BCP/28133	0.00m-106.00m INNER LINING - CASING = Mild Steel 106.00m-162.00m INNER LINING - SCREEN = Mild Steel		106.00m-162.00m Shale	1987-04-24	1685	South East
WRK041780	Dairy						1716	North
81799	Domestic, Stock					1988-01-01	1718	North
127482	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m YELLOW AND GREY CLAY 1.00m-8.00m YELLOW SANDY CLAY 8.00m-15.00m SANDY MARL	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 11.00m-12.00m OUTER LINING - GRAVEL = Bentonite 12.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1124 Quality: 43 WLMP: 7.28m DBNS: 7.30m RWL: 11.34mAHD		1996-04-16	1725	North West
WRK987435							1736	South West
WRK072382	Observation	0.00m-0.30m GRAss/topsoil 0.30m-0.50m FILL/rubblegritty material 0.50m-0.70m Ddark silty clay 0.70m-2.00m Stiff clay/yellow mottled 2.00m-4.00m CLAYey sand	0.00m-1.00m INNER LINING - CASING = Pvc 1.00m-4.00m INNER LINING - SCREEN = Pvc 0.00m-0.60m OUTER LINING - GRAVEL = Cement 0.60m-0.90m OUTER LINING - GRAVEL = Bentonite 0.90m-4.00m OUTER LINING - GRAVEL = Gravel		1.00m-4.00m Clay	2013-05-27	1767	South West
WRK043168	Irrigation					1982-01-01	1774	South East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
130775	Not Used - Capped	0.00m-2.50m GREY FINE SOIL 2.50m-3.50m LIGHT TAN/BROWN CLAY/COARSE SAND LAYERS 3.50m-7.50m LIGHT BROWN/SILTY/FINE SAND CLAY 7.50m-11.50m DARK BROWN WEATHERED SANDSTONE 11.50m-48.40m BLACK/GREY SILTY CLAY FINE SHELLS 48.40m-50.50m BROWN SILTY CLAY/FINE SHELLS 50.50m-52.10m HARD GREN LIMESTONE 52.10m-53.30m SOFT GREEN LIMESTONE 53.30m-55.70m BROWN FIRM CLAY/FINE SAND 55.70m-57.00m WHITE/BROWN FIRM CLAY 57.00m-61.50m BLACK/GREY BASALT 61.50m-61.80m WEATHERED BLACK BASALT 61.80m-63.70m WEATHERED BLACK/GREY BASALT 63.70m-64.00m GREY/BROWN CLAY BASALT GRAVEL	-0.20m-55.65m INNER LINING - CASING = Abs Plastic 60.40m-64.00m INNER LINING - CASING = Abs Plastic 0.00m-40.00m OUTER LINING - GRAVEL = Cement 40.00m-64.00m OUTER LINING - GRAVEL = Gravel			1996-11-23	1780	South West
WRK072379	Observation	0.00m-0.40m Rubble 0.40m-0.70m Black silt 0.70m-2.50m CLAY 2.50m-4.20m CLAYey sand/silt	0.00m-1.20m INNER LINING - CASING = Pvc 1.20m-4.20m INNER LINING - SLOT = Pvc 0.00m-0.80m OUTER LINING - GRAVEL = Cement 0.80m-1.00m OUTER LINING - GRAVEL = Bentonite 1.00m-4.20m OUTER LINING - GRAVEL = Gravel		1.20m-4.20m Clay	2013-05-28	1787	South West
WRK072381	Observation	0.00m-0.30m FILL/disturbed clay some rubble 0.30m-0.70m CLAYey silt/black 0.70m-1.50m SANDy clay/dense 1.50m-2.50m SANDy clay/silty 2.50m-4.20m LIGhter clayey sand/wet	0.00m-1.20m INNER LINING - CASING = Pvc 1.20m-4.20m INNER LINING - SCREEN = Pvc 0.00m-0.60m OUTER LINING - GRAVEL = Cement 0.60m-0.90m OUTER LINING - GRAVEL = Bentonite 0.90m-4.20m OUTER LINING - GRAVEL = Gravel		1.20m-4.20m Clay	2013-05-27	1790	South West
WRK072384	Observation	0.00m-0.40m CLAY& some srubble bricks concretesome rocks 0.40m-0.80m SIsturbed clay 2.50m-3.00m SILTy clay & sand 3.00m-4.50m wet yellow clayey sand	0.00m-1.50m INNER LINING - CASING = Pvc 1.50m-4.50m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 1.00m-1.20m OUTER LINING - GRAVEL = Bentonite 1.20m-4.50m OUTER LINING - GRAVEL = Gravel		1.50m-4.50m Clay	2013-05-28	1800	South West
WRK042466	Irrigation		56.85m-0.00m OUTER LINING - GRAVEL = Packer			1963-12-31	1802	South West
WRK072380	Observation	0.00m-0.40m FILLbuilding ruble/clay 0.40m-0.80m DArk peaty clay 0.80m-3.00m Mottled silty clay 3.00m-5.00m SANDy clay/silt 5.00m-6.00m wet sand & yellow clay	0.00m-1.50m INNER LINING - CASING = Pvc 1.50m-6.00m INNER LINING - SCREEN = Pvc 0.00m-0.50m OUTER LINING - GRAVEL = Cement 0.50m-1.40m OUTER LINING - GRAVEL = Bentonite 1.40m-6.00m OUTER LINING - GRAVEL = Gravel		1.50m-6.00m Clay	2013-05-27	1808	South West
125273	Groundwater Investigation, State Observation Network	0.00m-0.50m DRY SAND 0.50m-2.00m CLAY 2.00m-5.50m SANDY CLAY 5.50m-8.00m SANDY SILT & GRAVEL 8.00m-11.00m GRAVEL & CLAY (WET) 11.00m-12.00m SANDY CLAY	0.00m-8.00m INNER LINING - CASING = Pvc 8.00m-11.00m INNER LINING - SCREEN = Pvc 11.00m-12.00m INNER LINING - CASING = Pvc 5.00m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-12.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 0939 Quality: 43 WLMP: 6.20m DBNS: 6.20m RWL: 19.91mAHD		1995-01-26	1812	East
125272	Groundwater Investigation, State Observation Network	0.00m-0.50m DRY SAND 0.50m-2.00m CLAY 2.00m-5.50m SANDY CLAY 5.50m-8.00m SAND SILT & CLAY 8.00m-11.00m GRAVEL & CLAY (WET) 11.00m-16.00m SANDY CLAY 16.00m-18.00m GREY SILT SANDY CLAY 18.00m-23.50m DIRTY SAND & GRAVEL (WET) 23.50m-40.00m GREY SILTY CLAY	0.00m-20.50m INNER LINING - CASING = Pvc 20.50m-22.50m INNER LINING - SCREEN = Pvc 22.50m-40.00m INNER LINING - CASING = Pvc 17.00m-0.00m OUTER LINING - GRAVEL = Seal	Date/time: 2016-02-23 0940 Quality: 43 WLMP: 7.35m DBNS: 7.35m RWL: 18.76mAHD		1995-01-26	1813	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81771	Irrigation	0.00m-0.30m TOP SOIL 0.30m-13.70m ORANGE/BROWN CLAY 13.70m-14.00m CLAY BOUND SAND 14.00m-40.80m SANDY CLAY AND LAYERS OF LIMESTONE 40.80m-43.20m COARSE SAND 43.20m-44.00m MUDSTONE	0.00m-40.70m INNER LINING - CASING = Mild Steel 40.70m-43.70m INNER LINING - SCREEN = Mild Steel 43.70m-44.00m INNER LINING - CASING = Mild Steel 0.00m-36.00m OUTER LINING - GRAVEL = Cement 36.00m-44.00m OUTER LINING - GRAVEL = Gravel		40.70m-43.70m Sand	1986-11-12	1820	East
WRK979015							1821	North
WRK039208	Irrigation		0.00m-60.35m INNER LINING - CASING = Not Known 56.08m-60.35m INNER LINING - SCREEN = Not Known			1963-12-31	1847	South West
WRK981666							1881	North
129983	Groundwater Investigation, Observation	0.00m-7.00m CLAY 7.00m-11.00m SAND 11.00m-15.00m MUDSTONE 15.00m-33.00m SAND 33.00m-45.00m MUDSTONE 45.00m-54.00m GREEN MUDSTONE 54.00m-58.00m COAL 58.00m-87.00m MUDSTONE 87.00m-90.00m FRACTURED MUDSTONE & BASALT 90.00m-150.00m WEATHERED BASALT	-0.30m-4.20m INNER LINING - CASING = Not Known -0.30m-91.00m INNER LINING - CASING = Not Known 61.00m-91.00m INNER LINING - SCREEN = Not Known			1997-02-07	1889	North West
81772	Not Known		0.00m-95.80m INNER LINING - CASING = Galvanised Iron 96.00m-107.20m INNER LINING - SCREEN = Galvanised Iron			1987-03-27	1897	South West
81701	Domestic, Stock	0.00m-1.22m SURFACE SOIL 1.22m-3.05m CLAY 3.05m-3.66m ROCK 3.66m-5.49m SOFT CLAY 5.49m-6.10m GRAVEL				1974-06-27	1902	West
WRK039216	Not Known					1988-01-01	1903	East
81674	Not Known	0.00m-0.30m SURFACE SOIL 0.30m-1.52m CLAY 1.52m-3.35m SANDY CLAY 3.35m-6.10m SLOPPY CLAYEY SAND 6.10m-7.62m CLAY MOTTLEY 7.62m-10.67m BROWN CLAYEY SAND 10.67m-11.28m BLACK CLAY 11.28m-17.07m MARINE STICKY SAND CLAY 17.07m-27.32m MARINE SAND CLAY SILT 27.32m-29.26m BROWN COAL CLAY 29.26m-38.71m DARK MARINE CLAY LITTLE SHELL 38.71m-39.32m SHELL MARINE CLAY WITH FEW PEBBLES 39.32m-40.23m SILT BROWN CLAY MUDSTONE WITH THIS LAYERS SANDSTONE 40.23m-50.90m SANDSTONE				1970-01-06	1903	North East
81754	Not Known	0.00m-2.00m FINE BLACK SAND 2.00m-8.00m FINE/MED MUDDY ORANGE SAND 8.00m-8.10m LIGNITE 8.10m-30.00m FINE MUDDY GREY SAND				1983-05-10	1914	North East
127109	Groundwater Investigation	0.00m-9.00m BACK FILL FROM TIP 9.00m-16.00m GREY CLAYEY SAND 16.00m-19.00m GREY SILTY CLAY 19.00m-20.00m MUDSTONE 20.00m-30.00m SANDY MARL	0.30m-27.00m INNER LINING - CASING = Pvc 27.00m-29.00m INNER LINING - SCREEN = Pvc 29.00m-30.00m INNER LINING - CASING = Pvc 25.50m-26.50m OUTER LINING - GRAVEL = Bentonite 26.50m-30.00m OUTER LINING - GRAVEL = Gravel			1995-11-24	1915	North
124426	Groundwater Investigation			Date/time: 1996-09-26 0000 Quality: 47 WLMP: 3.76m DBNS: 2.75m RWL: 27.60mAHD		1995-04-07	1917	North
WRK983290							1925	South West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
125270	Groundwater Investigation, State Observation Network	0.00m-1.00m DRY SAND 1.00m-2.50m CLAY 2.50m-6.50m SANDY CLAY 6.50m-9.00m DIRTY SAND (WET) 9.00m-14.00m SANDY CLAY 14.00m-16.00m GREY SILTY CLAY 16.00m-18.00m GREY DIRTY SAND & GRAVEL (WET) 18.00m-30.00m SANDY CLAY	0.00m-16.00m INNER LINING - CASING = Pvc 16.00m-18.00m INNER LINING - SCREEN = Pvc 18.00m-30.00m INNER LINING - CASING = Pvc 10.00m-11.00m OUTER LINING - GRAVEL = Bentonite	Date/time: 2016-02-23 0925 Quality: 43 WLMP: 6.84m DBNS: 6.84m RWL: 20.42mAHD		1995-01-16	1939	East
125271	Groundwater Investigation, State Observation Network	0.00m-1.00m DRY SAND 1.00m-2.50m CLAY 2.50m-6.50m SANDY CLAY 6.50m-9.00m DIRTY SAND (WET) 9.00m-10.00m SANDY CLAY	0.00m-7.00m INNER LINING - CASING = Pvc 7.00m-9.00m INNER LINING - SCREEN = Pvc 9.00m-10.00m INNER LINING - CASING = Pvc 4.50m-5.00m OUTER LINING - GRAVEL = Bentonite 5.00m-10.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 0924 Quality: 43 WLMP: 5.79m DBNS: 5.79m RWL: 21.47mAHD		1995-01-17	1940	East
133612	Irrigation	0.00m-52.00m SILTY SANDS & CLAYEY MARLS SOME FILLING ENCOUNTERED AT 5-9 M 52.00m-150.00m FRIM GREY MUDSTONES	0.30m-52.00m INNER LINING - CASING = Steel 52.00m-150.00m INNER LINING - SCREEN = Steel 0.00m-52.00m OUTER LINING - GRAVEL = Cement		52.00m-150.00m Mudstone	1997-11-24	1961	North West
WRK989785							1972	North East
WRK990264	Groundwater Investigation					2009-03-13	1990	East
81762	Domestic	0.00m-1.50m FILL SANDY BLACK SOIL 1.50m-4.00m SAND 4.00m-6.00m CLAY SAND 6.00m-13.50m SAND MED TO FINE GRAINED 13.50m-0.00m BEDROCK	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-13.50m INNER LINING - SCREEN = Pvc		12.00m-13.50m Sand	1983-12-31	1993	East

Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 3)

Boreholes (Earth Resources Database)

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

Bore Id	Bore Type	Company	Usage	Method	Status	Drill Date	Depth	Elevation	Accuracy (m)	Dist (m)	Direct
81737		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		02/12/1983	86.00		100	0	Onsite
81729		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		23/12/1982	49.38		100	89	West
81716		Private Individual/Corporation	Domestic water supply	Hand Auger		12/06/1983	10.00		100	312	North
81736		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		10/08/1983	24.38		100	419	South East
81750		Private Individual/Corporation	Domestic water supply	Hand Auger		04/06/1984	6.00		100	566	North East
81722		Private Individual/Corporation	Domestic water supply	Hand Auger		28/02/1983	9.00		100	659	North East
81761		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		31/12/1983	13.50		100	1051	North East
81767		Private Individual/Corporation	Domestic water supply	Percussion (cable)		01/09/1983	17.90		100	1052	North East
81763		Private Individual/Corporation	Domestic water supply	Percussion (cable)		12/11/1982	9.15		100	1080	North East
81755		Private Individual/Corporation	Domestic water supply	Hand Auger		01/06/1983	12.80		100	1283	North East
81717		Private Individual/Corporation	Domestic water supply	Hand Auger		13/08/1981	16.20		100	1367	North East
81421		Department of Manufacturing & Industry Development	Groundwater Observation	Percussion (cable)		21/02/1973	51.82	21.70	100	1457	North
81437		Department of Manufacturing & Industry Development		Hand Auger	Abandoned	20/09/1985	4.00		100	1457	North
81438		Department of Manufacturing & Industry Development		Hand Auger	Abandoned	20/09/1985	2.90		100	1457	North
81739		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		13/12/1983	19.51		100	1506	North East
81714		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		27/02/1983	42.67		100	1532	East
81731		Local Government Authority	Irrigation	Air Percussion/Air Rotary		16/02/1983	122.00		100	1611	South West
81754		Private Individual/Corporation		Percussion (cable)	Abandoned	10/05/1983	30.00		100	1914	North East
81764		Private Individual/Corporation	Public/town water supply	Air Percussion/Air Rotary		24/04/1987	127.60		100	1914	South East
81762		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		31/12/1983	13.50		100	1991	East

Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 3)

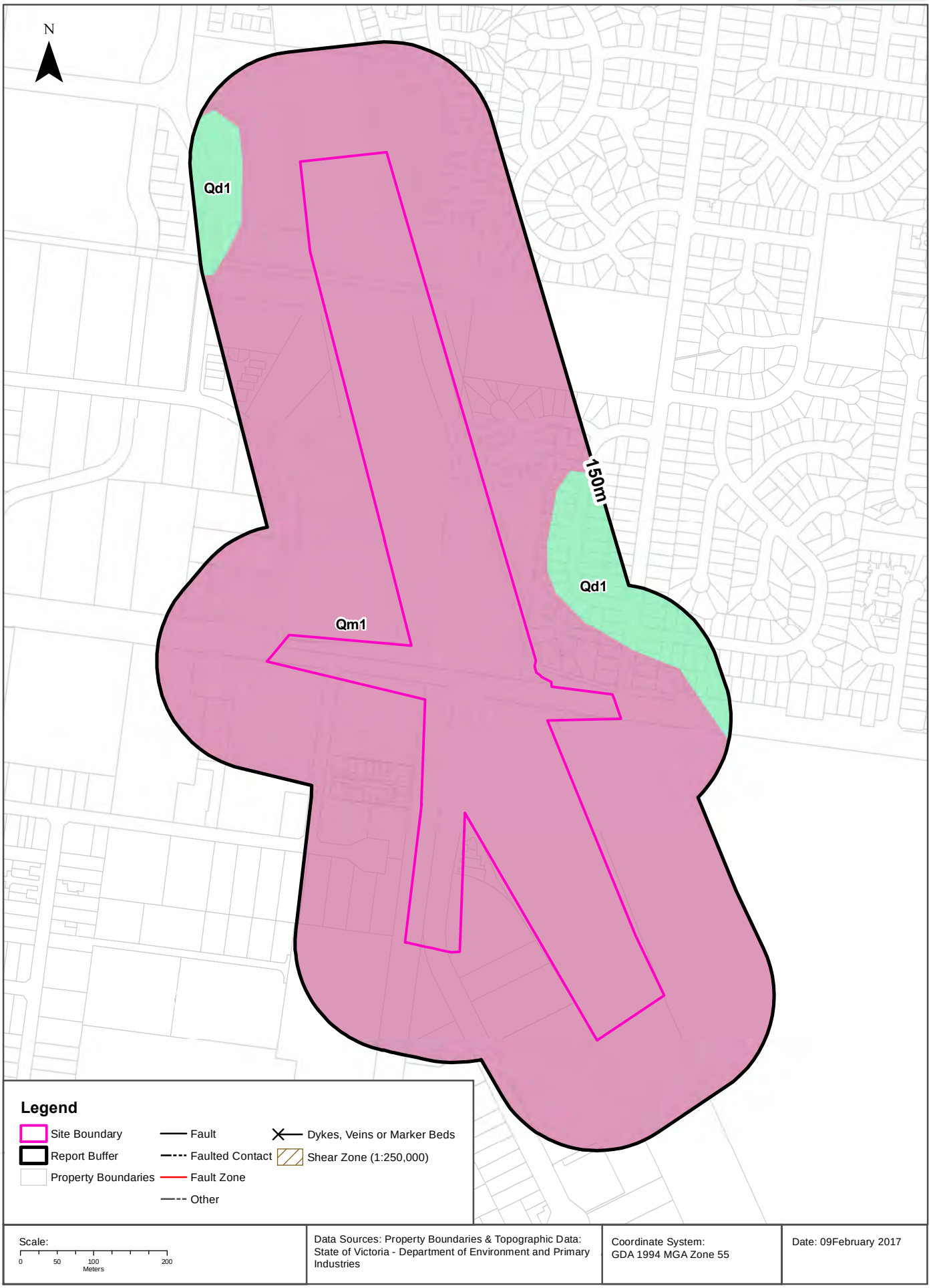
Boreholes (Federation University)

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

Bore Id	Authority	Type	Uses	Initial TD	Log	Dist (m)	Direct
N/A	No records within buffer						

Geology 1:50,000

OSAR Proposed Road Alignments - Site 26 (Section 3)



Geology

OSAR Proposed Road Alignments - Site 26 (Section 3)

Geological Units

What are the Geological Units onsite?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Qm1	swamp and lake deposits (Qm1): generic	Grey to black carbonaceous mud, silt, clay, minor peat: generally unconsolidated; rare dolomite	Pleistocene to Holocene	mud (major proportion); silt material (significant); clay lithology (significant); peat (minor proportion)	1:50,000

What are the Geological Units within the report buffer?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Qd1	inland dune deposits (Qd1): generic	Sand, silt, clay: friable to consolidated; well sorted; includes both lunette deposits and deposits of longitudinal dunes	Quaternary to Quaternary	sand (significant); silt material (significant); clay lithology (significant)	1:50,000
Qm1	swamp and lake deposits (Qm1): generic	Grey to black carbonaceous mud, silt, clay, minor peat: generally unconsolidated; rare dolomite	Pleistocene to Holocene	mud (major proportion); silt material (significant); clay lithology (significant); peat (minor proportion)	1:50,000

Geology

OSAR Proposed Road Alignments - Site 26 (Section 3)

Geological Structures

What are the Geological Faults or Faulted Contacts onsite?

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:50,000

What are the Dykes, Marker Beds and Veins onsite?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:50,000

What are the Shear Zones onsite (1:250,000 scale)?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

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

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:50,000

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

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:50,000

What are the Shear Zones within the report buffer (1:250,000 scale)?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

Coastal Acid Sulfate Soils

OSAR Proposed Road Alignments - Site 26 (Section 3)

Coastal Acid Sulfate Soils

What are the on-site Coastal Acid Sulfate Soil types?

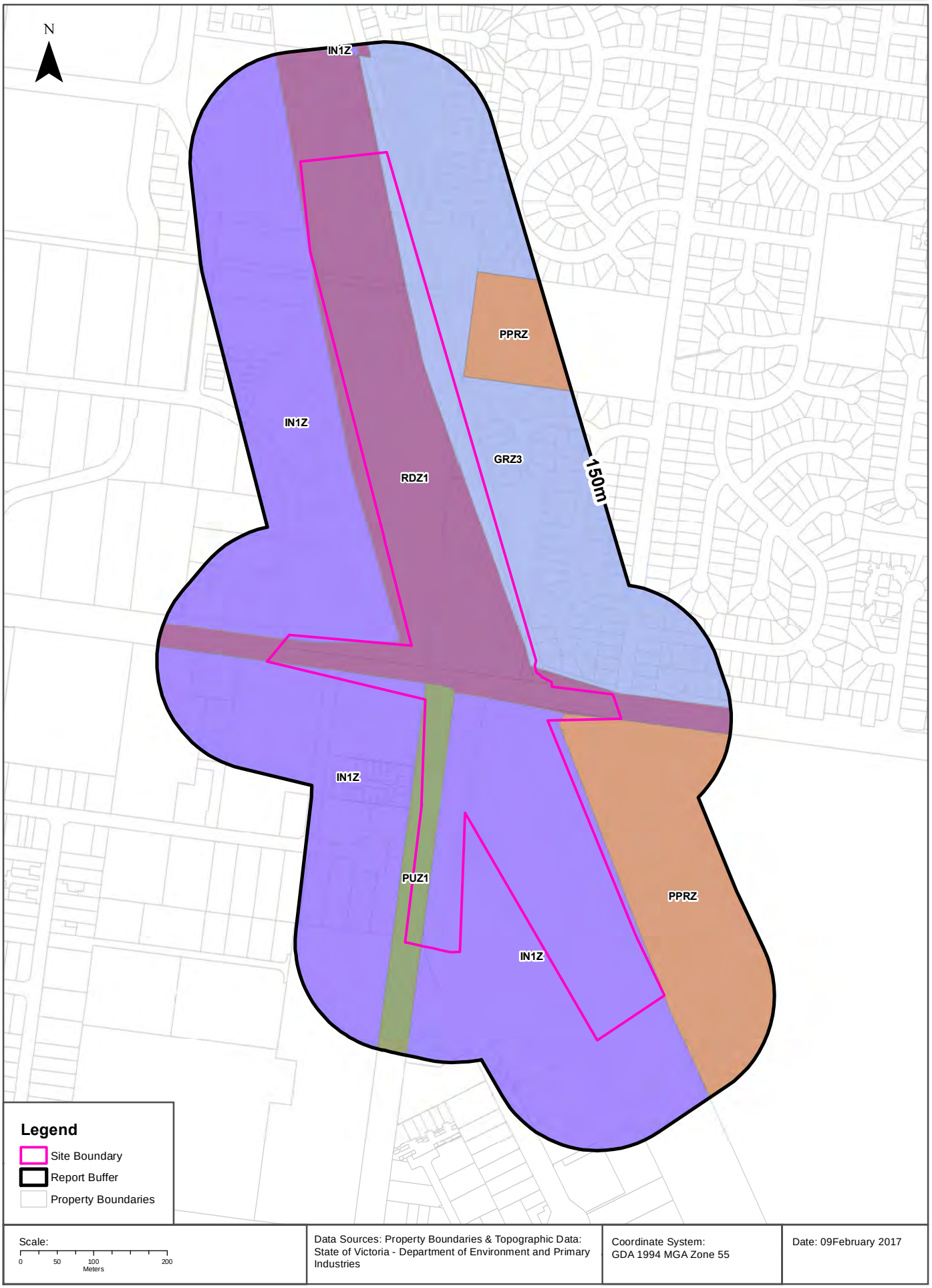
Coastal Acid Sulfate Soil Types
There are no Acid Sulfate areas onsite

What are the Coastal Acid Sulfate Soil types within the report buffer?

Coastal Acid Sulfate Soil Types	Distance	Direction
There are no Acid Sulfate areas within the report buffer		

Planning Zones

OSAR Proposed Road Alignments - Site 26 (Section 3)



Planning Zones

OSAR Proposed Road Alignments - Site 26 (Section 3)

Planning Zones

Planning zones within the report buffer:

Zone Code	Description	Distance	Direction
RDZ1	ROAD ZONE - CATEGORY 1	0m	Onsite
IN1Z	INDUSTRIAL 1 ZONE	0m	Onsite
GRZ3	GENERAL RESIDENTIAL ZONE - SCHEDULE 3	0m	Onsite
PUZ1	PUBLIC USE ZONE - SERVICE AND UTILITY	0m	Onsite
PPRZ	PUBLIC PARK AND RECREATION ZONE	0m	South East
PPRZ	PUBLIC PARK AND RECREATION ZONE	14m	North

Planning Overlays

OSAR Proposed Road Alignments - Site 26 (Section 3)

Planning Overlays

OSAR Proposed Road Alignments - Site 26 (Section 3)

Planning Overlays

Planning overlays within the report buffer:

Zone Code	Description	Distance	Direction
SBO	SPECIAL BUILDING OVERLAY	0m	Onsite
PAO1	PUBLIC ACQUISITION OVERLAY 1	0m	Onsite
DDO5	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 5	0m	Onsite
LSIO	LAND SUBJECT TO INUNDATION OVERLAY	0m	Onsite
DDO4	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 4	0m	Onsite
AEO1	AIRPORT ENVIRONS OVERLAY (AEO1)	23m	North West
SBO	SPECIAL BUILDING OVERLAY	45m	West
PAO1	PUBLIC ACQUISITION OVERLAY 1	135m	North

Cultural Heritage Sensitivity

OSAR Proposed Road Alignments - Site 26 (Section 3)

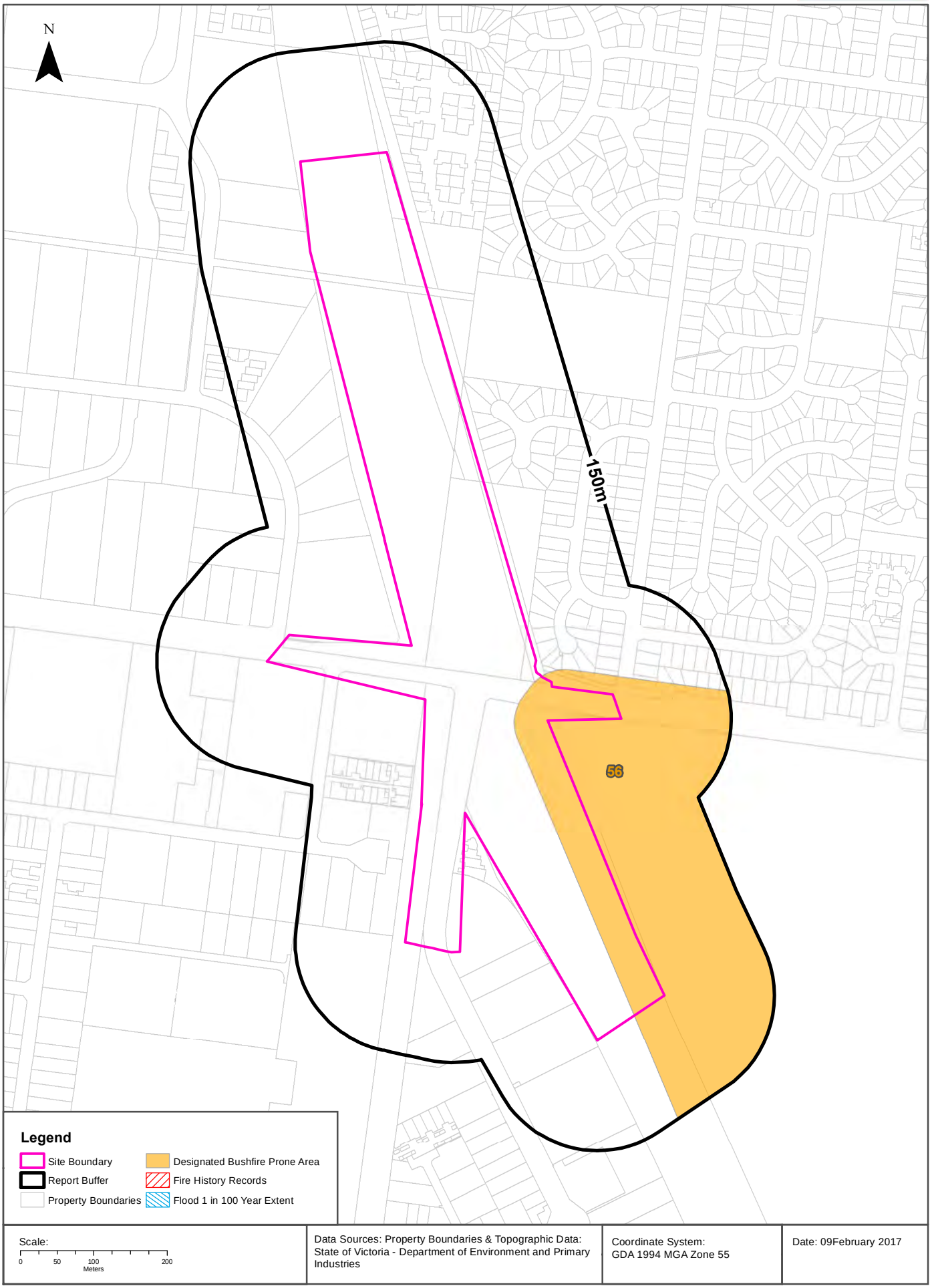
Cultural Heritage Sensitivity

Areas of Cultural Heritage Sensitivity as specified in Division 3 of Part 2 in the Aboriginal Heritage Regulations 2007, within the report buffer:

Map Id	Culturally Sensitive	Distance	Direction
N/A	No records in buffer		

Natural Hazards

OSAR Proposed Road Alignments - Site 26 (Section 3)



Natural Hazards

OSAR Proposed Road Alignments - Site 26 (Section 3)

Bushfire Prone Areas

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

Map ID	Feature	Plan No	LGA	Gazetted Date	Distance	Direction
56	Designated Bushfire Prone Area	LEGL./14-158	KINGSTON	07/04/2014	0m	Onsite

Fire History

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

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

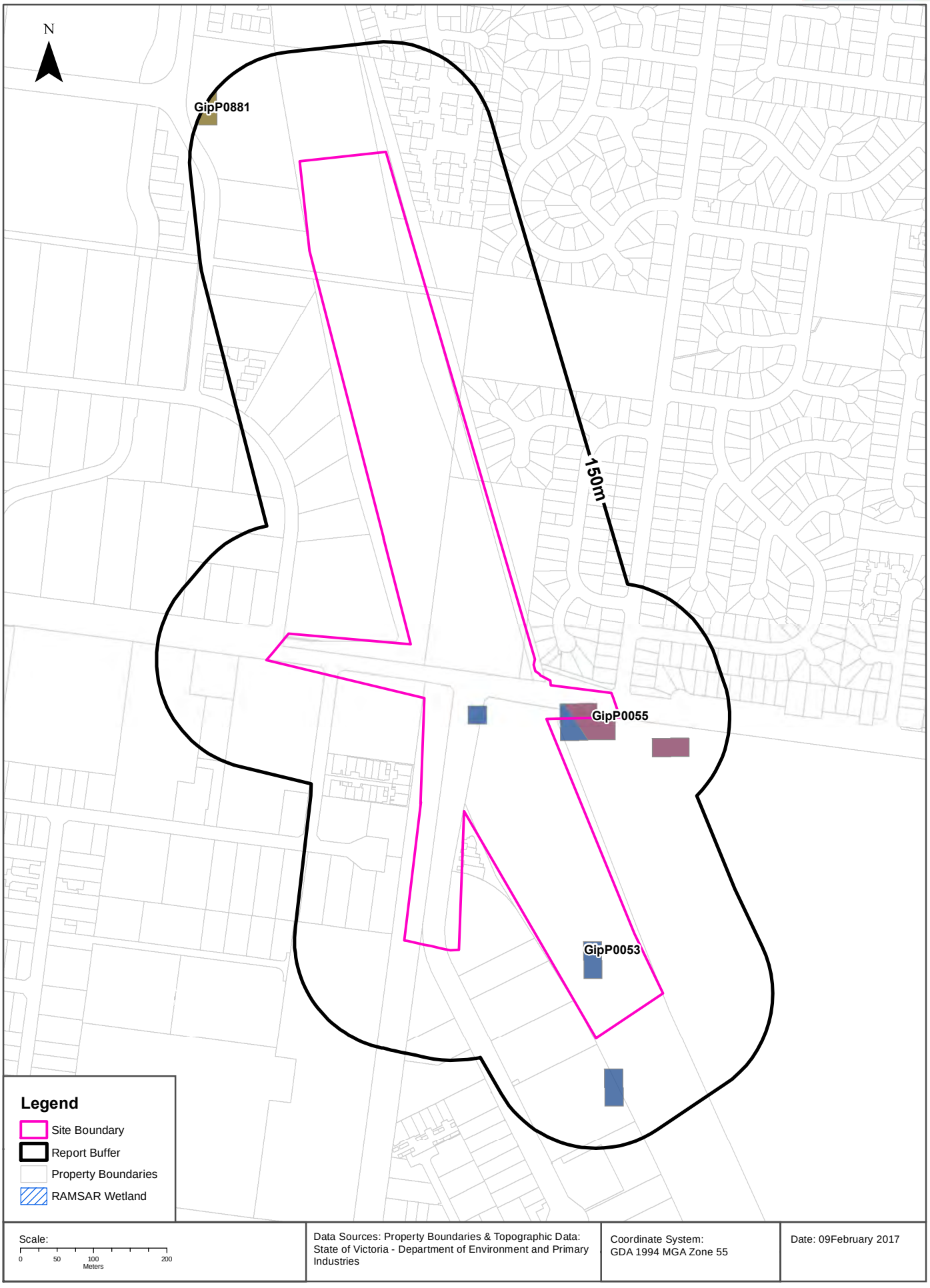
Flood - 1 in 100 year modelled flood extent

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

Feature	Source	Method	Scale	Modified Date	Distance	Direction
N/A	No records within buffer					

Ecological Constraints - Native Vegetation 2005 & RAMSAR Wetlands

OSAR Proposed Road Alignments - Site 26 (Section 3)



Ecological Constraints

OSAR Proposed Road Alignments - Site 26 (Section 3)

Native Vegetation (Modelled 2005 Ecological Vegetation Classes)

What native vegetation exists within the report buffer?

Veg Code	EVC Name	EVCCode	Group	Subgroup	Bioregion	Conservation Status	Geographic Occurance	Distance
GipP0053	Swamp Scrub	0053	Riparian Scrubs or Swampy Scrubs and Woodlands		Gippsland Plain	Endangered	Common	0m
GipP0055	Plains Grassy Woodland	0055	Plains Woodlands or Forests	Freely-draining	Gippsland Plain	Endangered	Common	0m
GipP0881	Damp Sands Herb-rich Woodland/Heathy Woodland Mosaic	0881	Herb-rich Woodlands	Damp Sands	Gippsland Plain	Vulnerable	not applicable	122m

RAMSAR Wetlands

What RAMSAR wetland areas exist within the report buffer?

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

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Lotsearch

Environmental Risk and Planning Report

Proposed Road Alignments - Mordialloc Bypass (Section 4)

Report Buffer: 150m

Report Date: 09 Feb 2017 10:52:50

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Location Confidences

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

LC Code	Location Confidence
1	Georeferenced to the site location / premise or part of site
2	Georeferenced with the confidence of the general/approximate area
3	Georeferenced to the road or rail
4	Georeferenced to the road intersection
5	Feature is a buffered point
6	Land adjacent to Georeferenced Site
7	Georeferenced to a network of features

Dataset Listing

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

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Topographic and Cadastre data	State Government Victoria - Department of Environment, Land, Water & Planning	06/02/2017	06/02/2017	Quarterly	-	-	-
Current Priority Sites	Environment Protection Authority (Vic)	06/02/2017	31/12/2016	Monthly	0	0	0
Former Priority Sites & other Pollution Notices	Environment Protection Authority (Vic)	06/02/2017	05/01/2017	Monthly	0	0	0
EPA Environmental Audit Reports	Environment Protection Authority (Vic)	06/02/2017	24/11/2016	Monthly	0	0	0
Groundwater Zones with Restricted Uses	Environment Protection Authority (Vic)	06/02/2017	27/01/2017	Monthly	0	0	0
Licensed Activities	Environment Protection Authority (Vic)	06/02/2017	29/01/2017	Monthly	0	0	0
Former Licensed Activities	Environment Protection Authority (Vic)	06/02/2017	29/01/2017	Monthly	0	0	0
Works Approvals	Environment Protection Authority (Vic)	06/02/2017	06/02/2017	Monthly	0	0	0
National Waste Management Site Database	Geoscience Australia	06/02/2017	15/11/2012	Quarterly	0	0	0
Statewide Waste and Resource Recovery Infrastructure Plan Facilities	State Government Victoria - Department of Sustainability	27/11/2014	31/12/2012	None planned	0	0	0
EPA Prescribed Industrial Waste	Environment Protection Authority (Vic)	04/01/2017	04/01/2017	Quarterly	0	0	0
UBD Business to Business Directory 1991	Hardie Grant			Not required	0	0	0
UBD Business to Business Directory 1991 - Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1980	Hardie Grant			Not required	0	0	0
UBD Business Directory 1980 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1960 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1950	Hardie Grant			Not required	0	0	0
UBD Business Directory 1950 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
Features of Interest	State Government Victoria - Department of Environment, Land, Water & Planning	03/02/2017	27/01/2017	Quarterly	4	4	4
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1	1	1
Groundwater Salinity	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	1	-	-
Depth to Watertable	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	1	-	-
Surface Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	1	-	-
Basement Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	1	-	-
Groundwater Boreholes WMIS	State Government Victoria - Department of Environment, Land, Water & Planning	29/04/2016	28/04/2016	Annually	0	0	85
Groundwater Boreholes Earth Resources Database	The State of Victoria, Department of Economic Development, Jobs, Transport and Resources	29/04/2016	17/02/2010	As required	0	0	13
Groundwater Boreholes Fed Uni	Federation University Australia	29/04/2016	07/01/2014	As required	0	0	0
Geological Units 1:250,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	3	-	3
Geological Structures 1:250,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	-	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Shear zones 250k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	-	0
Coastal Acid Sulfate Soils	The State of Victoria, Department of Economic Development, Jobs, Transport and Resources	15/07/2016	30/03/2011	None planned	1	1	1
Planning Scheme Zones	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	2	2	2
Planning Scheme Overlay	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	3	3	3
Cultural Heritage Sensitivity	State Government Victoria - Department of Planning and Community Development	03/02/2017	27/01/2017	Quarterly	2	3	3
Bushfire Prone Area	State Government Victoria - Department of Transport, Planning and Local Infrastructure	27/01/2017	27/01/2017	Quarterly	1	1	1
Fire History	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	0	0	0
Flood - 1 in 100 Year Modelled Flood Extent	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	0	0	0
Native Vegetation (Modelled 2005 Ecological Vegetation Classes)	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	31/12/2005	None planned	1	2	2
RAMSAR Wetlands	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	24/06/2013	None planned	0	0	0

Aerial Imagery 2016

OSAR Proposed Road Alignments - Site 26 (Section 4)

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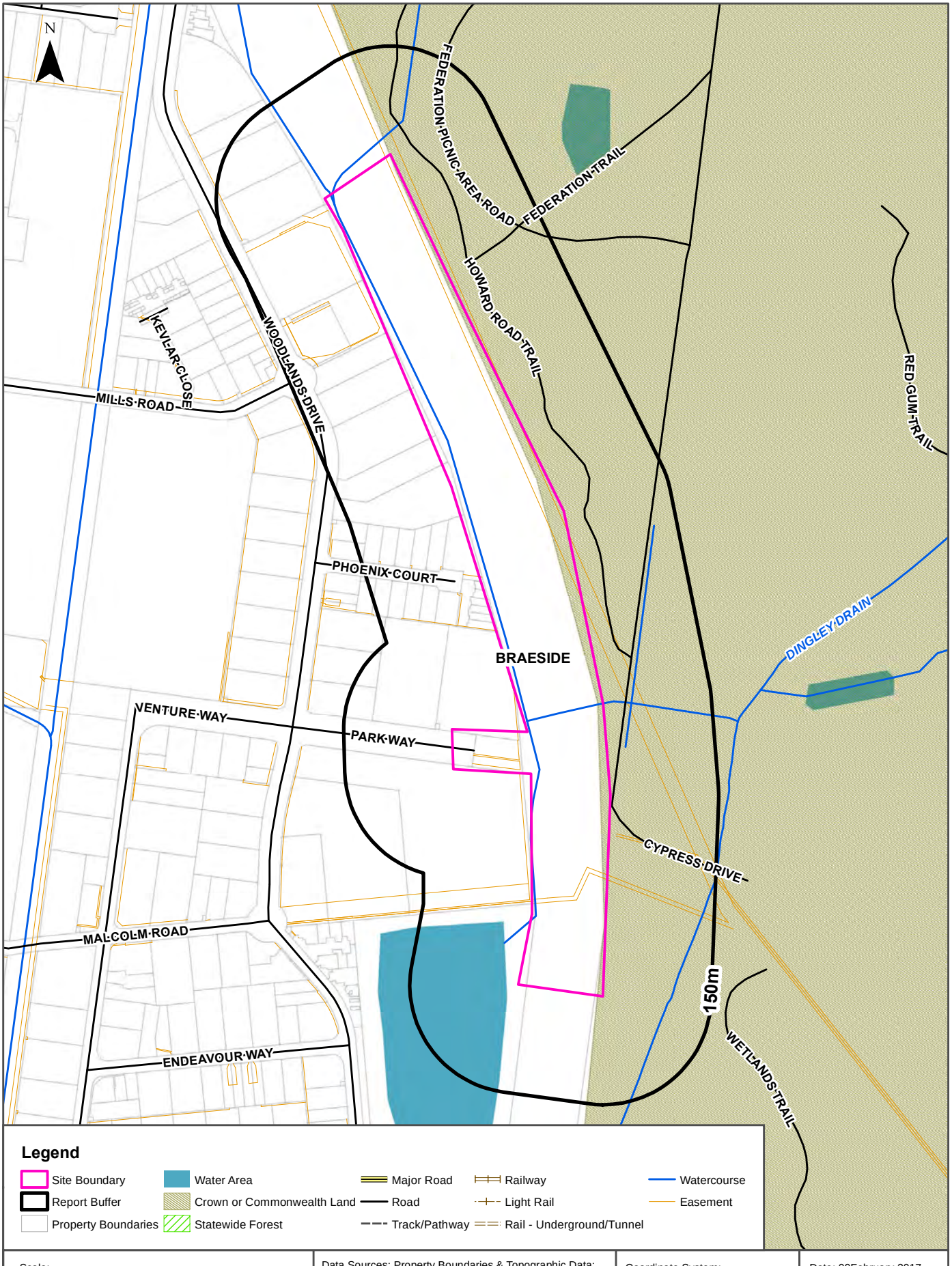
0 75 150 300
Meters

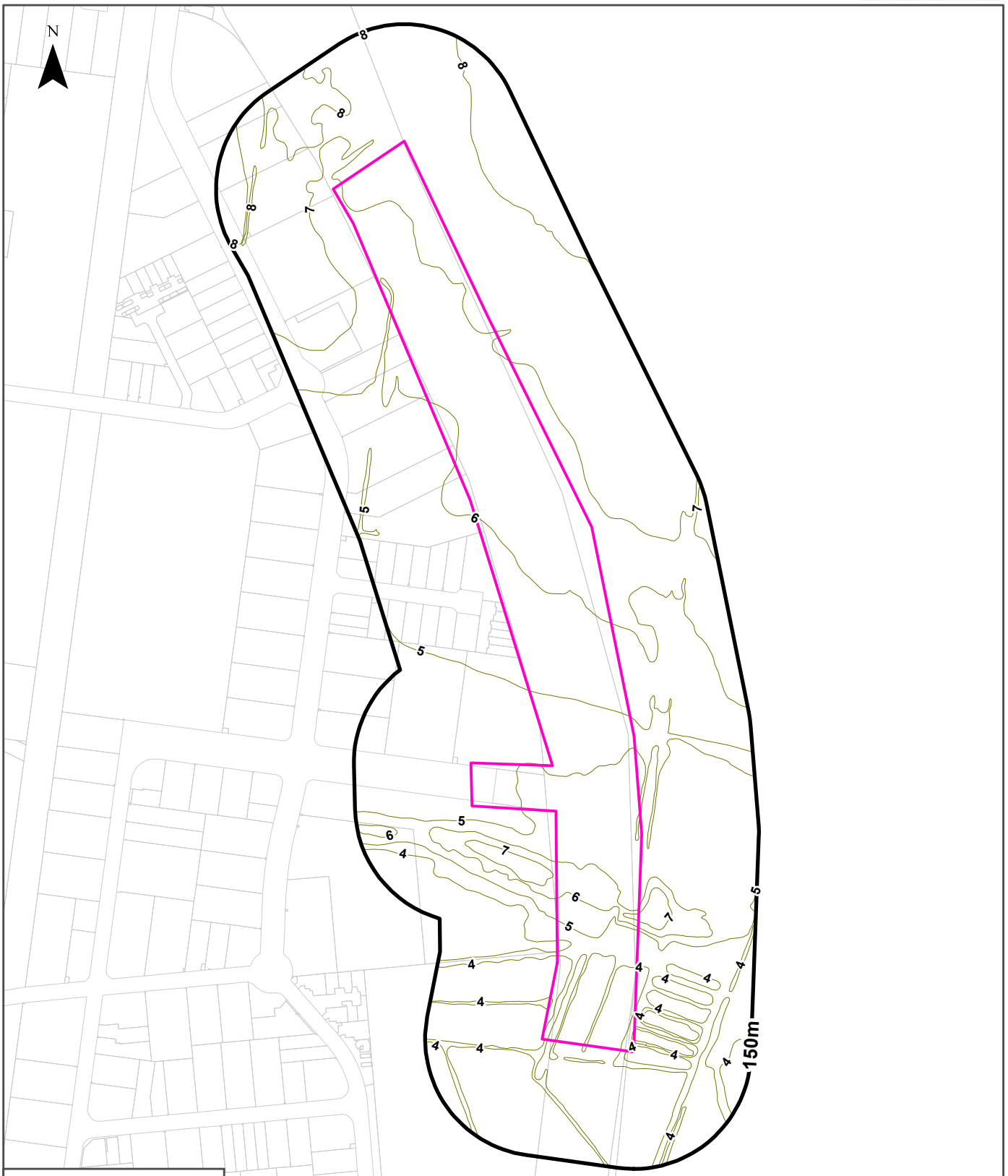
Topographic Data

OSAR Proposed Road Alignments - Site 26 (Section 4)



Elevation Contours (m AHD)

OSAR Proposed Road Alignments - Site 26 (Section 4)



Accuracy & Currency: The vertical accuracy of these contours is +/-0.5m and must therefore not be used for any design or engineering works, but only as a general guide to topography. Gaps may occur along contour lines due to vertical topography, obscured topography in the source mapping such as buildings, quarries, dense vegetation or dead ground, or the fact that original buildings have been replaced in the intervening forty years since the original contour capture. Original contour capture occurred between 1970 and 1985.

Scale: 0 50 100 200 Meters	Data Sources: Property Boundaries & Topographic Data: State of Victoria - Department of Environment and Primary Industries	Coordinate System: GDA 1994 MGA Zone 55	Date: 09February 2017

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 4)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

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

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

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

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

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

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 4)

EPA Environmental Audits

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

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

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

EPA Groundwater Zones with Restricted Uses

What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

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

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

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 4)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

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

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

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

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

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

EPA Works Approvals

What EPA works approvals exist within the report buffer?

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

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

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 4)

National Waste Management Site Database

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

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

Waste Management Facilities Data Source: Australian Government Geoscience Australia

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

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

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

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed industrial waste sites within the report buffer:

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

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 4)

1991 Business to Business Directory Records

1991 UBD Business Directory Records within 150m of the site:

Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer					

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1991 Business to Business Directory Garages & Service Stations

1991 UBD Business Directory Garages & Service Stations within 1km of the site:

Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer					

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Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 4)

1980 Business Directory Records

1980 UBD Business Directory Records within 150m of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1980 Business Directory Drycleaners, Garages & Service Stations

Drycleaners, Garages & Service Stations from the 1980 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

OSAR Proposed Road Alignments - Site 26 (Section 4)

1960 Business Directory Drycleaners, Garages & Service Stations

Drycleaners, Garages & Service Stations from the 1960 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Business Directory Records

1950 UBD Business Directory Records within 150m of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Business Directory Drycleaners, Garages & Service Stations

Drycleaners, Garages & Service Stations from the 1950 UBD Business Directory within 1km of the site:

Activity	Premise	Ref No.	Location Confidence	Distance	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Aerial Imagery 2009

OSAR Proposed Road Alignments - Site 26 (Section 4)

Scale:
0 75 150 300
Meters

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Aerial Imagery 2005

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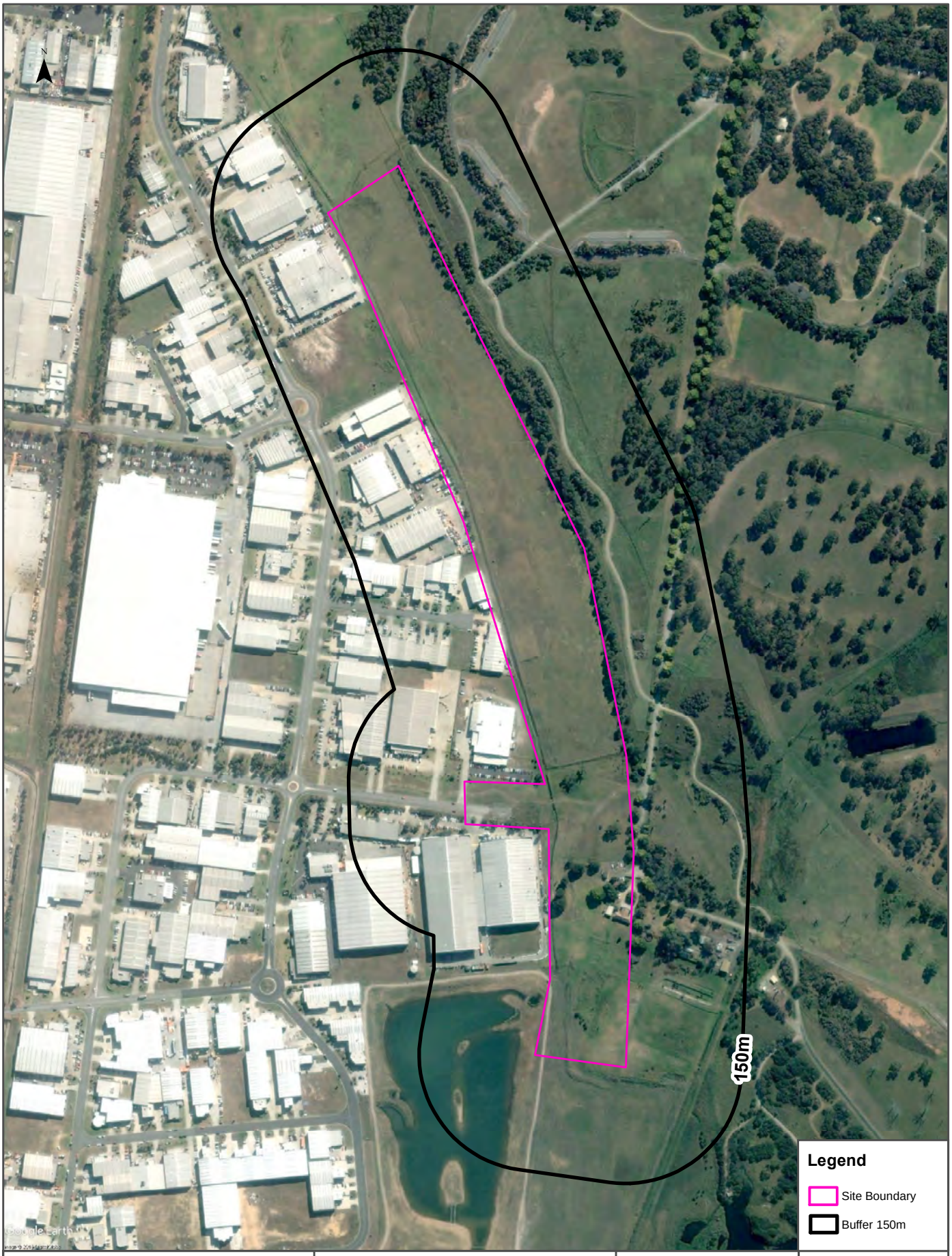

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Coordinate System:
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Date: 08February, 2017

Aerial Imagery 1991

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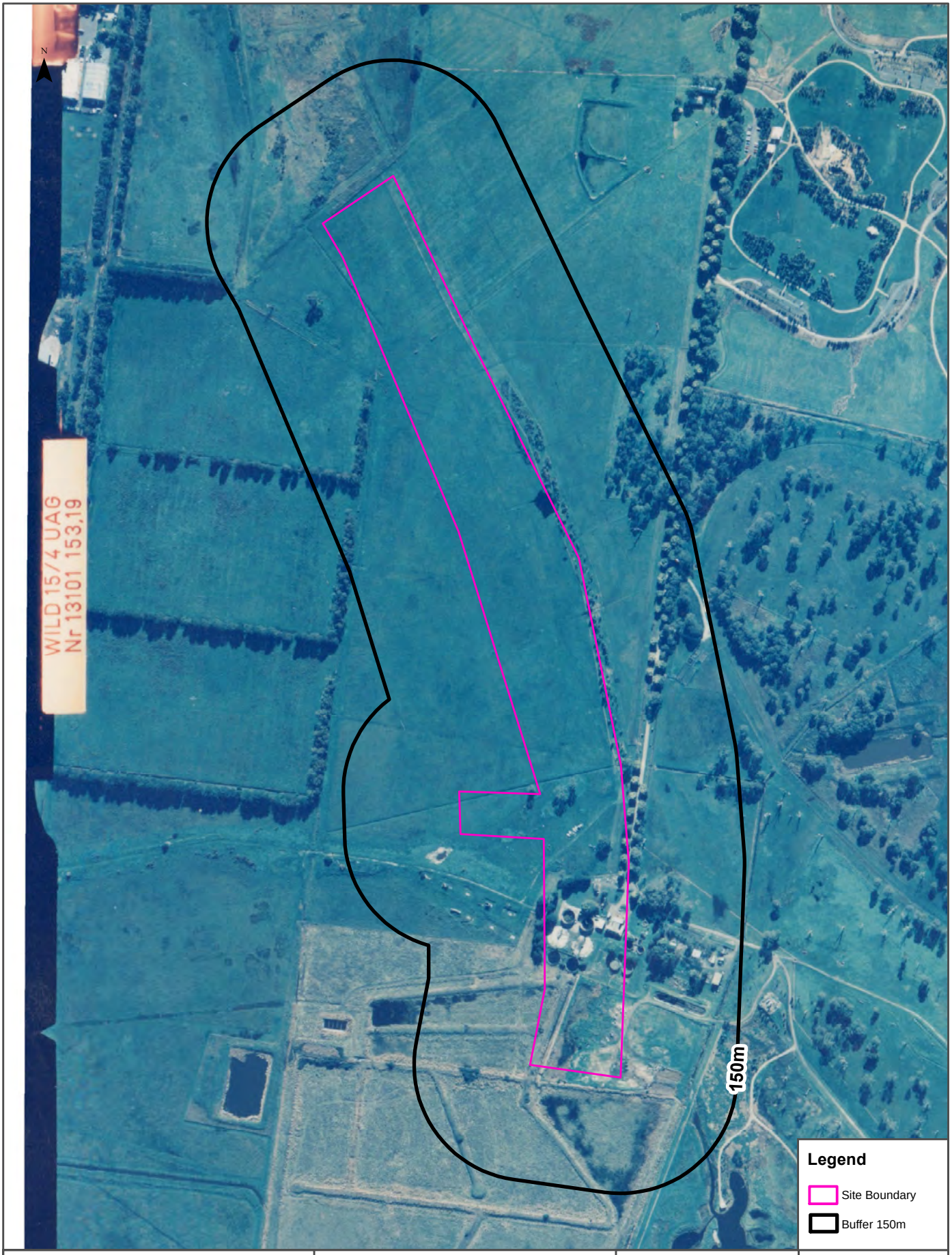

Scale:
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Meters

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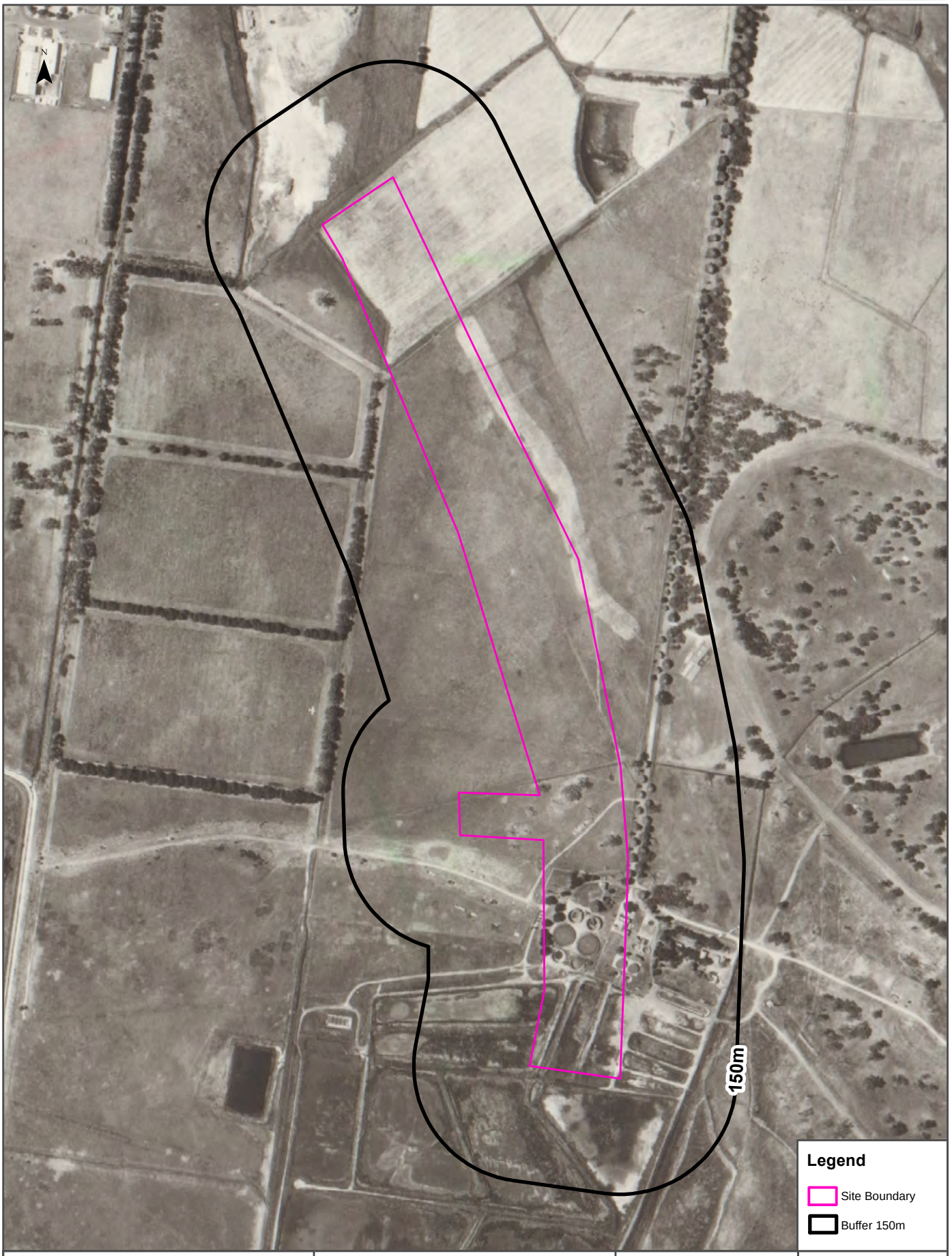

Scale:
0 75 150 300
Meters

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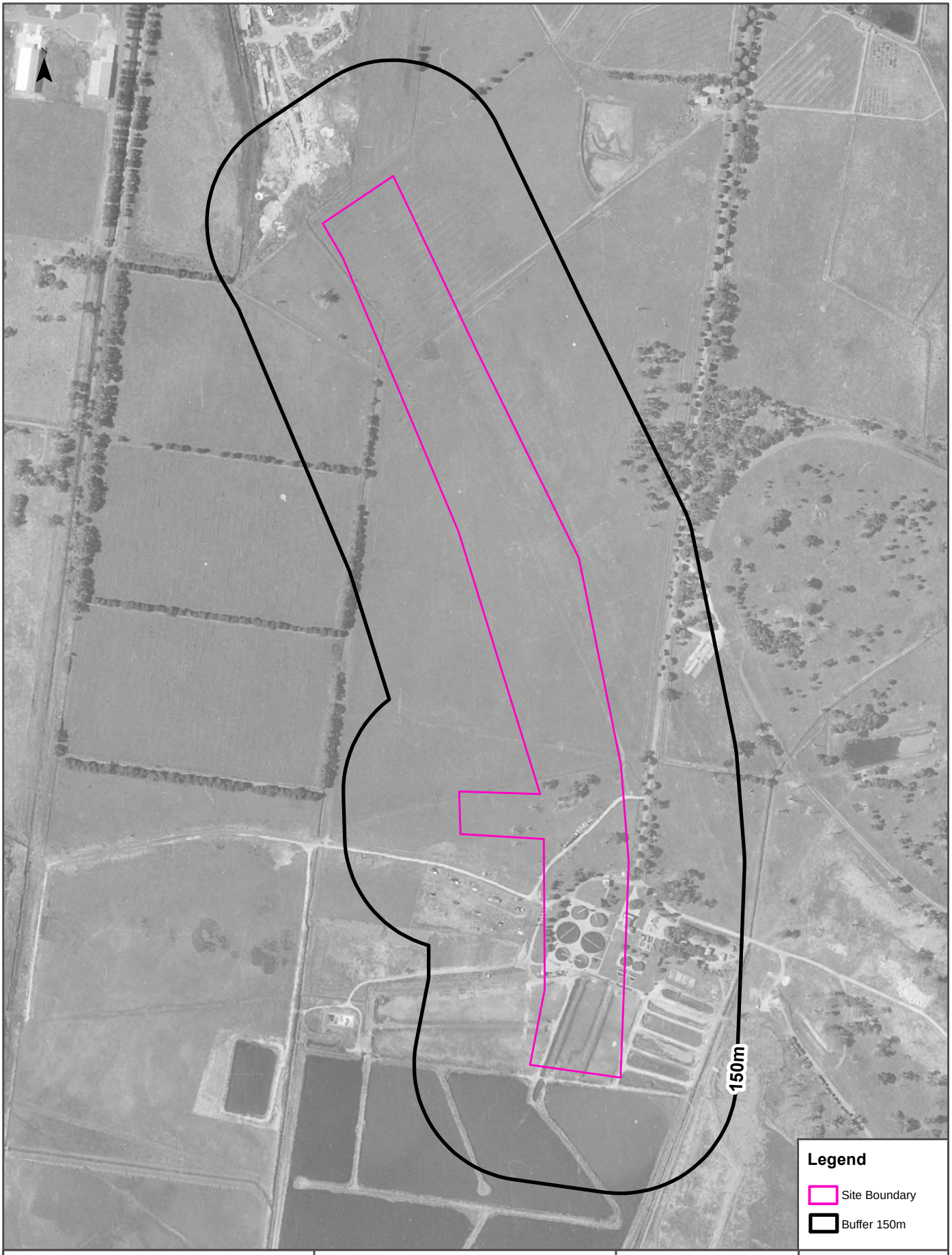
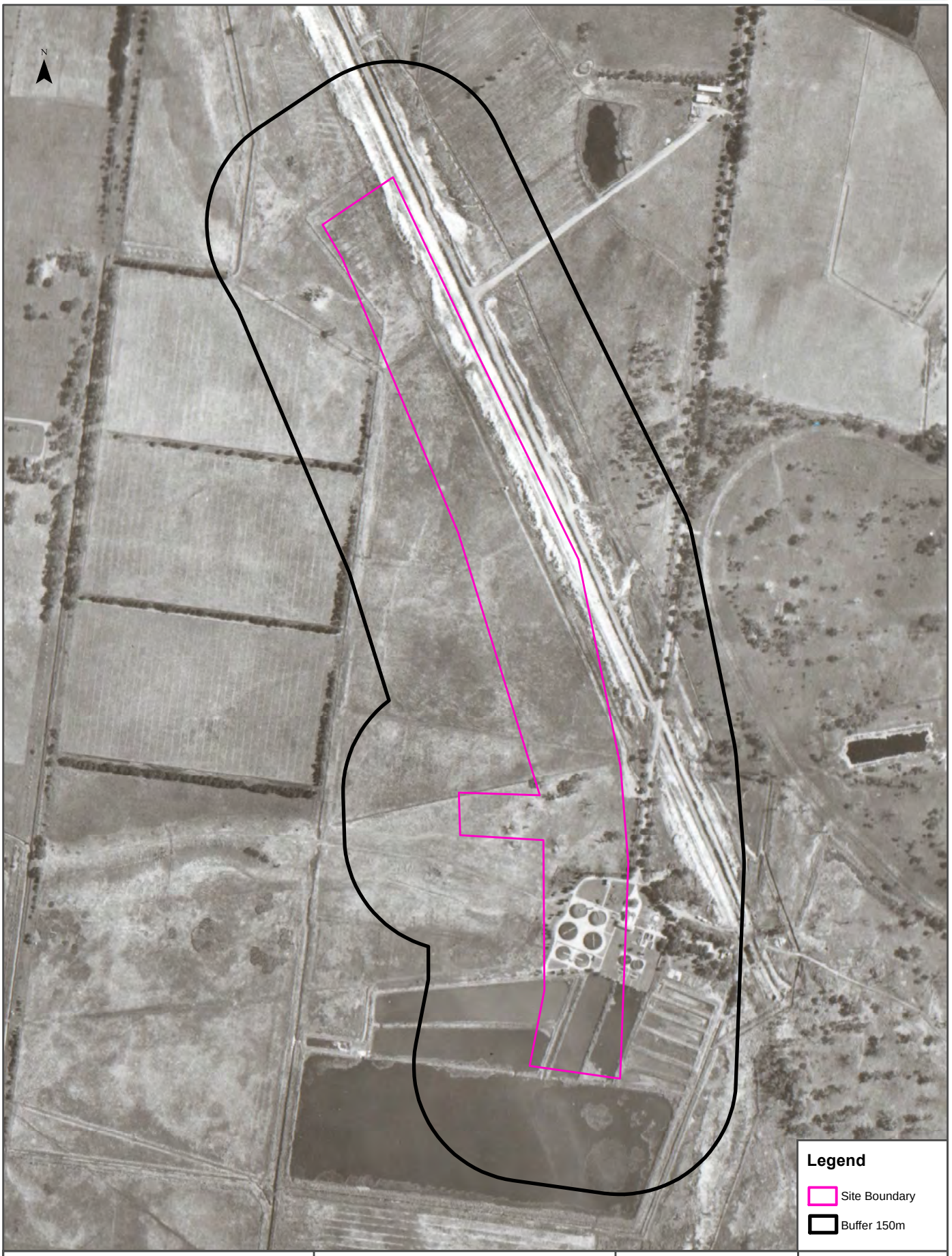


Aerial Imagery 1966

OSAR Proposed Road Alignments - Site 26 (Section 4)



Scale:
0 75 150 300
Meters

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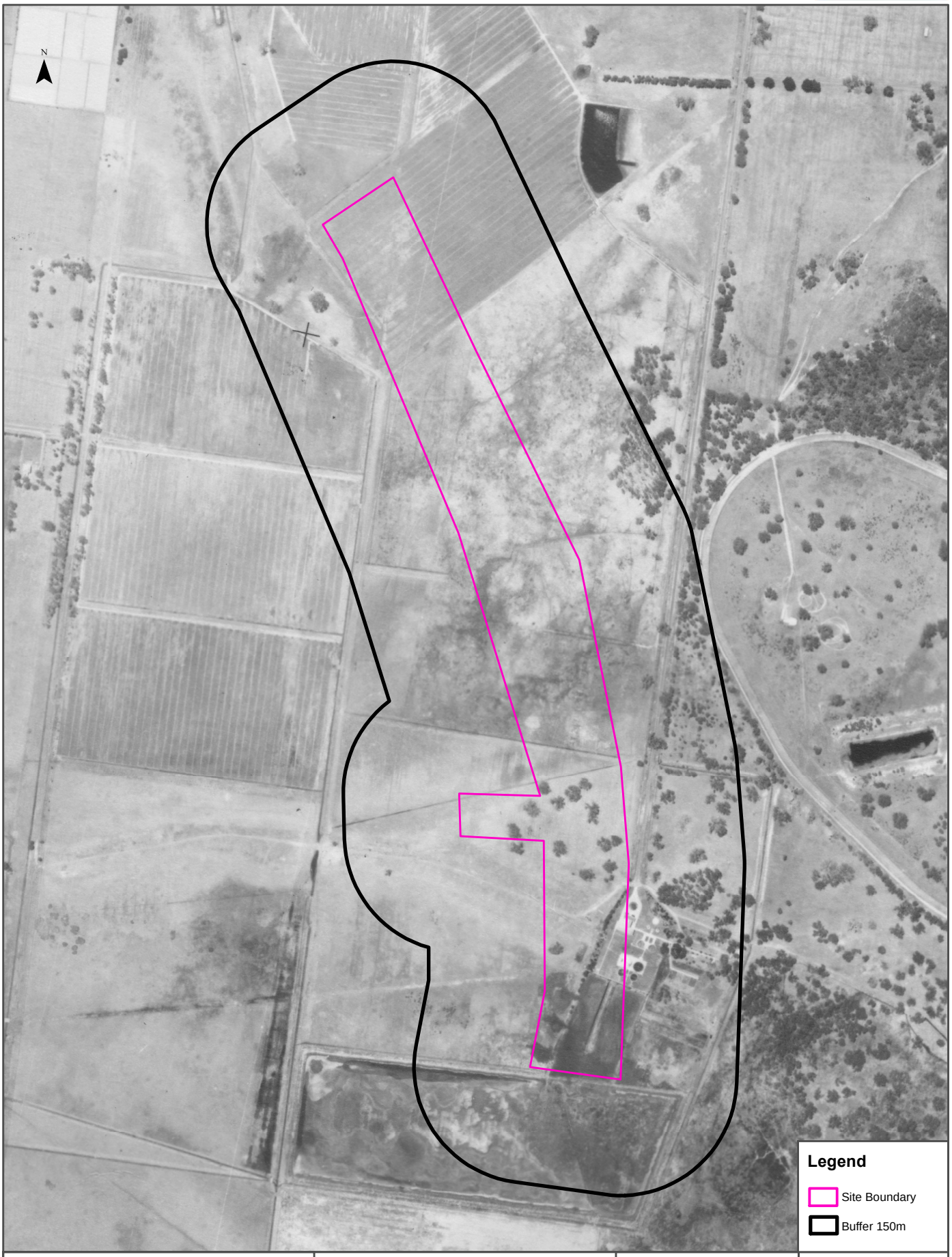
Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February 2017

Aerial Imagery 1951

OSAR Proposed Road Alignments - Site 26 (Section 4)



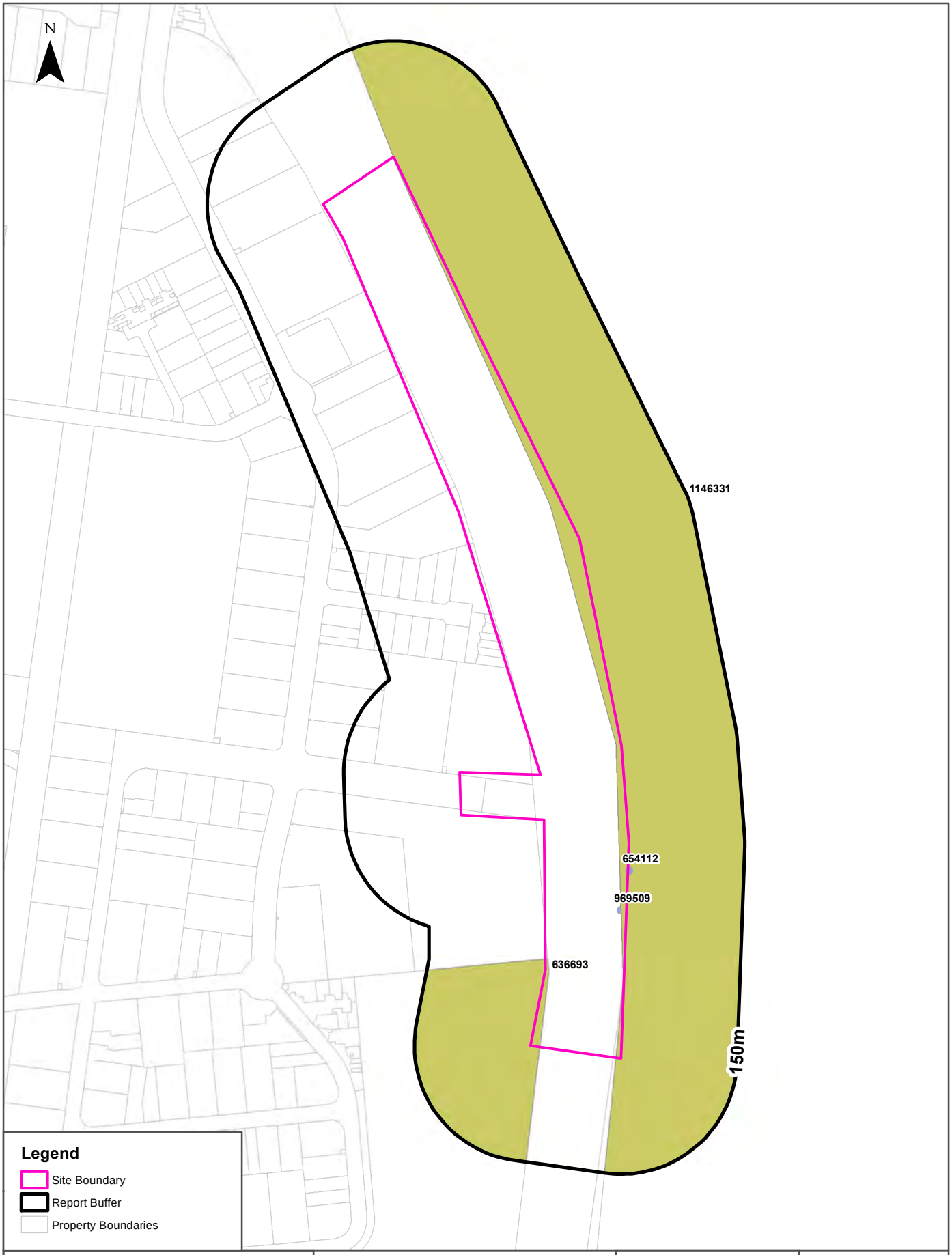
Data Sources: Historical Aerials: © Department of Environment & Primary Industries (Vicmap Topographic Mapping Program)

Coordinate System: GDA 1994 MGA Zone 55

Date: 08February 2017

Features of Interest

OSAR Proposed Road Alignments - Site 26 (Section 4)



Features of Interest

OSAR Proposed Road Alignments - Site 26 (Section 4)

Features of Interest

Features of Interest within 1km of the site:

Feature Id	Feature Type	Feature Sub Type	Name	Distance	Direction
969509	admin facility	office	Braeside	0m	Onsite
636693	reserve	park	Woodlands Industrial Estate Environmental Wetland	0m	Onsite
1146331	reserve	conservation park	Braeside Park	0m	Onsite
654112	sign	emergency marker	BSP409	0m	Onsite

Hydrogeology & Groundwater

OSAR Proposed Road Alignments - Site 26 (Section 4)

Hydrogeology

Description of aquifers within report buffer:

Description	Distance	Direction
Porous, extensive highly productive aquifers	0m	Onsite

Groundwater Salinity

On-site Groundwater Salinity:

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

Depth to Watertable

On-site Depth to Watertable:

Depth to Watertable	Percent Of Site Area
Less than 5 metres	100

Surface Elevation

Approximate on-site Surface Elevation:

Surface Elevation
4 AHDm to 8 AHDm

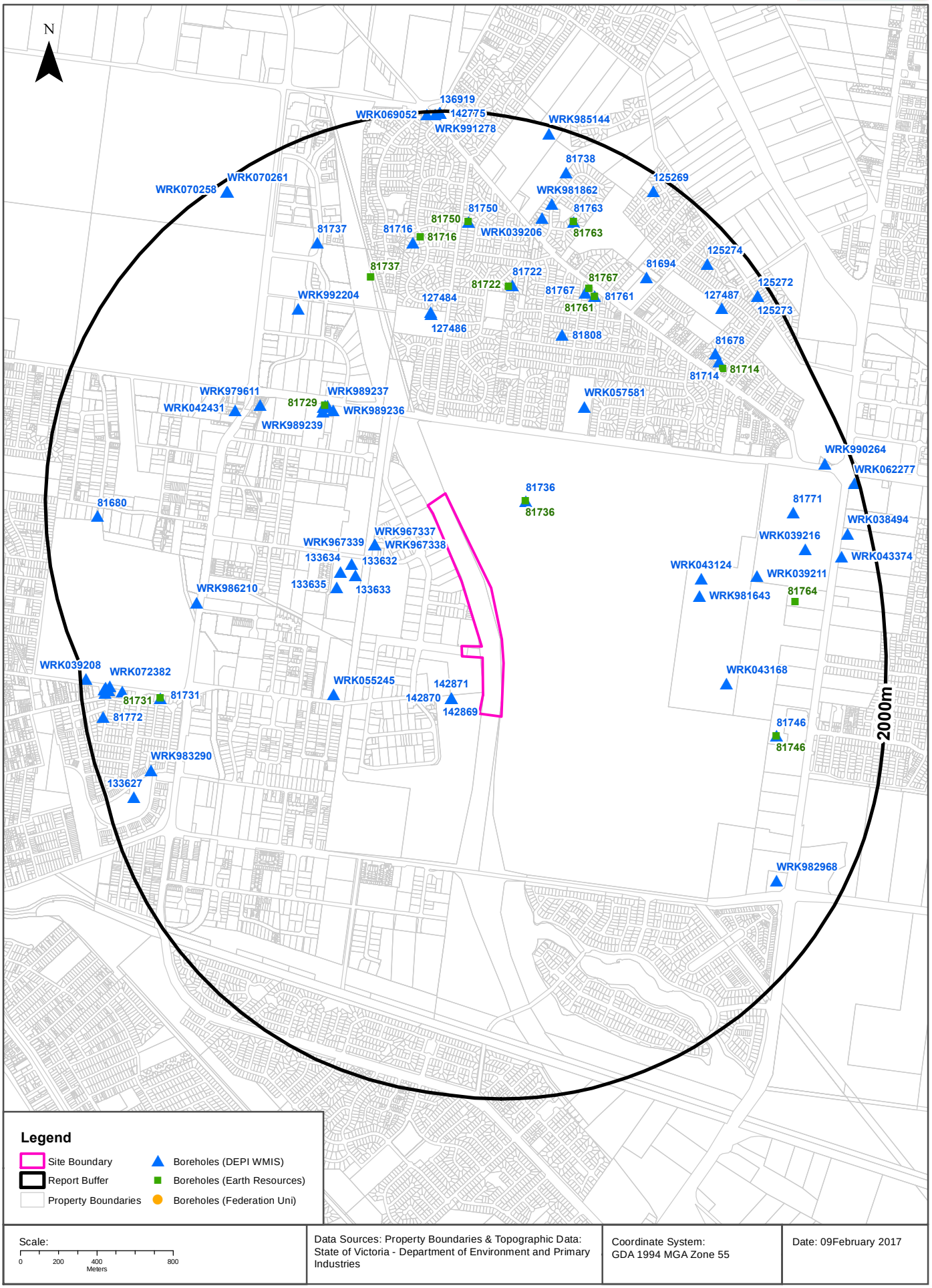
Basement Elevation

Approximate on-site Basement Elevation:

Basement Elevation - Basement Rocks comprise Lower Palaeozoic basement rocks that form the highlands and the crystalline basement; and Mesozoic rocks of the Otway and Gippsland basins both outcropping and subsurface
-41 AHDm to -38 AHDm

Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 4)



Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 4)

Boreholes (DEPI WMIS)

Boreholes from the Department of Environment and Primary Industries' Water Measurement Information System, within the report buffer:

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
142869	Groundwater Investigation	0.00m-14.40m SANDY CLAY	0.00m-11.40m INNER LINING - CASING = Pvc 11.40m-14.40m INNER LINING - SCREEN = Pvc 10.40m-10.90m OUTER LINING - GRAVEL = Bentonite 10.90m-14.40m OUTER LINING - GRAVEL = Gravel			1999-11-03	158	South
142870	Groundwater Investigation	0.00m-12.50m SANDY CLAY	0.00m-5.00m INNER LINING - CASING = Pvc 5.00m-12.50m INNER LINING - SCREEN = Pvc 0.00m-4.00m OUTER LINING - GRAVEL = Cement 4.00m-4.50m OUTER LINING - GRAVEL = Bentonite 4.50m-12.50m OUTER LINING - GRAVEL = Gravel			1999-10-18	158	South
142871	Groundwater Investigation	0.00m-12.50m SANDY CLAY	0.00m-5.00m INNER LINING - CASING = Pvc 5.00m-12.00m INNER LINING - SCREEN = Pvc 0.00m-4.00m OUTER LINING - GRAVEL = Cement 4.00m-4.50m OUTER LINING - GRAVEL = Bentonite 4.50m-12.50m OUTER LINING - GRAVEL = Gravel			1999-10-18	158	South
WRK967337							342	North West
WRK967338							342	North West
WRK967339							342	North West
81736	Domestic	0.00m-0.30m TOP SOIL 0.30m-0.91m WHITE SAND 0.91m-3.61m CLAY 3.61m-7.01m CLAY AND FINE SAND 7.01m-9.71m SHELL GRIT AND SHALE WITH COARSE PARTS 9.71m-11.84m COARSE WATER BEARING CLAY 11.84m-16.15m CLAY SHELL GRIT AND SHALE 16.15m-24.38m SHELL, GRIT AND SHALE	0.00m-22.86m INNER LINING - CASING = Pvc 22.86m-24.38m INNER LINING - SCREEN = Pvc		22.86m-24.38m Clay	1983-08-10	363	North East
133632	Groundwater Investigation	0.00m-0.90m FILL CLAYEY SILT 0.90m-3.50m SANDY CLAY 3.50m-6.00m CLAYEY SAND				1998-01-21	491	West
133633	Groundwater Investigation	0.00m-1.30m FILL SAND & SANDY CLAY 1.30m-6.00m SANDY CLAY				1998-01-21	496	West
133634	Groundwater Investigation	0.00m-1.00m FILL FRAVEL & SANDY CLAY 1.00m-5.50m SANDY CLAY 5.50m-6.00m CLAYEY SAND				1998-01-21	562	West
133635	Groundwater Investigation	0.00m-1.50m FILL SANDY LOAM 1.50m-2.00m CLAY 2.00m-6.50m SANDY CLAY				1998-01-21	612	West
WRK055245	Observation		0.00m-2.00m INNER LINING - CASING = Pvc 2.00m-8.00m INNER LINING - SCREEN = Pvc 0.00m-1.50m OUTER LINING - GRAVEL = Bentonite 1.50m-8.00m OUTER LINING - GRAVEL = Gravel			2010-02-23	698	South West
WRK989236							699	North West
WRK989239							736	North West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK989237							739	North West
81729	Domestic	0.00m-3.05m CLAY 3.05m-12.19m SANDY CLAY BROWN 12.19m-21.34m SAND BROWN 21.34m-36.58m SAND GREY 36.58m-49.38m SAND BLACK	0.00m-36.58m INNER LINING - CASING = Pvc 36.58m-38.10m INNER LINING - SCREEN = Pvc 38.10m-44.50m INNER LINING - CASING = Pvc 42.98m-45.72m INNER LINING - SCREEN = Pvc		36.58m-38.10m Sand 42.98m-45.72m Sand	1982-12-23	749	North West
WRK989238							750	North West
WRK057581	Irrigation	0.00m-2.50m Sand 2.50m-3.20m sandy Clay 3.20m-6.50m Grey Clay 6.50m-13.30m Brown Sandy Clay 13.30m-18.50m Blue Clay 18.50m-20.50m Fine Sand 20.50m-29.50m Blue Clay 29.50m-32.00m Sand 32.00m-33.00m Blue Clay				2010-09-23	858	North East
127486	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m FINE GREY SAND 1.00m-7.00m LIGHT BROWN CLAYEY SAND 7.00m-15.00m BROWN CLAYEY SAND 15.00m-30.00m SANDY MARL	0.00m-27.00m INNER LINING - CASING = Pvc 27.00m-29.00m INNER LINING - SCREEN = Pvc 29.00m-30.00m INNER LINING - CASING = Pvc 26.00m-27.00m OUTER LINING - GRAVEL = Bentonite 27.00m-30.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1043 Quality: 43 WLMP: 4.17m DBNS: 4.24m RWL: 6.88mAHD		1996-04-18	942	North
127484	Groundwater Investigation, Observation, State Observation Network	0.00m-1.00m DARK GREY SANDY SOIL 1.00m-2.00m ORANGY BROWN SANDY CLAY 2.00m-3.00m BROWNY ORANGE SANDY CLAY 3.00m-5.00m ORANGE GRAVELY CLAY 5.00m-13.00m ORANGE & GREY GRAVELY CLAY 13.00m-15.00m GREY SILTY SAND	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 10.00m-11.00m OUTER LINING - GRAVEL = Bentonite 11.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1042 Quality: 43 WLMP: 4.18m DBNS: 4.20m RWL: 6.95mAHD		1996-04-12	954	North
WRK979611							1021	North West
81808	Not Known					1988-01-01	1031	North
WRK981643							1058	East
WRK043124	Not Known					1988-01-01	1086	East
WRK042431	Irrigation	0.00m-4.60m MEDIUM GRAINED SAND 4.60m-5.60m GREY CLAY 5.60m-12.00m ORANGE/BROWN, VERY FINE SANDSTONE 12.00m-47.50m GREY SILT/SOME SHELLS AT DEPTH 47.50m-48.50m GREY SANDSTONE 48.50m-50.00m DARK GREY/SANDY LIMESTONE 50.00m-51.00m LIGHT GREY HARD LIMESTONE 51.00m-53.50m BROWN CLAY 53.50m-54.00m QUARTZ SAND 54.00m-55.00m BROWN CLAY 55.00m-57.00m COARSE SAND CEMENTED PYRITE 57.00m-59.00m LIGHT GREY CLAY 59.00m-59.50m LIGHT GREY SANDSTONE 59.50m-62.00m LIGHT GREY BASALT 62.00m-66.00m COARSE SAND/WOODY 66.00m-67.00m GREY CLAY	0.00m-59.60m INNER LINING - CASING = Abs Plastic 59.60m-62.00m INNER LINING - SCREEN = Abs Plastic 0.00m-41.00m OUTER LINING - GRAVEL = Cement 41.00m-56.30m OUTER LINING - GRAVEL = Bentonite 56.30m-65.70m OUTER LINING - GRAVEL = Gravel		59.60m-62.00m Basalt	1997-11-25	1121	North West
81722	Domestic	0.00m-1.20m TOP SOIL 1.20m-8.00m CLAY 8.00m-9.00m RIVER SAND 9.00m-0.00m ROCK (SANDSTONE)	0.00m-6.00m INNER LINING - CASING = Pvc 6.00m-9.00m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 0.30m-0.00m OUTER LINING - GRAVEL = Seal		6.00m-9.00m Sand	1983-02-28	1145	North
WRK043168	Irrigation					1982-01-01	1168	East
WRK992204	Groundwater Investigation	0.00m-0.50m fill 0.50m-5.00m brighton group sands	0.00m-2.00m INNER LINING - CASING = Pvc 2.00m-5.00m INNER LINING - SCREEN = Pvc 0.00m-0.20m OUTER LINING - GRAVEL = Cement 0.20m-1.50m OUTER LINING - GRAVEL = Bentonite 1.50m-5.00m OUTER LINING - GRAVEL = Gravel			2009-08-10	1230	North West

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81767	Domestic	0.00m-0.30m SURFACE SOIL 0.30m-0.60m GREY SAND 0.60m-4.20m CLAY 4.20m-14.00m SANDY CLAY 14.00m-15.80m SLOPPY CLAYEY SAND 15.80m-17.90m CLAYEY SAND WITH PIECES OF IRONSTONE	0.00m-15.80m INNER LINING - CASING = Pvc 15.80m-17.90m INNER LINING - SCREEN = Pvc 4.50m-17.90m OUTER LINING - GRAVEL = Gravel		15.80m-17.90m Sand	1983-09-01	1280	North
81761	Domestic, Stock	0.00m-1.00m FILL BRICK RUBBLE 1.00m-3.00m SAND YELLOW 3.00m-6.00m SANDY CLAY 6.00m-9.00m CLAY 9.00m-13.50m SAND 13.50m-0.00m BEDROCK	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-13.50m INNER LINING - SCREEN = Pvc		12.00m-13.50m Sand	1983-12-31	1293	North
WRK986210							1310	West
81716	Domestic	0.00m-2.00m TOP SOIL 2.00m-6.00m CLAY 6.00m-7.00m LIGHT CLAY AND SAND 7.00m-8.00m LIGHT SAND 8.00m-10.00m COARSE SAND	0.00m-7.00m INNER LINING - CASING = Pvc 7.00m-10.00m INNER LINING - SCREEN = Pvc		7.00m-10.00m Clay	1983-06-12	1321	North
WRK039211	Irrigation	0.00m-0.30m SURFACE SANDY SOIL 0.30m-4.00m FINE SAND 4.00m-30.50m CLAYEY SAND & STONE PIECES 30.50m-37.00m SILTY ORANGE SAND 37.00m-41.00m SILTY GREY SAND 41.00m-47.00m FIRM GREY MUDSTONE 47.00m-130.00m MEDIUM HARD BLUE SHALE 130.00m-162.00m HD BL SHALE SOME FRACS. - ALTER.TO BCP/28133	0.00m-106.00m INNER LINING - CASING = Mild Steel 106.00m-162.00m INNER LINING - SCREEN = Mild Steel		106.00m-162.00m Shale	1987-04-24	1374	East
81750	Domestic	0.00m-0.50m GREY SANDY LOAM 0.50m-3.00m YELLOW CLAY 3.00m-3.15m SANDY LAYER MEDIUM 3.15m-5.00m WHITE GREY CLAY 5.00m-5.07m THIN ROCK LAYER 5.07m-5.45m COARSE SAND WITH SOME FINE CLAY 5.45m-6.00m GREY CLAY	0.00m-5.00m INNER LINING - CASING = Pvc 5.00m-5.45m INNER LINING - SCREEN = Pvc 5.45m-6.00m INNER LINING - SCREEN = Slotted Pvc		5.00m-5.45m Sand 5.45m-6.00m Clay	1984-06-04	1425	North
81746	Domestic	0.00m-3.05m BROWN CLAY 3.05m-15.24m BROWN SANDY CLAY 15.24m-24.38m BLUE GREY GRAVELLY CLAY 24.38m-39.62m GREY GREEN SANDY CLAY 39.62m-45.41m GREY GREEN GRAVELLY CLAY	0.00m-4.57m INNER LINING - CASING = Pvc 0.00m-33.05m INNER LINING - CASING = Pvc 33.05m-38.10m INNER LINING - SCREEN = Pvc 39.92m-41.15m INNER LINING - SCREEN = Wire W S/Steel		33.05m-38.10m Clay 39.92m-41.15m Clay	1982-02-28	1440	South East
81737	Domestic	0.00m-3.00m TOP SOIL WITH GREY SAND 3.00m-5.00m GREY SANDY CLAY 5.00m-11.00m GREY CLAY WITH SAND 11.00m-17.00m BROWN SANDY CLAY 17.00m-59.00m BLACK CLAY 59.00m-60.00m WEATHERED MUDSTONE 60.00m-86.00m MUDSTONE	0.00m-59.20m INNER LINING - CASING = Mild Steel 59.20m-86.00m INNER LINING - SCREEN = Mild Steel		59.20m-86.00m Mudstone	1983-12-02	1471	North West
WRK039206	Irrigation					1970-12-31	1528	North
81694	Miscellaneous	0.00m-4.26m FINE GREY-BROWN SAND 4.26m-7.92m FIRM YELLOW BROWN SANDY CLAY 7.92m-13.72m BROWN SILTY FINE-MEDIUM SAND	0.00m-13.72m INNER LINING - CASING = Not Known 8.22m-13.72m INNER LINING - SCREEN = Not Known			1973-04-18	1543	North East
81763	Domestic	0.00m-0.25m TOP SOIL 0.25m-0.75m ORANGE SAND 0.75m-6.00m ORANGE CLAY 6.00m-7.00m GREY CLAY 7.00m-8.00m ORANGE SANDY CLAY 8.00m-9.15m IRON STONE	0.00m-8.95m INNER LINING - CASING = Galvanised Iron 8.95m-9.15m INNER LINING - SCREEN = Galvanised Iron		8.95m-9.15m Ironstone	1982-11-12	1571	North
81678	Domestic, Stock	0.00m-0.91m DARK SANDY SOIL 0.91m-2.44m GREY AND BROWN SAND CLAY 2.44m-4.57m GREY BROWN CLAY 4.57m-7.31m FATTY FINE COARSE SAND 7.31m-11.28m FINE FATTY CLAYED SAND 11.28m-12.19m FINE AND COARSE SAND 12.19m-14.02m FINE AND COARSE SAND	0.00m-11.27m INNER LINING - CASING = Not Known 11.27m-12.80m INNER LINING - SCREEN = Not Known			1972-11-30	1588	North East
81714	Domestic, Stock	0.00m-3.05m TOP SOIL 3.05m-6.10m SAND 6.10m-12.19m CLAY RED 12.19m-18.29m CLAY BROWN 18.29m-24.38m GRAVEL 24.38m-39.62m GREY CLAY - ROCK LAYERS 39.62m-42.67m SAND WHITE	0.00m-18.29m INNER LINING - CASING = Pvc Class 9 18.29m-30.48m INNER LINING - SCREEN = Pvc Class 9 30.48m-41.15m INNER LINING - CASING = Pvc Class 9 41.15m-42.67m INNER LINING - SCREEN = Pvc Class 9		18.29m-30.48m Gravel 41.15m-42.67m Sand	1983-02-27	1588	North East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
81731	Not Known	0.00m-7.62m FINE BLUE CLAY 7.62m-11.27m FINE ORANGE CLAY 11.27m-44.80m MED/COARSE SILTY SAND 44.80m-52.70m SILTY SILURIAN CLAY 52.70m-122.00m HARD SANDSTONE	0.00m-54.00m INNER LINING - CASING = Steel 54.00m-122.00m INNER LINING - SCREEN = Steel		54.00m-122.00m Sandstone	1983-02-16	1589	West
WRK981862							1615	North
81771	Irrigation	0.00m-0.30m TOP SOIL 0.30m-13.70m ORANGE/BROWN CLAY 13.70m-14.00m CLAY BOUND SAND 14.00m-40.80m SANDY CLAY AND LAYERS OF LIMESTONE 40.80m-43.20m COARSE SAND 43.20m-44.00m MUDSTONE	0.00m-40.70m INNER LINING - CASING = Mild Steel 40.70m-43.70m INNER LINING - SCREEN = Mild Steel 43.70m-44.00m INNER LINING - CASING = Mild Steel 0.00m-36.00m OUTER LINING - GRAVEL = Cement 36.00m-44.00m OUTER LINING - GRAVEL = Gravel		40.70m-43.70m Sand	1986-11-12	1625	East
WRK039216	Not Known					1988-01-01	1647	East
WRK982968							1672	South East
81680	Not Used - Capped	0.00m-12.19m YELLOW GREY CLAY 12.19m-21.34m SANDY GRAVEL AND CLAY 21.34m-47.24m LIGHT GREY SANDY CLAY 47.24m-47.55m SMALL BAND OF LIMESTONE 47.55m-53.34m COARSE SAND - SHELL AND WOOD 53.34m-55.78m DECOMPOSED BASALT 55.78m-60.96m HARD BASALT	0.00m-56.08m INNER LINING - CASING = Not Known 0.00m-56.08m OUTER LINING - GRAVEL = Cement			1973-01-13	1728	West
WRK983290							1729	South West
127487	Groundwater Investigation, Observation, State Observation Network	0.00m-0.50m FINE GREY SNAD 0.50m-2.00m BROWN SANDY CLAY 2.00m-4.00m YELLOW SANDY CLAY 4.00m-15.00m ORANGE CLAYEY SAND	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-14.00m INNER LINING - SCREEN = Pvc 14.00m-15.00m INNER LINING - CASING = Pvc 11.00m-12.00m OUTER LINING - GRAVEL = Bentonite 12.00m-15.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 1005 Quality: 43 WLMP: 5.74m DBNS: 5.79m RWL: 18.39mAHD		1996-04-19	1739	North East
WRK987435							1785	West
81738	Domestic	0.00m-1.50m GREY LOAM AND SAND 1.50m-3.00m GREY FIRM SAND 3.00m-4.52m GREY FINE SAND AND CLAY 4.52m-6.10m GREY SAND MEDIUM COARSE 6.10m-7.62m GREY COARSE SAND 7.62m-9.10m YELLOW CLAY SOME GRIT 9.10m-10.62m FINE SAND AND CLAY 10.62m-11.30m MEDIUM FINE SAND 11.30m-12.70m GREY MEDIUM COARSE SAND 12.70m-13.70m GREY MEDIUM CORASE SAND SOME CLAY 13.70m-15.20m COARSE GREY SAND WITH CLAY 15.20m-16.70m YELLOW CLAY FINE SAND 16.70m-19.81m COARSE GREY SAND	0.00m-7.62m INNER LINING - CASING = Pvc 7.62m-18.50m INNER LINING - SCREEN = Pvc 18.50m-19.81m INNER LINING - SCREEN = Slotted Pvc		7.62m-18.50m Clay 18.50m-19.81m Sand	1983-09-14	1795	North
125274	Groundwater Investigation, State Observation Network	0.00m-1.00m DRY SAND 1.00m-6.00m SANDY CLAY 6.00m-10.00m GRAVEL SAND & CLAY (WET) 10.00m-12.00m SANDY CLAY 12.00m-35.00m GREY SANDY CLAY	0.00m-8.00m INNER LINING - CASING = Pvc 8.00m-10.00m INNER LINING - SCREEN = Pvc 10.00m-24.00m INNER LINING - CASING = Pvc 6.00m-7.00m OUTER LINING - GRAVEL = Bentonite 7.00m-12.00m OUTER LINING - GRAVEL = Gravel 24.00m-24.50m OUTER LINING - GRAVEL = Bentonite	Date/time: 2016-02-23 0952 Quality: 43 WLMP: 1.89m DBNS: 1.89m RWL: 20.83mAHD		1995-01-29	1821	North East
WRK043374	Irrigation	0.00m-2.00m FINE & DRY SAND 2.00m-4.00m CLAY/SAND 4.00m-29.00m BRIGHTON GROUP 29.00m-42.00m SILTY SAND 42.00m-45.00m CLAY 45.00m-47.00m MUDSTONE CW 47.00m-66.00m MUDSTONE SOFT MW 66.00m-69.00m SANDSTONE HARD MW 69.00m-96.00m MUDSTONE FIRM MW	0.00m-90.00m INNER LINING - CASING = Pvc 90.00m-96.00m INNER LINING - SCREEN = Slotted Steel 0.00m-61.00m OUTER LINING - GRAVEL = Cement 61.00m-96.00m OUTER LINING - GRAVEL = Seal		90.00m-96.00m Mudstone	2009-01-21	1826	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK072382	Observation	0.00m-0.30m GRAss/topsoil 0.30m-0.50m FILL/rubblegritty material 0.50m-0.70m Ddark silty clay 0.70m-2.00m Stiff clay/yellow mottled 2.00m-4.00m CLAYey sand	0.00m-1.00m INNER LINING - CASING = Pvc 1.00m-4.00m INNER LINING - SCREEN = Pvc 0.00m-0.60m OUTER LINING - GRAVEL = Cement 0.60m-0.90m OUTER LINING - GRAVEL = Bentonite 0.90m-4.00m OUTER LINING - GRAVEL = Gravel		1.00m-4.00m Clay	2013-05-27	1846	West
WRK072379	Observation	0.00m-0.40m Rubble 0.40m-0.70m Black silt 0.70m-2.50m CLAY 2.50m-4.20m CLAYey sand/silt	0.00m-1.20m INNER LINING - CASING = Pvc 1.20m-4.20m INNER LINING - SLOT = Pvc 0.00m-0.80m OUTER LINING - GRAVEL = Cement 0.80m-1.00m OUTER LINING - GRAVEL = Bentonite 1.00m-4.20m OUTER LINING - GRAVEL = Gravel		1.20m-4.20m Clay	2013-05-28	1856	West
133627	Groundwater Investigation	0.00m-0.50m CLAY 0.50m-1.40m FILL CRUSEHD ROCK & SILTSTONE 1.40m-4.00m CLAY	1.00m-4.00m INNER LINING - SCREEN = Not Known		1.00m-4.00m Clay	1998-04-21	1857	South West
WRK990264	Groundwater Investigation					2009-03-13	1862	East
WRK072381	Observation	0.00m-0.30m FILL/disturbed clay some rubble 0.30m-0.70m CLAYey silt/black 0.70m-1.50m SANDy clay/dense 1.50m-2.50m SANDy clay/silty 2.50m-4.20m LIGhter clayey sand/wet	0.00m-1.20m INNER LINING - CASING = Pvc 1.20m-4.20m INNER LINING - SCREEN = Pvc 0.00m-0.60m OUTER LINING - GRAVEL = Cement 0.60m-0.90m OUTER LINING - GRAVEL = Bentonite 0.90m-4.20m OUTER LINING - GRAVEL = Gravel		1.20m-4.20m Clay	2013-05-27	1868	West
WRK072380	Observation	0.00m-0.40m FILLbuilding ruble/clay 0.40m-0.80m DArk peaty clay 0.80m-3.00m Mottled silty clay 3.00m-5.00m SANDy clay/silt 5.00m-6.00m wet sand & yellow clay	0.00m-1.50m INNER LINING - CASING = Pvc 1.50m-6.00m INNER LINING - SCREEN = Pvc 0.00m-0.50m OUTER LINING - GRAVEL = Cement 0.50m-1.40m OUTER LINING - GRAVEL = Bentonite 1.40m-6.00m OUTER LINING - GRAVEL = Gravel		1.50m-6.00m Clay	2013-05-27	1873	West
WRK072384	Observation	0.00m-0.40m CLAY& some srubble bricks concretesome rocks 0.40m-0.80m SIsturbed clay 2.50m-3.00m SILTy clay & sand 3.00m-4.50m wet yellow clayey sand	0.00m-1.50m INNER LINING - CASING = Pvc 1.50m-4.50m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 1.00m-1.20m OUTER LINING - GRAVEL = Bentonite 1.20m-4.50m OUTER LINING - GRAVEL = Gravel		1.50m-4.50m Clay	2013-05-28	1876	West
WRK038494	Irrigation, Not Known					1968-12-31	1881	East
81772	Not Known		0.00m-95.80m INNER LINING - CASING = Galvanised Iron 96.00m-107.20m INNER LINING - SCREEN = Galvanised Iron			1987-03-27	1901	West
125269	Groundwater Investigation, State Observation Network	0.00m-2.00m DRY SAND 2.00m-8.00m SANDY CLAY 8.00m-11.00m GRAVEL SILT & CLAY 11.00m-17.00m YELLOW SILTY CLAY 17.00m-28.00m GREY SILTY CLAY	0.00m-8.50m INNER LINING - CASING = Pvc 8.50m-10.50m INNER LINING - SCREEN = Pvc 10.50m-13.50m INNER LINING - CASING = Pvc 8.50m-13.50m OUTER LINING - GRAVEL = Gravel 13.50m-14.50m OUTER LINING - GRAVEL = Bentonite	Date/time: 2016-02-23 1019 Quality: 43 WLMP: 6.33m DBNS: 6.33m RWL: 20.88mAHD		1995-01-13	1918	North East
125273	Groundwater Investigation, State Observation Network	0.00m-0.50m DRY SAND 0.50m-2.00m CLAY 2.00m-5.50m SANDY CLAY 5.50m-8.00m SANDY SILT & GRAVEL 8.00m-11.00m GRAVEL & CLAY (WET) 11.00m-12.00m SANDY CLAY	0.00m-8.00m INNER LINING - CASING = Pvc 8.00m-11.00m INNER LINING - SCREEN = Pvc 11.00m-12.00m INNER LINING - CASING = Pvc 5.00m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-12.00m OUTER LINING - GRAVEL = Gravel	Date/time: 2016-02-23 0939 Quality: 43 WLMP: 6.20m DBNS: 6.20m RWL: 19.91mAHD		1995-01-26	1931	North East
125272	Groundwater Investigation, State Observation Network	0.00m-0.50m DRY SAND 0.50m-2.00m CLAY 2.00m-5.50m SANDY CLAY 5.50m-8.00m SAND SILT & CLAY 8.00m-11.00m GRAVEL & CLAY (WET) 11.00m-16.00m SANDY CLAY 16.00m-18.00m GREY SILT SANDY CLAY 18.00m-23.50m DIRTY SAND & GRAVEL (WET) 23.50m-40.00m GREY SILTY CLAY	0.00m-20.50m INNER LINING - CASING = Pvc 20.50m-22.50m INNER LINING - SCREEN = Pvc 22.50m-40.00m INNER LINING - CASING = Pvc 17.00m-0.00m OUTER LINING - GRAVEL = Seal	Date/time: 2016-02-23 0940 Quality: 43 WLMP: 7.35m DBNS: 7.35m RWL: 18.76mAHD		1995-01-26	1932	North East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK070259	Observation					2012-07-03	1945	North West
WRK070258	Observation					2012-07-02	1945	North West
WRK070260	Observation					2012-07-04	1945	North West
WRK070261	Observation					2012-07-05	1946	North West
WRK985144							1960	North
WRK039208	Irrigation		0.00m-60.35m INNER LINING - CASING = Not Known 56.08m-60.35m INNER LINING - SCREEN = Not Known			1963-12-31	1968	West
WRK062277	Observation	0.00m-0.60m SAND 0.60m-1.50m CLAY 1.50m-5.50m SAND	0.00m-2.50m INNER LINING - CASING = Pvc 2.50m-5.50m INNER LINING - SCREEN = Pvc 0.00m-1.00m OUTER LINING - GRAVEL = Cement 1.00m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-5.50m OUTER LINING - GRAVEL = Gravel		0.00m-2.50m Clay 2.50m-5.50m Sand	2011-09-01	1976	East
WRK991278	Groundwater Investigation	0.00m-0.30m topsoil 0.30m-1.50m sand 1.50m-3.60m sandstone 3.60m-8.20m sand	0.00m-4.20m INNER LINING - CASING = Pvc 4.20m-8.20m INNER LINING - SCREEN = Pvc 0.00m-2.50m OUTER LINING - GRAVEL = Cement 2.50m-3.70m OUTER LINING - GRAVEL = Bentonite 3.70m-8.20m OUTER LINING - GRAVEL = Gravel			2009-05-08	1982	North
WRK069052	Observation	0.00m-0.40m FILL 0.40m-9.50m CLAY	0.00m-6.00m INNER LINING - CASING = Pvc 6.00m-9.00m INNER LINING - SCREEN = Pvc 9.00m-9.50m INNER LINING - CASING = Pvc 0.00m-5.00m OUTER LINING - GRAVEL = Cement 5.00m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-9.00m OUTER LINING - GRAVEL = Gravel		9.00m-9.50m Clay	2012-08-17	1984	North
136917	Groundwater Investigation	0.00m-0.80m SANDY SILT, BROWN, MOIST FILL 0.80m-1.00m SAND CLAY, ORANGE BROWN, PAIL BROWN, YELLOW BROWN, STIFF, MO 1.00m-7.50m CLAYEY SAND FINE AND MEDIUM SAND, RED BROWN, YELLOW BROWN AN	0.00m-3.50m INNER LINING - CASING = Pvc Class 18 3.50m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.30m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	1990	North
142775	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-7.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	1990	North
142772	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc			1998-10-22	1990	North
142774	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	1990	North
142773	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	1990	North
142768	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	1990	North

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
142769	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	1990	North
136918	Groundwater Investigation	0.00m-0.80m SANDY SILT, BROWN, DENSE, MOIST FILL 0.80m-7.50m CLAYEY SAND, FINE AND MEDIUM SAND, RED BROWN, YELLOW BROWN,	0.00m-4.00m INNER LINING - CASING = Pvc Class 18 4.00m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.40m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	1990	North
136919	Groundwater Investigation	0.00m-0.90m SILTY SAND, BROWN, MOIST FILL 0.90m-7.50m CLAYEY SAND RED BROWN, YELLOW BROWN AND PAIL GREY, MEDIUM GR	0.00m-4.00m INNER LINING - CASING = Pvc Class 18 4.00m-7.50m INNER LINING - SCREEN = Pvc Class 18 0.00m-0.20m OUTER LINING - GRAVEL = Cement 2.30m-3.00m OUTER LINING - GRAVEL = Bentonite 3.00m-7.50m OUTER LINING - GRAVEL = Gravel			1998-10-06	1990	North
142771	Groundwater Investigation		0.00m-3.00m INNER LINING - CASING = Pvc 3.00m-6.00m INNER LINING - SCREEN = Pvc 1.50m-2.00m OUTER LINING - GRAVEL = Bentonite 2.00m-0.00m OUTER LINING - GRAVEL = Seal			1998-10-22	1990	North
142770	Groundwater Investigation	0.00m-4.00m CLAYEY SAND 4.00m-5.00m SILTY SAND 5.00m-11.00m CLAYEY SAND	0.00m-6.50m INNER LINING - CASING = Pvc 6.50m-11.00m INNER LINING - SCREEN = Pvc 0.00m-5.50m OUTER LINING - GRAVEL = Cement 5.50m-6.00m OUTER LINING - GRAVEL = Bentonite 6.00m-11.00m OUTER LINING - GRAVEL = Gravel		6.50m-11.00m Sand	1998-08-12	1990	North

Groundwater Boreholes

OSAR Proposed Road Alignments - Site 26 (Section 4)

Boreholes (Earth Resources Database)

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

Bore Id	Bore Type	Company	Usage	Method	Status	Drill Date	Depth	Elevation	Accuracy (m)	Dist (m)	Direct
81736		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		10/08/1983	24.38		100	361	North East
81729		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		23/12/1982	49.38		100	751	North West
81722		Private Individual/Corporation	Domestic water supply	Hand Auger		28/02/1983	9.00		100	1130	North
81737		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		02/12/1983	86.00		100	1197	North
81761		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		31/12/1983	13.50		100	1292	North
81767		Private Individual/Corporation	Domestic water supply	Percussion (cable)		01/09/1983	17.90		100	1307	North
81716		Private Individual/Corporation	Domestic water supply	Hand Auger		12/06/1983	10.00		100	1347	North
81750		Private Individual/Corporation	Domestic water supply	Hand Auger		04/06/1984	6.00		100	1426	North
81746		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		28/02/1982	45.41		100	1438	South East
81764		Private Individual/Corporation	Public/town water supply	Air Percussion/Air Rotary		24/04/1987	127.60		100	1546	East
81763		Private Individual/Corporation	Domestic water supply	Percussion (cable)		12/11/1982	9.15		100	1571	North
81714		Private Individual/Corporation	Domestic water supply	Rotary (diamond/drag bit)		27/02/1983	42.67		100	1588	North East
81731		Local Government Authority	Irrigation	Air Percussion/Air Rotary		16/02/1983	122.00		100	1592	West

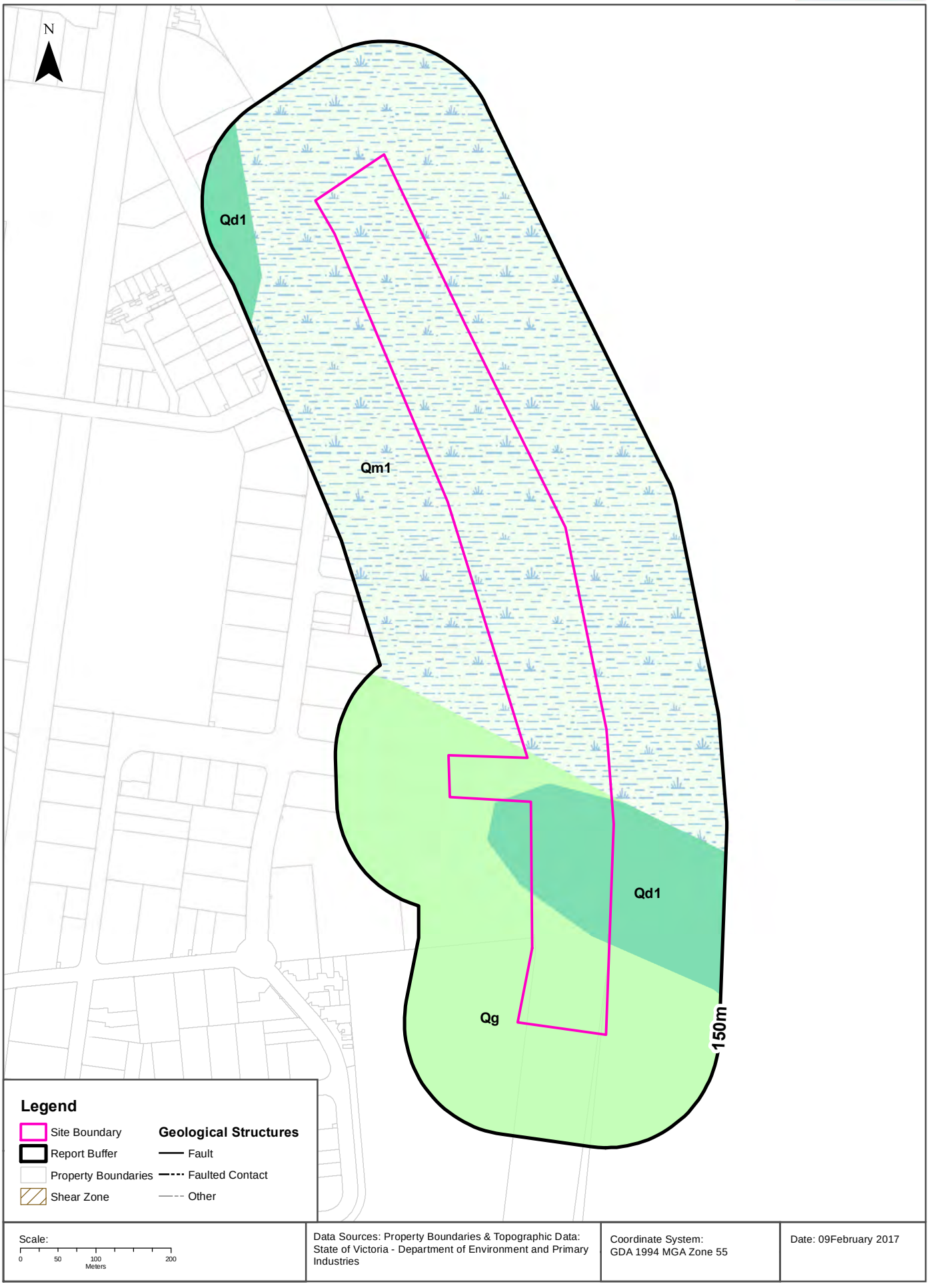
Boreholes (Federation University)

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

Bore Id	Authority	Type	Uses	Initial TD	Log	Dist (m)	Direct
N/A	No records within buffer						

Geology 1:250,000

OSAR Proposed Road Alignments - Site 26 (Section 4)



Geology

OSAR Proposed Road Alignments - Site 26 (Section 4)

Geological Units

What are the Geological Units onsite?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Qd1	inland dune deposits (Qd1): generic	Sand, silt, clay: friable to consolidated; well sorted; includes both lunette deposits and deposits of longitudinal dunes	Quaternary to Quaternary	sand (significant); silt material (significant); clay lithology (significant)	1:250,000
Qg	coastal lagoon deposits (Qg): generic	Silt, clay: dark grey to black; variably consolidated	Holocene to Holocene	silt material (significant); clay lithology (significant)	1:250,000
Qm1	swamp and lake deposits (Qm1): generic	Grey to black carbonaceous mud, silt, clay, minor peat: generally unconsolidated; rare dolomite	Pleistocene to Holocene	mud (major proportion); silt material (significant); clay lithology (significant); peat (minor proportion)	1:250,000

What are the Geological Units within the report buffer?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Qd1	inland dune deposits (Qd1): generic	Sand, silt, clay: friable to consolidated; well sorted; includes both lunette deposits and deposits of longitudinal dunes	Quaternary to Quaternary	sand (significant); silt material (significant); clay lithology (significant)	1:250,000
Qg	coastal lagoon deposits (Qg): generic	Silt, clay: dark grey to black; variably consolidated	Holocene to Holocene	silt material (significant); clay lithology (significant)	1:250,000
Qm1	swamp and lake deposits (Qm1): generic	Grey to black carbonaceous mud, silt, clay, minor peat: generally unconsolidated; rare dolomite	Pleistocene to Holocene	mud (major proportion); silt material (significant); clay lithology (significant); peat (minor proportion)	1:250,000

Geology

OSAR Proposed Road Alignments - Site 26 (Section 4)

Geological Structures

What are the Geological Faults or Faulted Contacts onsite?

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:250,000

What are the Dykes, Marker Beds and Veins onsite?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No Data Covergae					

What are the Shear Zones onsite (1:250,000 scale)?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

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

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:250,000

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

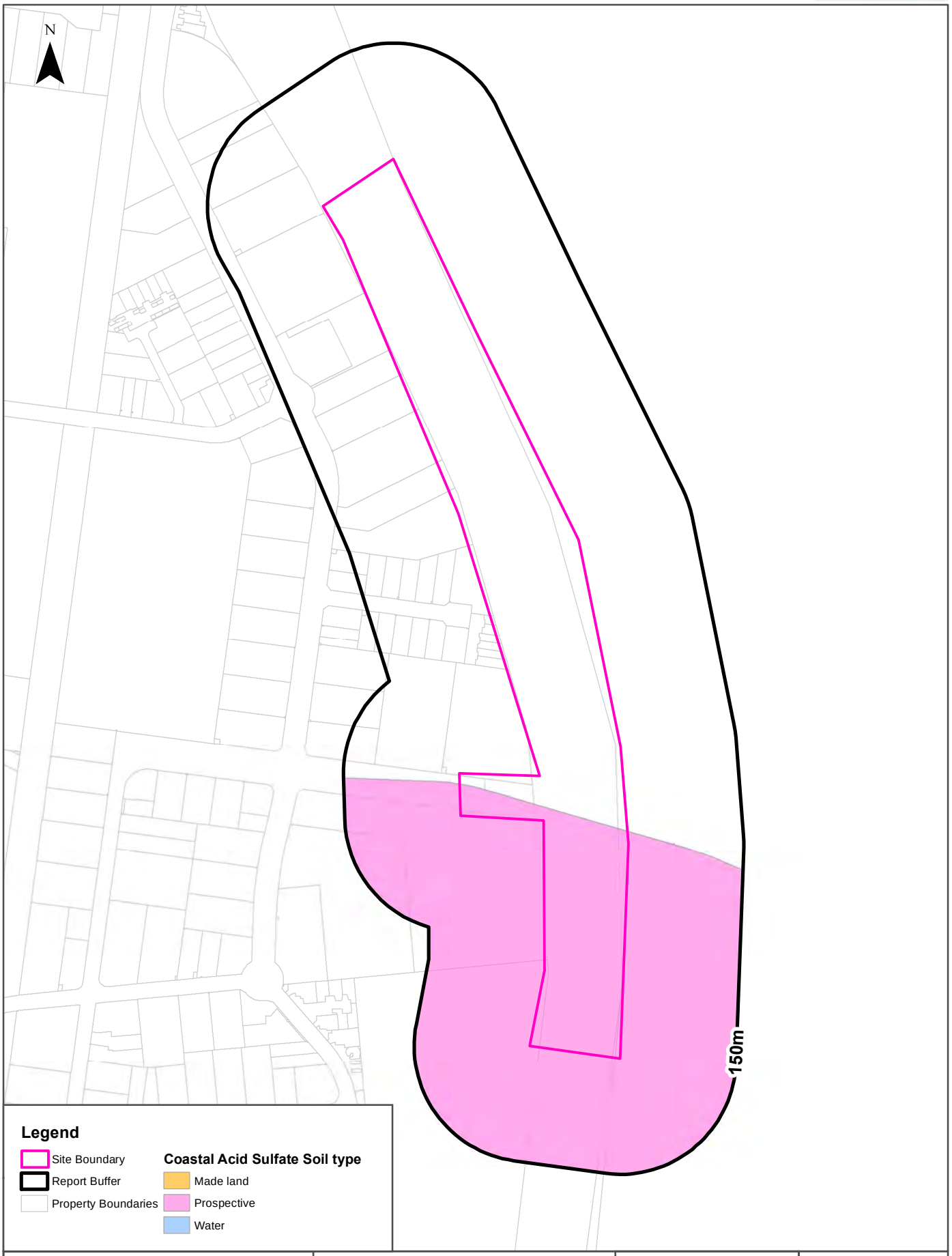
Map Id	Type	Name	Description	Positional Accuracy	Dataset
No Data Coverage					

What are the Shear Zones within the report buffer (1:250,000 scale)?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

Coastal Acid Sulfate Soils

OSAR Proposed Road Alignments - Site 26 (Section 4)



Data Sources: Property Boundaries & Topographic Data: State of Victoria - Department of Environment and Primary Industries

Coordinate System: GDA 1994 MGA Zone 55

Date: 09February 2017

Coastal Acid Sulfate Soils

OSAR Proposed Road Alignments - Site 26 (Section 4)

Coastal Acid Sulfate Soils

What are the on-site Coastal Acid Sulfate Soil types?

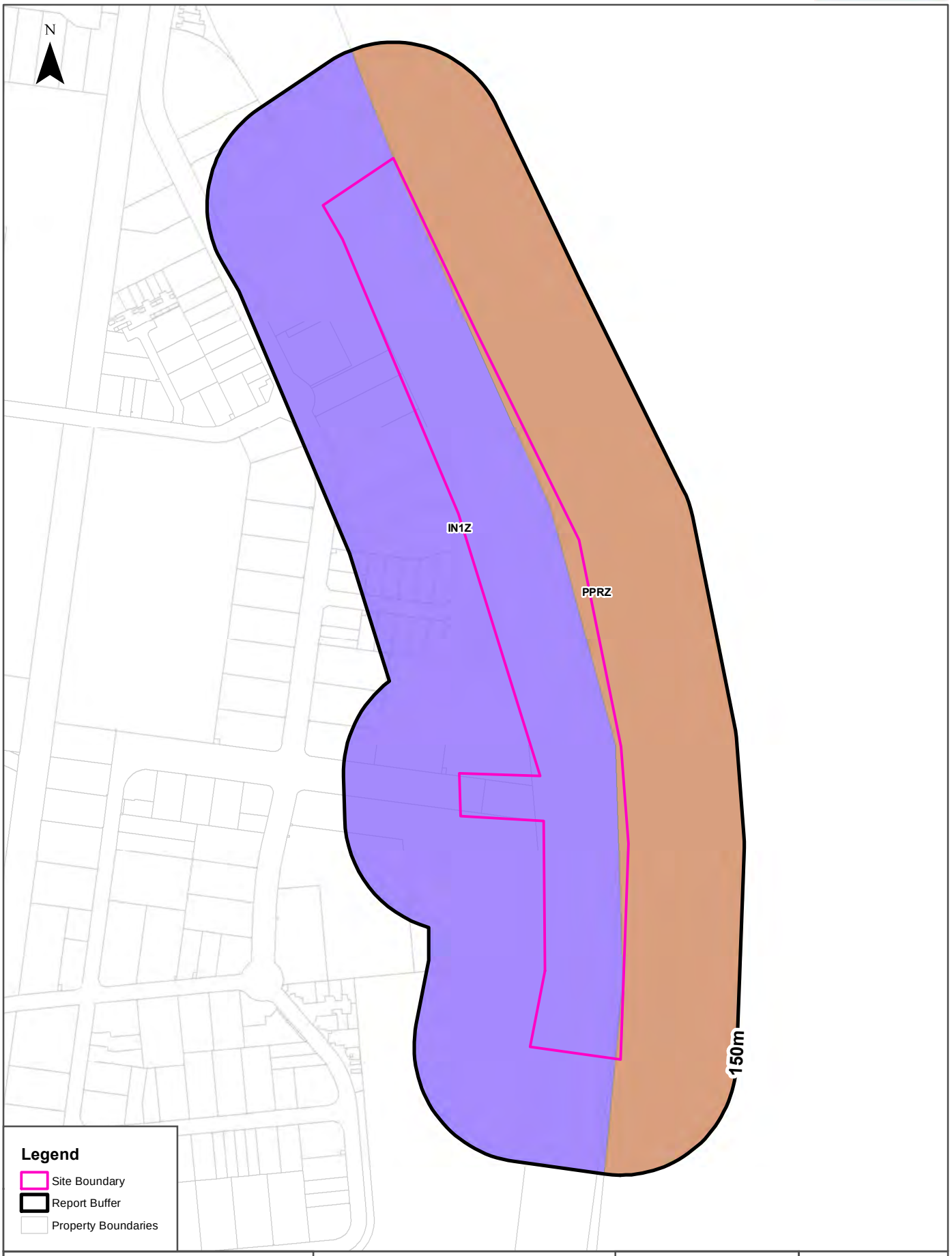
Coastal Acid Sulfate Soil Types
Prospective

What are the Coastal Acid Sulfate Soil types within the report buffer?

Coastal Acid Sulfate Soil Types	Distance	Direction
Prospective	0m	Onsite

Planning Zones

OSAR Proposed Road Alignments - Site 26 (Section 4)



Planning Zones

OSAR Proposed Road Alignments - Site 26 (Section 4)

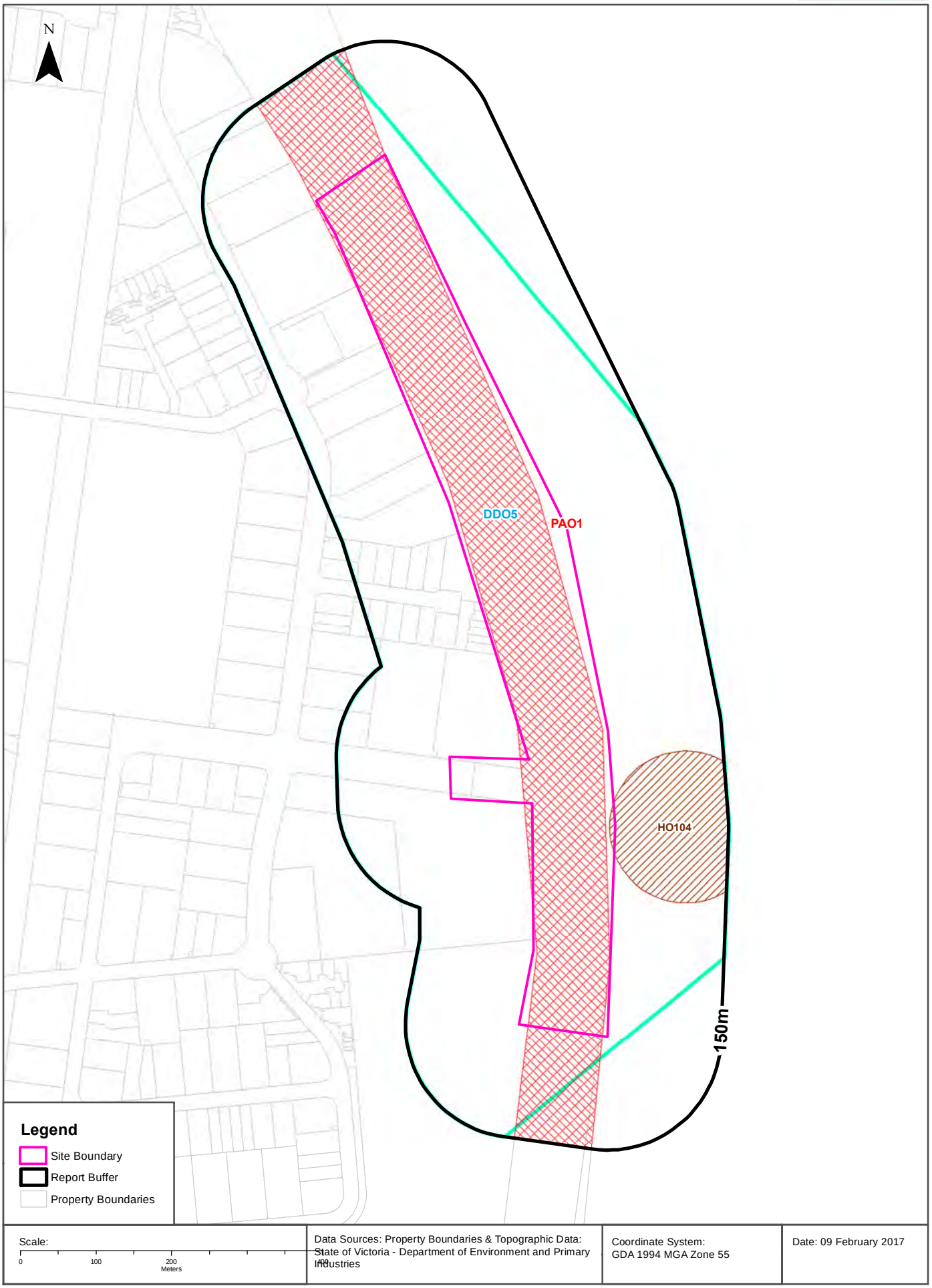
Planning Zones

Planning zones within the report buffer:

Zone Code	Description	Distance	Direction
IN1Z	INDUSTRIAL 1 ZONE	0m	Onsite
PPRZ	PUBLIC PARK AND RECREATION ZONE	0m	Onsite

Planning Overlays

OSAR Proposed Road Alignments - Site 26 (Section 4)



Planning Overlays

OSAR Proposed Road Alignments - Site 26 (Section 4)

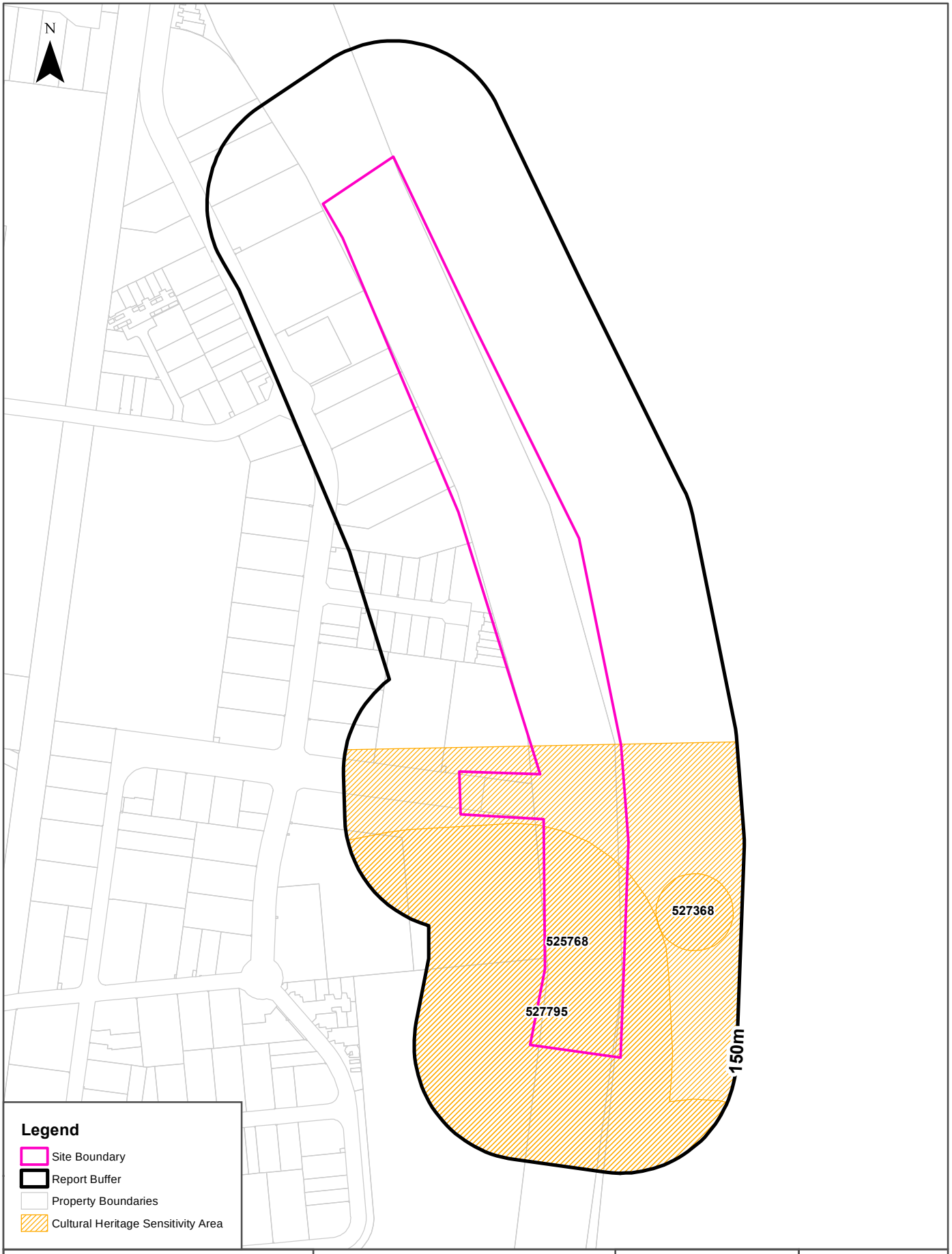
Planning Overlays

Planning overlays within the report buffer:

Zone Code	Description	Distance	Direction
DDO5	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 5	0m	Onsite
PAO1	PUBLIC ACQUISITION OVERLAY 1	0m	Onsite
HO104	HERITAGE OVERLAY (HO104)	0m	Onsite

Cultural Heritage Sensitivity

OSAR Proposed Road Alignments - Site 26 (Section 4)



Data Sources: Property Boundaries & Topographic Data: State of Victoria - Department of Environment and Primary Industries

Coordinate System: GDA 1994 MGA Zone 55

Date: 09February 2017

Cultural Heritage Sensitivity

OSAR Proposed Road Alignments - Site 26 (Section 4)

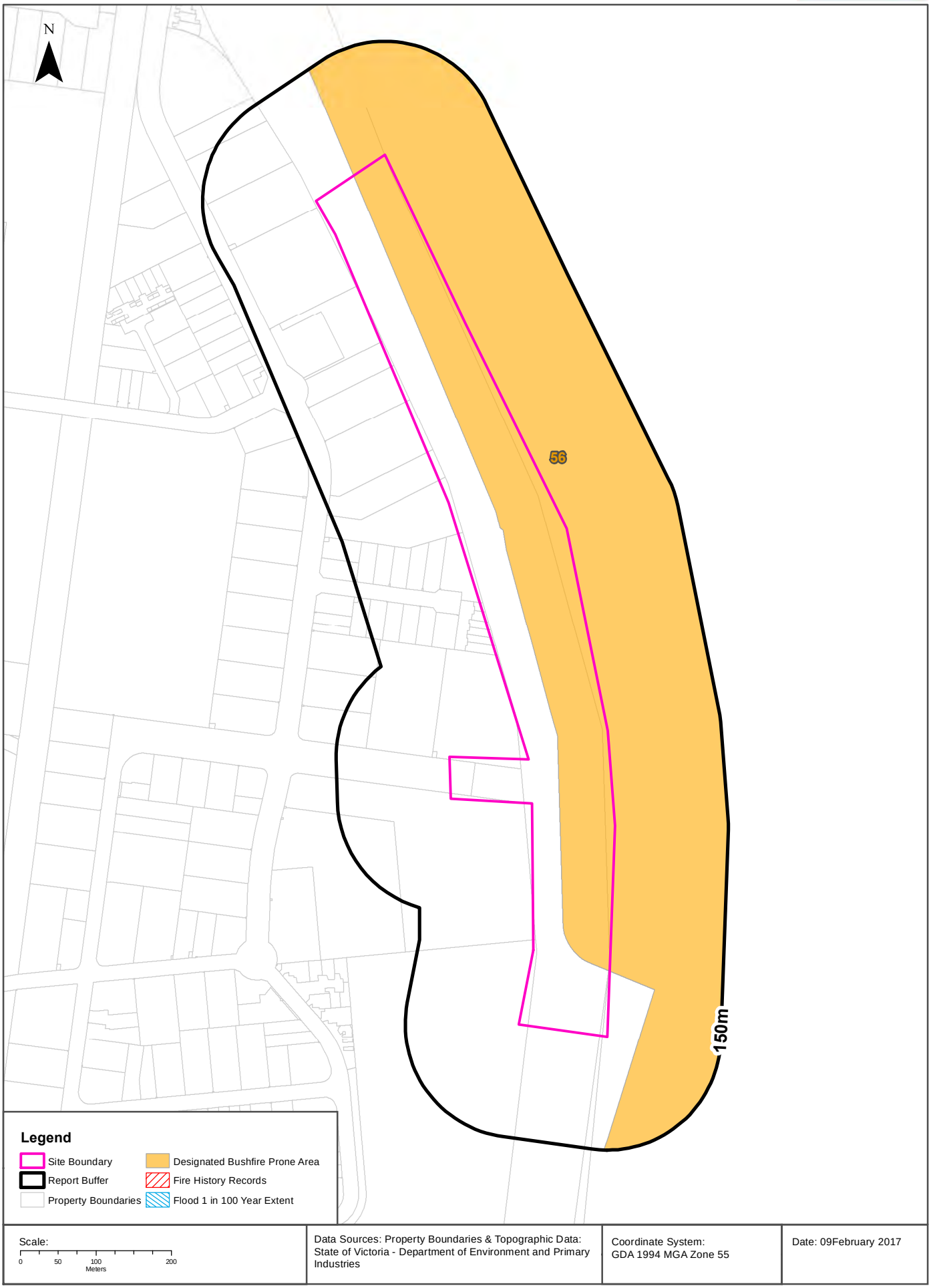
Cultural Heritage Sensitivity

Areas of Cultural Heritage Sensitivity as specified in Division 3 of Part 2 in the Aboriginal Heritage Regulations 2007, within the report buffer:

Map Id	Culturally Sensitive	Distance	Direction
525768	YES	0m	Onsite
527795	YES	0m	Onsite
527368	YES	39m	South East

Natural Hazards

OSAR Proposed Road Alignments - Site 26 (Section 4)



Natural Hazards

OSAR Proposed Road Alignments - Site 26 (Section 4)

Bushfire Prone Areas

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

Map ID	Feature	Plan No	LGA	Gazetted Date	Distance	Direction
56	Designated Bushfire Prone Area	LEGL./14-158	KINGSTON	07/04/2014	0m	Onsite

Fire History

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

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

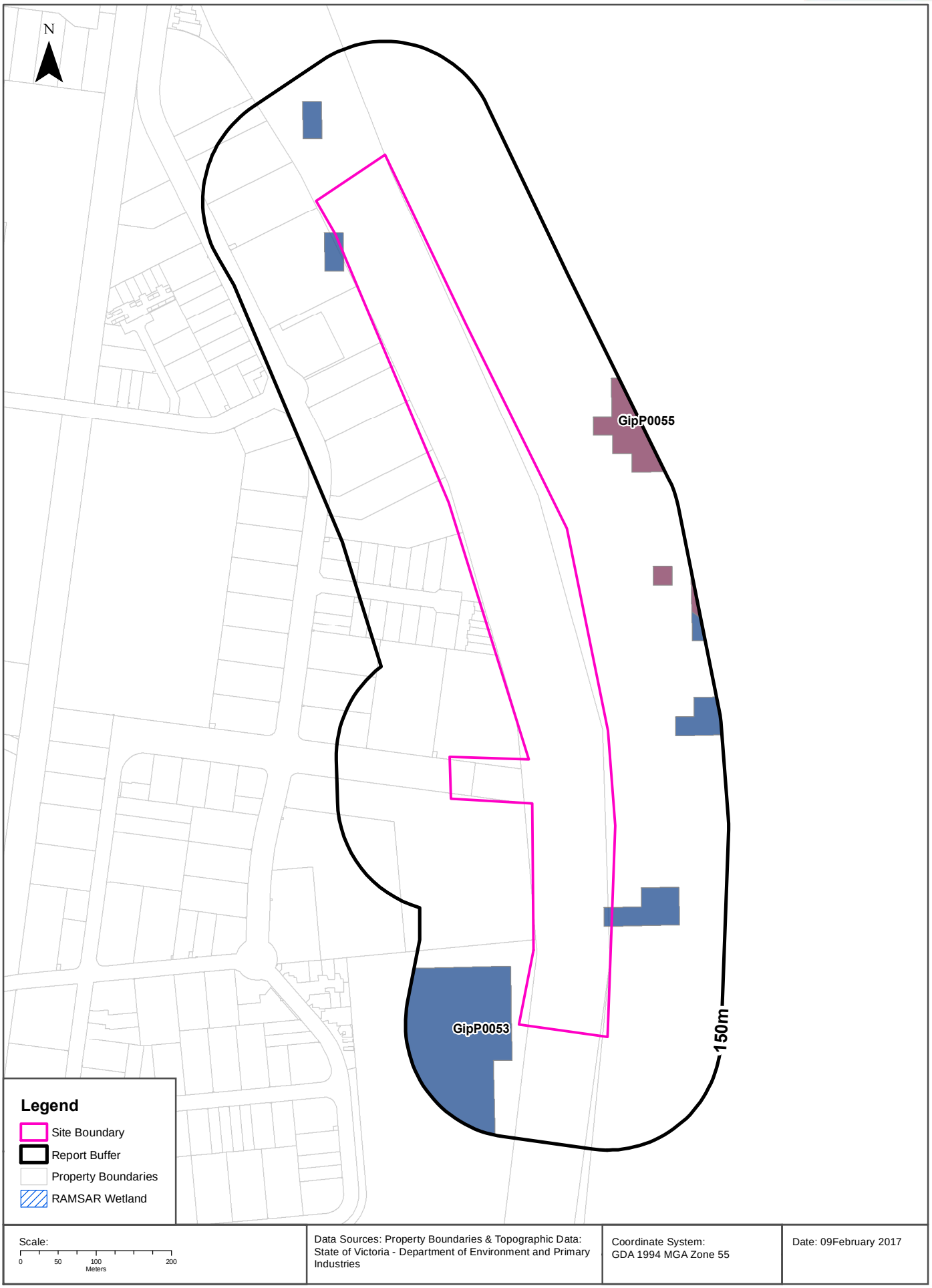
Flood - 1 in 100 year modelled flood extent

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

Feature	Source	Method	Scale	Modified Date	Distance	Direction
N/A	No records within buffer					

Ecological Constraints - Native Vegetation 2005 & RAMSAR Wetlands

OSAR Proposed Road Alignments - Site 26 (Section 4)



Ecological Constraints

OSAR Proposed Road Alignments - Site 26 (Section 4)

Native Vegetation (Modelled 2005 Ecological Vegetation Classes)

What native vegetation exists within the report buffer?

Veg Code	EVC Name	EVCCode	Group	Subgroup	Bioregion	Conservation Status	Geographic Occurance	Distance
GipP0053	Swamp Scrub	0053	Riparian Scrubs or Swampy Scrubs and Woodlands		Gippsland Plain	Endangered	Common	0m
GipP0055	Plains Grassy Woodland	0055	Plains Woodlands or Forests	Freely-draining	Gippsland Plain	Endangered	Common	85m

RAMSAR Wetlands

What RAMSAR wetland areas exist within the report buffer?

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

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Lotsearch

Environmental Risk and Planning Report

Proposed Road Alignments - Mordialloc Bypass (Section 5)

Report Buffer: 150m

Report Date: 09 Feb 2017 13:20:58

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Location Confidences

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

LC Code	Location Confidence
1	Georeferenced to the site location / premise or part of site
2	Georeferenced with the confidence of the general/approximate area
3	Georeferenced to the road or rail
4	Georeferenced to the road intersection
5	Feature is a buffered point
6	Land adjacent to Georeferenced Site
7	Georeferenced to a network of features

Dataset Listing

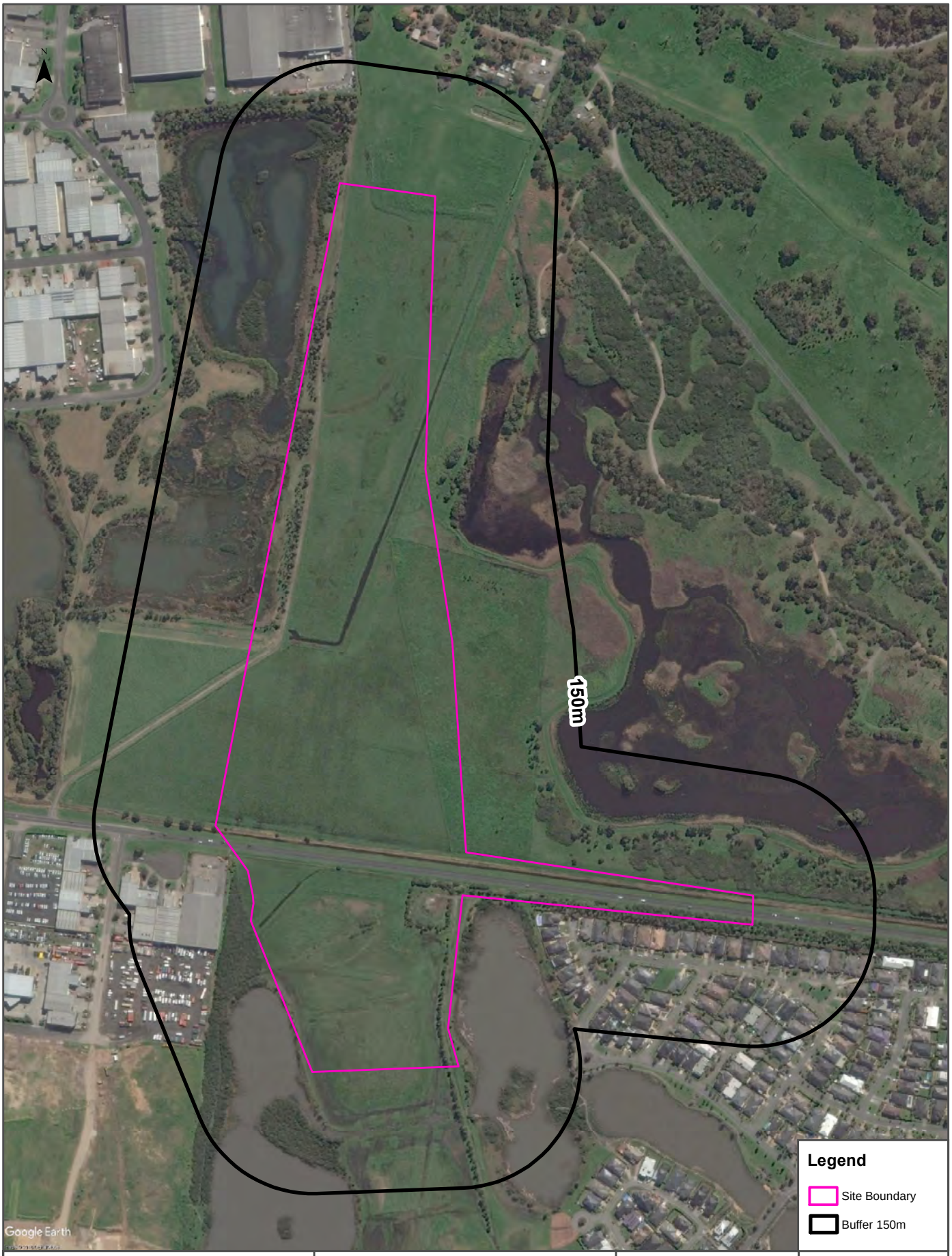
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Topographic and Cadastre data	State Government Victoria - Department of Environment, Land, Water & Planning	06/02/2017	06/02/2017	Quarterly	-	-	-
Current Priority Sites	Environment Protection Authority (Vic)	06/02/2017	31/12/2016	Monthly	0	0	0
Former Priority Sites & other Pollution Notices	Environment Protection Authority (Vic)	06/02/2017	05/01/2017	Monthly	0	0	0
EPA Environmental Audit Reports	Environment Protection Authority (Vic)	06/02/2017	24/11/2016	Monthly	0	0	0
Groundwater Zones with Restricted Uses	Environment Protection Authority (Vic)	06/02/2017	27/01/2017	Monthly	0	0	0
Licensed Activities	Environment Protection Authority (Vic)	06/02/2017	29/01/2017	Monthly	0	0	0
Former Licensed Activities	Environment Protection Authority (Vic)	06/02/2017	29/01/2017	Monthly	0	0	0
Works Approvals	Environment Protection Authority (Vic)	06/02/2017	06/02/2017	Monthly	0	0	0
National Waste Management Site Database	Geoscience Australia	06/02/2017	15/11/2012	Quarterly	0	0	0
Statewide Waste and Resource Recovery Infrastructure Plan Facilities	State Government Victoria - Department of Sustainability	27/11/2014	31/12/2012	None planned	0	0	0
EPA Prescribed Industrial Waste	Environment Protection Authority (Vic)	04/01/2017	04/01/2017	Quarterly	0	0	0
UBD Business to Business Directory 1991	Hardie Grant			Not required	1	1	1
UBD Business to Business Directory 1991 - Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1980	Hardie Grant			Not required	0	0	0
UBD Business Directory 1980 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1960 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
UBD Business Directory 1950	Hardie Grant			Not required	0	0	0
UBD Business Directory 1950 Drycleaners, Motor Garages & Service Stations	Hardie Grant			Not required	0	0	0
Features of Interest	State Government Victoria - Department of Environment, Land, Water & Planning	03/02/2017	27/01/2017	Quarterly	4	6	9
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1	1	1
Groundwater Salinity	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	1	-	-
Depth to Watertable	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	1	-	-
Surface Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	1	-	-
Basement Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	1	-	-
Groundwater Boreholes WMIS	State Government Victoria - Department of Environment, Land, Water & Planning	29/04/2016	28/04/2016	Annually	0	0	53
Groundwater Boreholes Earth Resources Database	The State of Victoria, Department of Economic Development, Jobs, Transport and Resources	29/04/2016	17/02/2010	As required	0	0	13
Groundwater Boreholes Fed Uni	Federation University Australia	29/04/2016	07/01/2014	As required	0	0	0
Geological Units 1:250,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1	-	2
Geological Structures 1:250,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	-	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Shear zones 250k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	0	-	0
Coastal Acid Sulfate Soils	The State of Victoria, Department of Economic Development, Jobs, Transport and Resources	15/07/2016	30/03/2011	None planned	1	1	1
Planning Scheme Zones	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	5	6	6
Planning Scheme Overlay	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	5	5	5
Cultural Heritage Sensitivity	State Government Victoria - Department of Planning and Community Development	03/02/2017	27/01/2017	Quarterly	3	3	3
Bushfire Prone Area	State Government Victoria - Department of Transport, Planning and Local Infrastructure	27/01/2017	27/01/2017	Quarterly	1	1	1
Fire History	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	0	0	0
Flood - 1 in 100 Year Modelled Flood Extent	State Government Victoria - Department of Environment, Land, Water & Planning	27/01/2017	27/01/2017	Quarterly	0	0	0
Native Vegetation (Modelled 2005 Ecological Vegetation Classes)	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	31/12/2005	None planned	2	2	2
RAMSAR Wetlands	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	24/06/2013	None planned	0	0	0

Aerial Imagery 2016

OSAR Proposed Road Alignments - Site 26 (Section 5)



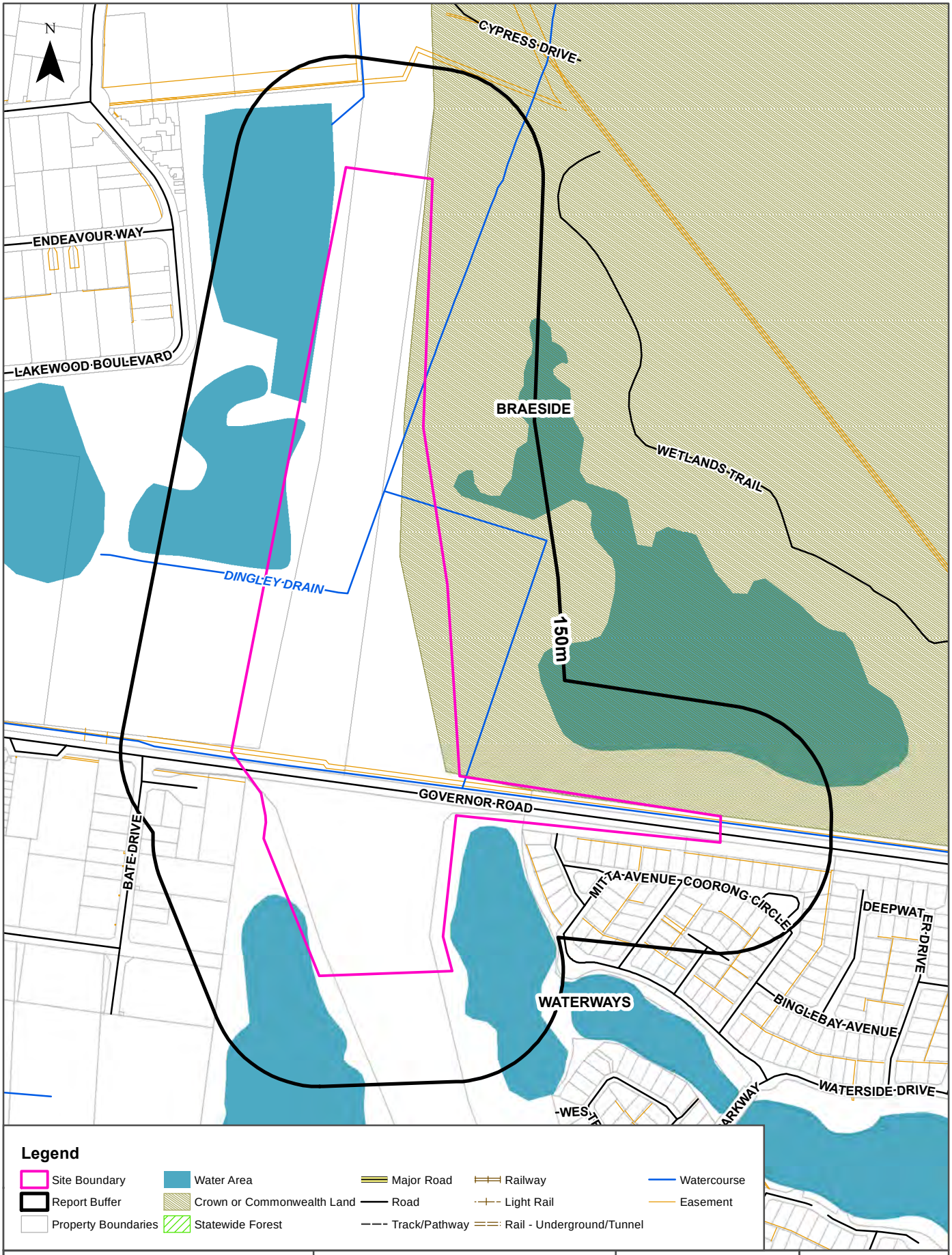
Data Sources: Aerial Imagery © 2016 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 55

Date: 08February, 2017

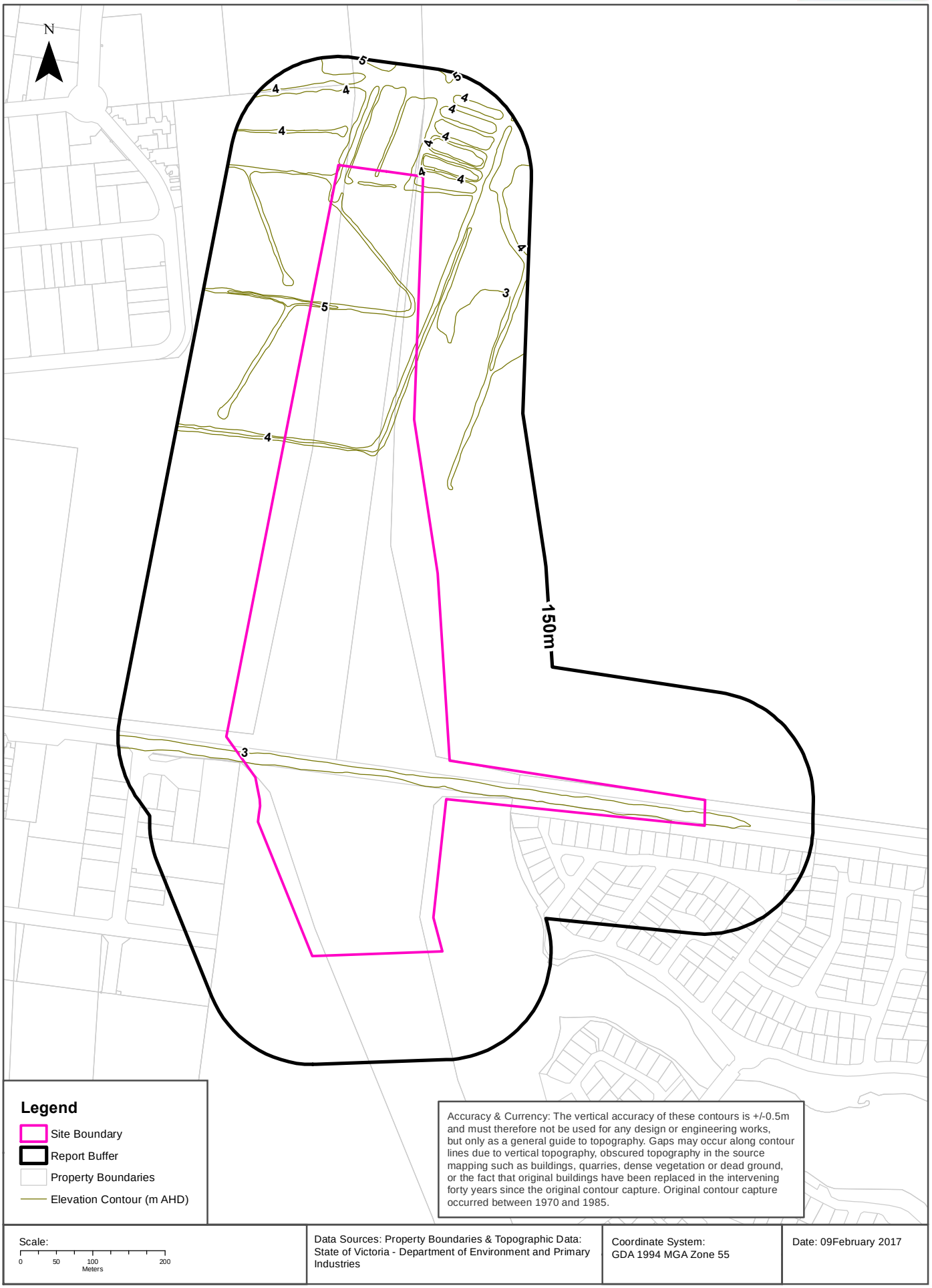
Topographic Data

OSAR Proposed Road Alignments - Site 26 (Section 5)



Elevation Contours (m AHD)

OSAR Proposed Road Alignments - Site 26 (Section 5)



EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 5)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

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

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

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

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

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