



Preliminary Site Investigation

Anketell Road and Thomas Road Transport Corridor (West Site)

23 January 2024



Document Information

Preliminary Site Investigation, Anketell Road-Thomas Road Freight Corridor (West Site)

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1	23/01/24	Indianna Daniels	Justin Lumsden	Justin Lumsden	Final

Project Manager: Indianna Daniels**Project Director:** Justin Lumsden**Disclaimer and Limitations:**

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Senversa acknowledges the traditional custodians of the land on which this work was created and pay our respect to Elders past and present.



Executive Summary

Main Roads Western Australia (Main Roads) is proposing to construct/upgrade the first stage of the 13 km Anketell-Thomas Road freight corridor, to connect the future terminal in Kwinana's Outer Harbour with Tonkin Highway and will support wider growth in Kwinana and the south-eastern suburbs. The first 7 km of the corridor proposing to be constructed is located between the Kwinana Industrial Area (KIA), at Leath Road to Kwinana Freeway, Anketell (the Proposal). The Proposal will result in the western section of Anketell Road being upgraded to an Expressway Standard. The Proposal will connect the Kwinana Freeway to the Western Australia (WA) State government recommended land-backed port (Westport) within the KIA.

The Anketell Road Upgrade includes:

- Approximately 7 km of new urban expressway standard, dual carriageway.
- Grade separated interchanges at Treeby Road, Kwinana Freeway, Mandogalup Road, Abercrombie Road, Armstrong Road and Rockingham Road.
- Grade separations of Rockingham Road and Anketell Road over rail.
- New local roads and existing road modifications, including upgrades along Rockingham Road.
- Drainage basins, drains and other associated infrastructure.
- Shared Path for the full length of the Anketell Road Upgrade proposal.
- Other road infrastructure and furniture.
- Utility relocations and accommodation works to properties.

Senversa Pty Ltd (Senversa) was commissioned by Main Roads Western Australia (MRWA) to undertake a Preliminary Site Investigation (PSI) for the Proposal area (the site).

The PSI objectives were to provide MRWA with a preliminary characterisation of the contamination (including potential asbestos in soil issues) status of the site to assess potential risk to human health and environment. Such information will in turn assist MRWA and stakeholders to appropriately plan and implement the Proposal. In order to fulfill these objectives, the following scope of work was undertaken:

- A desktop review of relevant publicly available information.
- A site inspection.
- Collection and analysis of potential asbestos containing material (PACM) fragments by a National Association of Testing Authorities (NATA) accredited laboratory for asbestos fibre identification.
- Development of a preliminary conceptual site model (CSM) that provides an amalgamated description of issues identified at the site.
- Completion of the PSI report consistent with Department of Water and Environmental Regulation (DWER) guidelines.

The key findings of the investigation were as follows.

- The eastern portion of the site is surrounded by remnant bushland, livestock paddocks and a large wetland ('The Spectacles'). The central portion of the site is surrounded (most notably) by an alumina refinery with significant residue storage facilities. The western portion of the site is surrounded by various industrial premises. The project footprint variously encroaches onto these premises.
- The eastern portion of the site adjacent to the Spectacles Wetlands is mapped as being a combination of high to moderate and low to moderate risk of acid sulfate soil (ASS) within 3 m of the natural surface level. The remainder of the site to the west is mapped as having no known risk of ASS within 3 m of the natural surface level.



- From the site walkover and desktop review a wide range of areas of potential environmental concern (APECs) were identified broadly including small scale fly tipping, fuel storage & dispensing, fuel transmission pipelines, agricultural open sump and drains, fire station, wastewater treatment, recycling yard, alumina refinery, landfilling, metal scrapyards. Several of these sites are classified under the *Contaminated Sites Act 2003* (CS Act) as '*Potentially Contaminated - Investigation Required*' (PCIR) or '*Contaminated – remediation required*' (CRR). The presence of scattered potential asbestos containing material (PACM) debris is the only identified APEC identified that is associated with the use of the site as a road reserve. All other APECs relate to surrounding industry.
- A total of 19 APECs were shortlisted as representing plausible contaminant sources that warrant inputting into the CSM. Potential ASS issues were also considered by the CSM.
- The CSM identified that in the context of the proposed transport corridor works a range of potentially unacceptable source-pathway-receptor (SPR) linkages exist associated with contaminated soil and groundwater (which encroaches onto parts of the site). These SPR linkages may give rise to human health risks (site construction workers, future maintenance workers, surrounding off-site users) and environmental risks (groundwater quality, terrestrial and aquatic ecology). Additionally, where ASS is not appropriately managed resultant soil acidification and mobilisation of metals could lead to groundwater and surface water deterioration that in some circumstances may constitute contamination.
- For some of the APECs, including parts of the site, existing CS Act classification restrictions aim to mitigate potential SPR linkages (although not necessarily specific to major transport corridor road works). These restrictions variously include land use restrictions, groundwater abstraction restrictions, the implementation of health, safety and environmental management plans prior to disturbing soil and restriction on basement structures.
- Provision of project conceptual design information would enable further contextualisation of CSM risks. This is particularly the case with regard to (i) finished road levels and the need to undertake deep excavation (and where), (ii) the extent to which private land within the site boundary will actually be disturbed, and (iii) drainage design information and the potential to exacerbate groundwater contamination issues. In addition to potential human health and ecological risks there may be broader project constructability considerations such as disposal of surplus fill and dewatered effluent.

Based on the PSI findings targeted intrusive investigations are recommended to verify risks and assist MRWA and stakeholders in project planning. Such investigations should be optimised towards portions of the site where the presence of contamination is most likely and future disturbance under the Anketell Road and Thomas Road transport corridor upgrade most significant. Existing data from nearby investigations may also optimise investigations. Proposed intrusive investigations should be defined in a sampling and analysis quality plan (SAQP) consistent with DWER guideline requirements.



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List of Acronyms

Acronym	Definition	Acronym	Definition
AHD	Australian Height Datum	DPLH	Department of Planning, Lands and Heritage
AFFF	Aqueous Film Forming Foam	DSI	Detailed Site Investigation
APEC	Area of Potential Environmental Concern	DSR	Detailed Summary of Records
ATOM	Australian Terminals Operations Management	DWER	Department of Water and Environmental Regulation
ASS	Acid Sulfate Soils	EPBC	Environment Protection and Biodiversity Conservation
BC	Biodiversity Conservation	ESA	Environmentally Sensitive Areas
BGL	Below Ground Level	FOI	Freedom of Information
BOM	Bureau of Meteorology	g	Gram
BSR	Basic Summary of Records	GW	Groundwater
BYD	Before You Dig	Kg	Kilogram
COPC	Contaminant of Potential Concern	kL	Kilolitre
CRR	Contaminated Remediation Required	Km	Kilometre
CRU	Contaminated Restricted Use	MRWA	Main Roads Western Australia
CS	Contaminated Sites	NATA	National Association of Testing Authorities
CSM	Conceptual Site Model	PASS	Potentially Acid Sulfate Soil
DBCA	Department of Biodiversity, Conservation and Attractions	PCIR	Potentially Contaminated Investigation Required
DBNGP	Dampier to Bunbury Natural Gas Pipeline	PDWSA	Public Drinking Water Source Areas
DER	Department of Environmental Regulation	PFAS	Per-and polyfluoroalkyl substances
DMIRS	Department of Mines, Industry Regulation and Safety	PSI	Preliminary Site Investigation



Acronym	Definition
RRU	Remediated Restricted Use
SAQP	Sampling Analysis Quality Plan
SPR	Source Pathway Receptor

Acronym	Definition
TDS	Total Dissolved Solids
WWTP	Waste Water Treatment Plant



1.0 Introduction and Objectives

1.1 Background

Main Roads Western Australia (Main Roads) is proposing to construct/upgrade the first stage of the 13 km Anketell-Thomas Road freight corridor, to connect the future terminal in Kwinana's Outer Harbour with Tonkin Highway and will support wider growth in Kwinana and the south-eastern suburbs. The first 7 km of the corridor proposing to be constructed is located between the Kwinana Industrial Area (KIA), at Leath Road to Kwinana Freeway, Anketell (the Proposal). The Proposal will result in the western section of Anketell Road being upgraded to an Expressway Standard. The Proposal will connect the Kwinana Freeway to the Western Australia (WA) State government recommended land-backed port (Westport) within the KIA.

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- Other road infrastructure and furniture.
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Senversa Pty Ltd (Senversa) was commissioned by MRWA to undertake a PSI for the Proposal area (the site). The site location is shown on **Figure 1**.

The Project will involve intrusive works within the road shoulder and reserves.

1.2 Project Objective

The objective of the PSI is to provide MRWA with a preliminary characterisation of the contamination (including potential asbestos in soil issues) status of the site to assess potential risk to human health and environment with specific regard to the proposed transport corridor works. Such information will in turn assist MRWA and stakeholders to appropriately plan, implement and manage the transport corridor project.



1.3 Scope of Work

To meet the objectives of the investigation, the PSI comprised of a desktop review, site inspection and limited sampling as summarised in **Table 1-1** below.

Table 1-1: Scope of Works

Aspect	Scope of Works
Desktop Review	<p>Desktop review of relevant desk-based information obtained from supplied documentation, Freedom of Information (FoI) requests and public domain data sources to understand the potentially contaminating land-use history of the site and the environmental setting, including relevant environmental values and beneficial uses.</p> <p>Information reviewed includes:</p> <ul style="list-style-type: none"> • Current and historical aerial photographs of the site and surrounding area. • Planning scheme information from the local councils. • Geological, hydrogeological, and hydrological, sensitive land uses, environmentally sensitive areas and ASS risk mapping information from readily available published information, including a Groundwater Bore Database search within 0.5 km of the site boundary. • Heritage significance including a search of the Aboriginal Heritage Inquiry System hosted by the Department of Aboriginal Affairs and a search of European Heritage accessed through the Heritage Council of Western Australia inHerit database. • Basic Summary of Records (BSRs) provided by the DWER Contaminated Sites Database to identify known or suspected contaminated sites within a 1 km radius of the site. • FOI request to the Department of Mines, Industry Regulation and Safety (DMIRS) for information on dangerous goods licence records, licensees, and inspections. • FOI request to DWER for information regarding historical emissions, pollution events or other environmental incidents. • FOI request to the City of Kwinana and Shire of Serpentine-Jarrahdale for information on historical land use or other records. • Review records available from State Library of Western Australia. • Before You Dig (BYD) Australia underground utility database search. • General enquiry with MRWA of existing information and potential knowledgeable persons associated with historical construction of Reid Highway.
Site Inspection	<ul style="list-style-type: none"> • Look for visible evidence of potential contamination sources and activities, including site surrounds. • Record current site infrastructure (if present), site surface cover, surrounding land uses, topography and drainage. • Identify potential asbestos containing materials (PACM) locations, including inferred quality and quantity of PACM.
Preparation of PSI Report	<p>Preparation of a PSI report detailing the following:</p> <ul style="list-style-type: none"> • Desktop assessment. • Site inspection methodology and findings. • Development of a CSM. • Conclusion addressing site contamination status. • Recommendations with regard to additional investigation, management and/or remediation (as applicable) in the context of the proposed future transport corridor works.

The scope of works was completed in general accordance with following relevant guidelines and standards for the assessment of site contamination.

- National Environment Protection Council (NEPC) (1999) National Environmental Protection (Assessment of Site Contamination) Measure (as amended 15 May 2013) (ASC NEPM).
- Department of Water and Environmental Regulation (DWER) (2021) Assessment and management of contaminated sites – Contaminated sites guidelines.
- Department of Health (DoH) (2021) Guidelines for the assessment, remediation and management of asbestos contaminated sites in Western Australia.



1.4 Previous Site Investigations

Senversa has reviewed the following reports provided by MRWA.

- Main Roads 2021 Westport Geotechnical Desktop Study: Project Number 21117057.
- Golder 2022 MRWA Westport Project: Anketell Road and Thomas Road, Kwinana to Oakford – Preliminary Geotechnical Investigation. March 2022, Revision 0.
- WSP 2023 Motorplex Site Geotechnical Desktop Study. July 2023.
- Westport 2020 Future Port Recommendations: Stage 2 Report. May 2020.

Relevant information from these documents has been summarised in Table 1.2 incorporated into the PSI where relevant.

Table 1.2 – Previous Site Investigations Summary

Report Reference	Description
Westport (2020) Westport Future Port Recommendations Stage 2 Report, May 2020.	Preliminary recommendations for the Westport development project. The report offers a review of available information on the extensive project area and concludes that there are two recommended options for Stage 2 of the project.
MRWA (2021) Westport Geotechnical Desktop Study, Rev 1, 11 June 2021.	A geotechnical desktop study with the purpose of reviewing existing geotechnical information for the primary freight route between Kwinana Port via Anketell Road and Thomas Road.
Golder (2022) MRWA Westport Project – Anketell Road and Thomas Road, Kwinana to Oakford Rev 0, March 2022.	A preliminary geotechnical investigation for the proposed Westport freight route connecting Kwinana Port to Tonkin Highway via Anketell and Thomas Road.
WSP (2023) Motorplex Site Geotechnical Desktop Study, Rev 0, 11 July 2023	A desktop geotechnical study for the Motorplex site at the western end of Anketell Road as part of the Westport Program. An access road was proposed from Anketell Road to the Motorplex area, which was the focus of the study.



2.0 Site Description

2.1 Site Identification

The site comprises the existing Anketell Road within the site and associated intersecting roads and road reserves, surrounded by a combination of industrial/commercial land and wetland reserves.

The identification details for land parcels within the site presented in **Table 2-1** and the location and layout of the site is shown on **Figure 1**.

Table 2-1- Site Identification Details

Items	Attributes
Legal Description	<ul style="list-style-type: none"> The site boundaries encompass the road alignment, road reserve and multiple land parcels along Anketell Road. Individual land parcel boundaries are outlined in Figure 4 and accessible via the online Landgate MapViewer (2023a).
Site Address	Anketell Road, Anketell, WA 6167.
Site Area	Approximately 221 ha.
Site Boundaries	The site boundary is presented in Figure 1 .
Local Government Authority	City of Kwinana.
Current Zoning	<p>Under the City of Kwinana Local Planning Scheme No. 2 (Map 2 and 3) the site footprint is categorised as the following:</p> <ul style="list-style-type: none"> Parks and Recreation Reserve. Primary Regional Roads. Other Regional Roads. <p>Immediately outside the site boundaries include a mix of public purposes (special use, water resources), primary roads, rural, freeways and highways, Residential, residential development, parks and recreation, general industrial.</p>
Current Land Use	The site is currently used as a primary road within residential, regional reserve and industrial areas adjacent.
Proposed Land Use	Anketell Road transport corridor upgrade (i.e. roads and road reserve).



2.2 Surrounding Land Uses

A description of the surrounding land uses is detailed below and can be observed in in **Figure 1**.

- North – Rural, parks and recreational reserves, other regional roads, primary regional roads, railways, public purposes – water supply (sewerage and drainage), industrial.
- East – Residential, public purposes – high school, other regional roads, parks and recreational reserves.
- South – Parks and recreational reserve, rural, public purposes – special uses (reserve, water authority).
- West – Industrial, railway, public purposes (water authority).

2.3 Proposed Development

The proposed transport corridor works are broadly understood to comprise the upgrade of Anketell Road, removal of traffic light intersections, construction of bridge over Kwinana Freeway and interchanges and modification of some surrounding roads with the broader intention of providing a continuous route for vehicles. The expansion will involve intrusive works within the road shoulder and reserves. Specific details relating planned work such as exact grade separation locations and the extent of disturbance within the site boundary are not yet known.

The site shown in **Figure 2-1** below outlines the area of expansion works proposed at the time of this report.

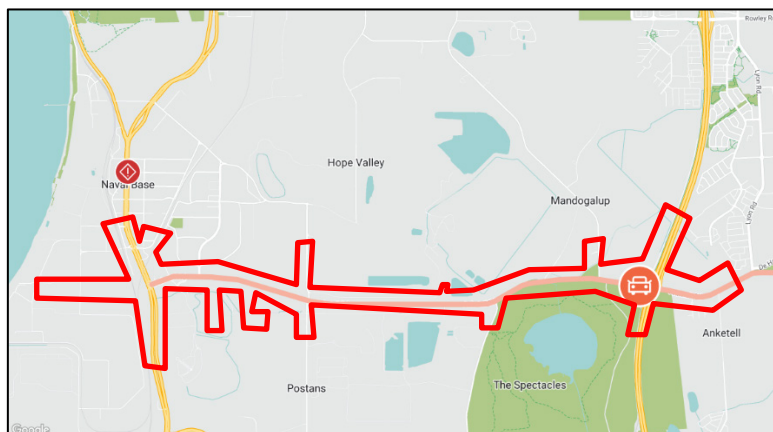


Figure 2-1: Anketell Road Upgrade (the site)

2.4 Environmental Setting

Item	Details
Topography	<p>The Landgate V5 SLIP (2023b) indicates that the topography of the site is gently undulating with elevations ranging between approximately 7 and 42 metres Australian Height Datum (m AHD). The site can be broadly categorised into two topographical regions, as discussed below:</p> <ul style="list-style-type: none"> • Rockingham Road to Mandogalup Road (5.5km), gently undulating topography ranging between 7 and 39 m AHD. • Mandogalup Road to Spears Drive (9.5km), gently undulating topography ranging between 15 to 42 m AHD.



Item

Details

Geology**Regional Geology**

The site is located within the Swan Coastal Plain, which is made up of sedimentary materials that originated due to river, wind or marine activity, underlying up to 15,000 m of Perth Basin (DWER, 2023a).

The 1:50,000 geology maps (DMIRS, 2022) for Fremantle and Armadale identify the site area consisting of:

- Tamala Limestone (LS₁) and Tamala Limestone derived Sand (S₇) described as rock consisting of calcarenite wind-blown shell fragments and quartz sand dunes ranging from Rockingham Road to Treeby Road.
- Bassendean Sand (S₈) characterised by quartz sand (dunes) from Treeby Road to Nicholson Road.
- Guildford Formation Clayey Sand (S_c) described as alluvium (clay, loam, sand and gravel) from Nicholson Road to the eastern end of the site.

Local Geology

A previous geotechnical investigation undertaken by Golder (2022), reported generalised geological conditions as shown below:

- FILL: Silty SAND (SM)/SAND (SP-SM/SC)/Clayey SAND (SP-SM), Sandy GRAVEL (GP-GM), fine to coarse grained sand, fine to medium grained gravel, non-plastic silt, mixed brown and grey generally loose to medium dense, with thickness between 0.0 and 1.8 m.
- Tamala Limestone (Aeolian): CALCARENITE, or Siliceous CALCARENITE/Siliceous CALCIRUDITE brown/orange/yellow/red, vuggy in parts, with zones of well-developed vug networks, generally very low to medium strength, occasionally high strength, may be recovered as soils where rock strength was very low, with layers of sandy or silty soils.
- Tamala Sand (Residual): SAND (SP), fine to medium grained, brown/yellow, trace silt, generally loose to medium dense with some very loose zones up to 3.5 m thick, with thickness of up to 6.9 m.
- Bassendean Sand (Aeolian): SAND (SP/SP-SM), fine to medium grained, white/pale grey/pale brown/brown, trace/with silt, generally loose to medium dense, occasionally very loose, occasionally layers of silty sand/sandy silt materials, with thickness of up to 21 m.
- Bassendean Sand (Gnangara Dune): SAND (SP), fine to medium grained, brown/yellow, trace silt, generally very loose to medium dense, with thickness of up to 11 m. A subunit of Bassendean Sand.
- Guildford Formation (Alluvial): SAND (SP)/Silty SAND (SM)/Clayey SAND (SC)/Sandy CLAY (CL), fine to medium grained sand, low plasticity clay, non-plastic silt, brown/yellow/grey, generally medium dense/stiff to dense/very stiff.

ASS

Review of the DWER ASS Risk Map (DWER 2023a), indicates that most of the site to the west of Clementi Road have no known risk of ASS. A moderate to low risk of ASS occurrence in the top 3 m of natural soils was shown between Clementi Road and Mandogalup Road before returning no known risk until Lyon Road. From Lyon Road to the eastern extent of the site is listed as a moderate to low risk of ASS. It is however noted that in several instances, as shown below in **Figure 2-2**, that there are areas of high to moderate risk within close proximity to the site (or within the site). Disturbance of these soils may lead to acidification and mobilisation of metals in surface water bodies.

The mapped extent of potential ASS is shown with the approximate site boundary displayed in **Figure 2-2** below.



Item

Details

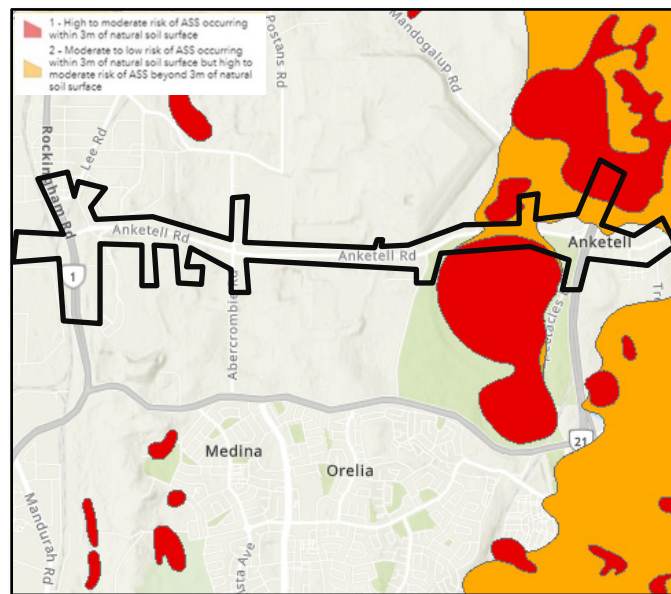


Figure 2-2: ASS Risk Map and Approximate Site Boundary (DWER 2017)

Hydrology

The nearest surface water body to the site is the Spectacles Wetlands, which is subject to induction and receives from the Peel Main Drain which intersects with the site. There are multiple other wetlands adjacent to site boundaries including two Resource Enhancement Wetlands (UFI 6,379 and 6,380) located approximately 300 m north of site boundary (DBCA 2023a). The Indian Ocean is less than 100m from the far western boundary of site.

Ponds operated by Alcoa are located 300m north of site at Kwinana Refinery which are expected to be lined and therefore not have direct contact with the regional aquifer (Golder 2022). There is also a surge pond operated by Alcoa at Kwinana Motorplex which receives stormwater discharge, rainfall runoff, water from Alcoa sump pumps and recovery bores (Golder 2022). Kwinana Wastewater Treatment Plant is located west of the Spectacles with two large ponds visible from satellite imagery, along with smaller evaporation and infiltration ponds/tanks (see **Figure 1** attached).

Hydrogeology

Regional Hydrogeology

The Perth Groundwater Map (DWER 2023b) indicates that the aquifers underlying the site comprise:

- Cockburn/Serpentine– Mirrabooka and Perth – Superficial Swan as the superficial, unconfined aquifers.
- Cockburn/Serpentine– Leederville Aquifer as an underlying, confined aquifer. The Leederville aquifer, a multi-layered, confined aquifer, is one of the primary aquifers underlying the majority of the Swan Coastal Plain within the region.
- Cockburn/Serpentine – Perth – Yarragadee North Aquifer as a major regional aquifer. The Yarragadee aquifer, a multi-layered, confined, is one of the primary aquifers underlying the majority of the northern Perth Basin.

Review of the historical minimum and maximum groundwater contours available on the Perth Groundwater Map infers groundwater at the site flows west towards the ocean with eventual discharge to the Indian Ocean.

Local Hydrogeology

Groundwater within the site is inferred to be encountered within the Superficial Swan aquifer. The Perth Groundwater Map indicates that groundwater beneath the site occurs between 1 m bgl to a maximum of approximately 22 m bgl across the site (DWER 2023b).

Groundwater salinity is reported to range from 500-100 between Rockingham Rd and Kwinana Freeway (DWER 2023b).

Whilst local groundwater flows in a westerly direction toward the Indian ocean, groundwater investigations at the Kwinana Wastewater Treatment plant have inferred that mounding caused by the infiltration ponds on-site direct groundwater to flow towards the ponds and the Spectacles Wetlands (see DMO 3171 in Appendix D).

Review of relative bore location and available information indicates groundwater bores may be associated with stormwater drainage, water catchments, or monitoring of groundwater conditions surrounding contaminating sites. Bores or monitoring wells observed on site are further described in **Appendix A**.

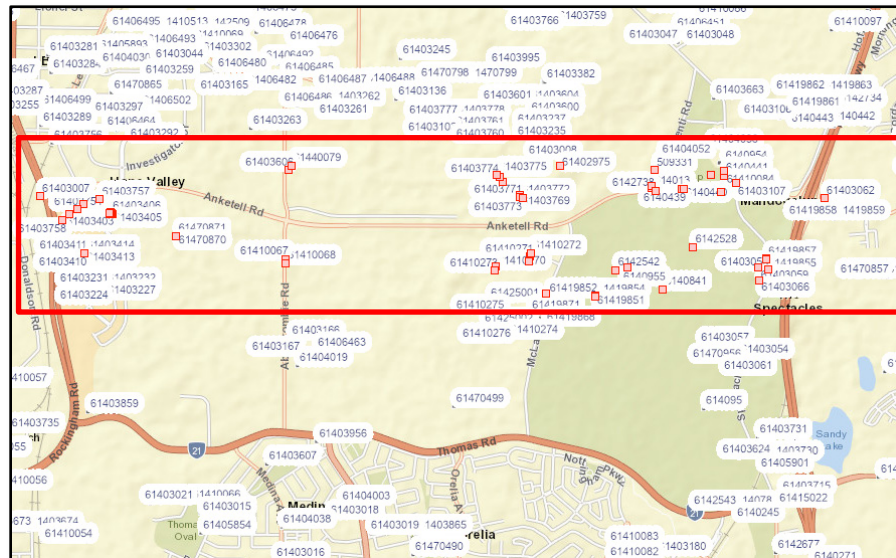


Table 2-2: Groundwater Extraction Licenses within 1km of site boundary

Licence No.	Licence Type	Licence Allocation (kL/year)	Expiry Date	Parties	Aquifer
109942	Groundwater Licence (cross-gradient)	150,000	28/08/2032	Bayardo Pty Ltd	Perth – Superficial Swan
178185	Groundwater Licence (Cross-gradient)	145,000	15/10/2023	Western Australian Land Authority	Perth – Superficial Swan
159085	Groundwater Licence (down and cross-gradient)	5,404,000	20/09/2025	Alcoa of Australia Limited	Perth – Superficial Swan
175930	Groundwater Licence (cross-gradient)	129,100	14/09/2026	Western Australian Sport Centre Trust	Perth – Superficial Swan



Item	Details				
54280	Groundwater Licence (cross-gradient)	15,000	20/04/2033	P.M.R Quarries Pty Ltd As the trustee for WA Limestone Unit Trust	Perth – Superficial Swan
200502	Groundwater Licence (cross-gradient)	35,000	14/11/2027	Farfield Holdings Pty Ltd	Perth – Superficial Swan
171301	Groundwater Licence (down gradient)	9,750	02/03/2030	Gaskin, Rodney	Perth – Superficial Swan
166922	Groundwater Licence (cross-gradient)	724,935	02/03/2028	JJ White Pty Ltd, Greta White Pty Ltd; Qube Mandogalup Development Pty Ltd	Perth – Superficial Swan
181321	Groundwater Licence (cross-gradient)	300,000	11/12/2025	Ellement Brothers Pty Ltd	Perth -Superficial Swan
168760	Groundwater Licence (cross-gradient)	101,150	01/09/2024	The Trustee for Sam Galati Family Trust	Perth – Superficial Swan
48228	Groundwater Licence (cross-gradient)	19,950	05/05/2026	Glenbrook Civil Engineering Contractors Pty Ltd	Perth – Superficial Swan
177592	Groundwater Licence (cross-gradient)	3,1500	25/2/2024	Karabatic, Ante, Karabatic, Neda	Perth - Superficial Swan
200440	Groundwater Licence (cross-gradient)	15,150	30/10/2027	Chan, Li Chi, Amy Chan	Perth - Superficial Swan
202605	Groundwater Licence (cross-gradient)	226,285	30/3/2030	City of Kwinana	Perth - Superficial Swan
73597	Groundwater Licence (down and cross-gradient)	12,000	22/12/2025	Acure Funds Management Ltd	Perth - Superficial Swan
78096	Groundwater Licence (down and cross-gradient)	300,000	3/9/2023	Electricity Generation and Retail Corporation	Perth - Superficial Swan
159072	Groundwater Licence (down and cross-gradient)	60,850	7/9/2026	BGC (Australia) Pty Ltd	Perth - Superficial Swan
59069	Groundwater Licence (down gradient)	55,000	30/9/2024	Wesfarmers Lpg Pty Ltd	Perth - Superficial Swan



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60605	Groundwater Licence (down gradient)	486,000	21/8/2030	BP Refinery (Kwinana) Proprietary Limited	Perth - Superficial Swan
163607	Groundwater Licence (down gradient)	40,000	24/6/2029	Fremantle Port Authority	Perth - Superficial Swan
181288	Groundwater Licence (down gradient)	1,500	16/4/2029	Solenis Australia Pty Ltd	Perth - Superficial Swan
208270	Groundwater Licence (down gradient)	73,000	12/1/2024	Mary Donald Nominees Pty Ltd	Perth - Superficial Swan

Based on the provided licence information above, it is considered that licenced groundwater abstraction is predominately used for irrigation of council, private properties and potentially dewatering for industrial uses such as dust suppression and manufacturing/processing with resultant discharge.

Alcoa currently hold an active 5C Groundwater Licence to Abstract Water within the Superficial Swan Aquifer (DWER 2023d). Alcoa's recovery bores are located immediately South of the site boundary (off Anketell Road). These bores are installed to pump and intercept impacted groundwater leaving the facilities (Golder 2022).

Public Drinking Water Source Areas (PDWSA)

Within the eastern portion of the site, from Lyons Road to approximately 600 m before the intersection of Anketell Road and Thomas Road, there are two PDWSA areas identified [accessed 20 September 2023, DWER 2023d] as described below:

- Priority 1 - Jandakot Underground Water Pollution Control Area: Located onsite and to the north of Anketell Road.
- Priority 2 - Jandakot Underground Water Pollution Control Area: Located onsite and to the south of Anketell Road.

On this basis, together with the likely availability of scheme water and given the mixed-use suburban and public open space nature of the area surrounding the site, drinking water has been excluded as a likely beneficial use of groundwater.

Groundwater Beneficial Use

Based on the above information, the following beneficial uses of groundwater are considered likely for the site:

- Irrigation / landscaping irrigation.
- Industrial – abstraction for processing purposes or remediation.
- Non-potable use including, dust suppression for construction and development, domestic irrigation and recreational use via private bores.
- Maintenance of aquatic ecosystems.



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Flora and Fauna

There are no known threatened flora present within the vicinity, but native vegetation and rehabilitated units were found within the project area (Landgate 2023b). No priority species or species listed as Threatened under the Environment Protection and Biodiversity Conservation (EPBC) Act or Biodiversity Conservation (BC) Act were directly observed in the project area.

Vegetation

The site intersects the footprint of the following systems (Landgate 2023b):

- Spearwood System (D020029): Jarrah, marri and wandoo *Eucalyptus marginata*, *Corymbia calophylla*, *E. wandoo*.
- Woodland and open forest and closed heath: Cottesloe complex – central and south.
- Open forest and woodland: Karrakatta complex – central and south.
- Sedgelands and fringing woodland: Herdsman complex.
- Woodland to low woodland and sedgelands: Bassendean complex – central and south.

Fauna

Four fauna habitats were identified (mixed trees, riparian, water in estuary, banksia woodlands) and were considered suitable for marginal habitat for one or more species, including species of Black-Cockatoo, listed as 'Threatened' or 'Migratory' under the EPBC Act (Landgate 2023b). Fauna habitats within the project area were considered to have a low to moderate foraging quality for the Forest Red-tailed Black Cockatoo and Carnaby's Cockatoo.

Wetlands and Sensitive Ecosystems

No Ramsar listed wetlands are present onsite, nor within a 500 m radius of the site. There was one instance where a geomorphic wetland intersected the site between Clement Road and Mandogalup Road.

Several geomorphic wetlands are present within a 1 km radius of the site and are described in **Table 2-3** below (DBCA 2023).

Table 2-3: Geomorphic Wetlands Within 1 km Radius of the Site

Wetland Name	ID	Wetland Type	Management Category	Distance from centre of Site
Unknown	6,538	Dampland	Multiple Use	On-site
Unknown	7,241	Sumpland	Conservation	60 m W
Mandogalup Swamp South	6,530	Dampland	Multiple Use	220 m N
Spectacles North	6,539	Sumpland	Conservation	150 m S
Unknown	6,379	Dampland	Resource Enhancement	250 m N
Unknown	6,381	Dampland	Multiple Use	370 m N
Unknown	6,380	Dampland	Resource Enhancement	380 m N
Long Swamp	15,391	Sumpland	Conservation	980m N

Environmentally sensitive areas (ESAs) are declared by the Minister for Environment under section 51B of the *Environmental Protection Act 1986* for the purpose of clearing regulations. The site intersects with 3 ESA's, including:

- Two Bush Forever sites within a 1 km radius of the site including Spectacle Swamp (Bush Forever 269), which is located immediately South of the project area.
- Banjup Bushland (Bush Forever 268), located immediately North of the project area (Landgate 2023b).



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A search of the Groundwater Dependent Ecosystems (GDE) Atlas (BOM 2023) identified the following GDE's within a 1 km radius of the site [accessed on 8 November 2023]:

- Known aquatic and terrestrial GDEs directly south of the site associated with the Spectacle Swamp.
- High potential aquatic GDE intersects the site and is associated with the damplands intersecting with site towards Kwinana Freeway. There is a high potential aquatic GDEs associated with Mandogalup Swamp South (North of the site boundary) and Long Swamp (Sumplands) located North of the site boundary. Additional high potential aquatic GDEs associated with damplands exist both to the north and south of the site boundary.
- High and Medium terrestrial GDEs in the vicinity of Spectacle Swamp Wetland, south of the site boundary. There are also medium and low potential terrestrial GDEs associated with Mandogalup Swamp South (north of site).
- Low potential aquatic GDE north of the site boundary associated with Long Swamp.

Aboriginal Heritage

A review of the Aboriginal Heritage Inquiry System (DPLH 2023) was undertaken on 21 September 2023, no on-site heritage areas were identified, and one aboriginal heritage feature located within a 1 km radius of the site. Identified places and features are listed below in **Table 2-4**:

Table 2-4: Aboriginal Heritage Features

Place Name	ID	Heritage Type	Status	Restrictions	Distance from nearest site boundary
Hope Valley Trees 1-12	17582	Place	Registered Site	No gender restrictions	250 m north of the site

European Heritage

A search of the Australian Heritage Database was undertaken 21 September 2023 (Department of Climate Change, Energy, the Environment and Water 2023). The Register of the National Estate (Non-statutory archive) indicated that there were no heritage sites listed on-site or within 500 m of the site.

Underground Utilities

A review of BYD Australia plans was undertaken on 1 October 2023. The overall area of the site was too large for some BYD searches, limiting the availability of specific data.

The search identified assets belonging to the following service providers are presented in the close vicinity of the site:

- ATCO/BOC/Dampier Bunbury Natural Gas Pipeline.
- Australian Terminals Operations Management (ATOM).
- NBN Co. cables and infrastructure.
- Optus, TPG, Vocus, NextGen - communications fibre optics and internet network.
- Water Corporation sewerage and drainage networks.
- Western Power electricity and power network including low and high voltage below and above ground power line.
- Public Transport Authority – Bus Stops.
- BP Refinery – Unknown.
- CSBP – Unknown.

The presence of utilities (and associated trenches) can be indicative of preferential pathways being created for potentially contaminated groundwater and vapour (in particular) to migrate beneath the site. Some utilities may also act as a contamination source. In this regard the following observations are made:

- Dampier to Bunbury Natural Gas Pipeline (DBNGP) intersects with the far Western portion of site towards Kwinana, intersects Anketell Road. Presumably the DBNGP is a deeper utility than some more common utilities.
- ATOM pipeline (which is assumed to be a hydrocarbon fuel pipeline) runs along Rockingham Road and intersects the site at Anketell Road beyond which it detours in a northeasterly direction along the rail reserve.
- Water pressure mains and sewerage pressure mains (Water Corporation) run alongside Anketell Road (Landgate 2023b).

Subsurface pipe networks appear to be present within the site boundary and may comprise asbestos containing moulded cement or insulation.



3.0 Site History

3.1 DWER Contaminated Sites Information

3.1.1 DWER Contaminated Sites Database

The DWER maintains a list of properties that have been notified to the DWER under the CS Act as known or suspected contaminated site, known as the Contaminated Sites Database. The database includes sites that are classified under the Act as:

- Contaminated – remediation required (CRR).
- Contaminated – restricted use (CRU).
- Remediated for restricted use (RRU).

The publicly accessible database does not include sites that have been classified as 'Potentially Contaminated – investigation required' nor sites that have been reclassified as 'Decontaminated'. A search of the DWER Contaminated Sites Database was completed on 4 September 2023 and indicated that some areas of the site to the west of Kwinana Freeway have been classified as CRR, CRU and RRU (represented in **Figure 4** and **4a**). A BSR of relevant sites available on the database are provided in **Table 3.1** below.

Table 3-1: Publicly Available Contaminated Sites Database Information

BSR ID Number	Lot on Plan Address	Location	Classification	BSR Summary
74385	Lot 501 on Plan 72707	Onsite and adjacent south to Anketell Road	CRR	Alkali groundwater plumes are present beneath the site as a result of leaking of sodium carbonate and sodium hydroxide from refinery residue storage ponds at the alumina refinery operations site. Groundwater contamination plumes are being actively managed by means of recovery bores, natural attenuation and periodic monitoring. Remedial works have not yet completed.
15659	Lot 114 on Plan 48295	~10 m adjacent (south) to Anketell Road (off-site)	CRR	Groundwater is contaminated with arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity as a result of liquid mineral processing effluent in sand-clay lined slurry lagoons leaking through to the underlying groundwater and migrating off site. A mineral waste pipeline traverses the site, extending to the east along Anketell Road.
15660	Lot 114 on Plan 48295	Onsite and adjacent North to Anketell Road	CRR	As per BSR ID 15659.
15657	Lot 51 on Plan 20582	Onsite and adjacent South to Anketell Road	CRR	As per BSR ID 15659. The lot is currently used as a motor vehicle racetrack and is the source site where the abovementioned slurry lagoons were historically located.



BSR ID Number	Lot on Plan Address	Location	Classification	BSR Summary
81975	Lot 2 on Deposited Plan 419343	Onsite and adjacent west of Anketell Road – Rockingham Road intersection	CRU	Nitrate is present in groundwater underlying the site and soils contain widespread industrial slag and cinders that contain heavy metals. Contamination is a result of a variety of potentially contaminating activities since 1954.
73071	Lot 201 on Plan 407762	Onsite and adjacent west of Anketell Road – Rockingham Road intersection	CRU	As per BSR ID 81975.
22596	Lot 2 on Diagram 42807	Offsite, adjacent to Rockingham Road and North of Beard Street	RRU	Hydrocarbons (such as from petrol or diesel) are present in groundwater beneath the site as a result of site use as a service station for approximately 38 years, from 1971 to 2009.
2623	Lot 224 on Plan 3638	Onsite, East of Rockingham Road and North of Lee Street	CRU	Hydrocarbon contamination has been identified in soils within the southeast of the Site and groundwater contamination within the superficial aquifer at 10m depth across the Site as a result of a reported leak of 15,000 litres of diesel oil in 1999.

3.1.2 DWER Contaminated Sites Register

BSR summary information for the six BSRs is presented in **Table 3-2**.

**Table 3-2 Targeted DWER BSR Findings**

DMO	Parcel	Plan Lot Number	Location	Classification	Summary	Comment
1858	21215	LOT 103 ON PLAN 3638	<10 m N (off-site)	Possibly contaminated - investigation required	Known as 40 Bickley Street, Naval Base, this site was classified as PCIR in 2009 due to groundwater contamination with arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity. The contamination is likely a result of disposal of mineral processing waste from the adjacent bauxite/aluminium processing facility.	Potentially down gradient of site, this is an affected site – northeast of source site.
3171	17713	LOT 2129 ON PLAN 173137	120m S of Site (off-site)	Possibly contaminated - investigation required	<p>Known as 119 McLaughlan Road, Postans, this site was classified as PCIR in 2016 due to elevated concentrations of nutrients in the groundwater beneath the site. The site, which has been operational since the 1970s is currently licenced under the EP Act 1986 (licence number L6543/1991/10) to operate as a wastewater treatment plant. The contamination is likely a result of a spill of raw sewage and re-direction of additional sewage to an unlined bio-solids lagoon. No evidence of successful remedial works targeting the nutrient contamination.</p> <p>Localised remediation works were carried out at the site in 2015 to remove minor amounts of asbestos containing materials (ACM) associated with the decommissioning of redundant infrastructure at the wastewater treatment plant. Based on the information provided, all ACM impacted soils associated with the decommissioning works have been successfully remediated.</p>	Cross gradient to site. Groundwater modelling has suggested groundwater mounding beneath infiltration ponds on site causes surficial groundwater flow in an easterly direction towards the Spectacles Wetland.
4003	21651	LOT 89 ON PLAN 217732	<20m N of site boundary. (off-site)	Possibly contaminated - investigation required	Known as 103 Mandogalup Road Mandogalup, this site was classified as PCIR in 2009 due to groundwater beneath the northwest portion of the site being affected by an alkali groundwater contamination plume from the source site at Lot 100 Anketell Road, Hope Valley that operates as an alumina refinery. The affected site has only been partially investigated and further delineation of contamination is required.	Cross gradient to site – unclear as to whether extend of contamination may cross site boundary due to close proximity to source site.
5083	29825	LOT 52 ON DIAGRAM 18462	On-site	Possibly contaminated - investigation required	<p>This site was classified as PCIR in 2010 due to a report of one million litres of saline cooling water to soils and groundwater. The cooling water was alkaline and contained elevated levels of sodium hydroxide and sodium carbonate. No soil or groundwater investigations have been carried out.</p> <p>The Site has undergone remediation works involving the partial excavation of impacted soils. Due to safety reasons some impacted soils were retained beneath high voltage electrical infrastructure and pipeline supports within the Site. The resultant excavations were infilled with gypsum and clean fill material. No information on the effectiveness or completeness of the remediation works has been submitted to DWER.</p>	Located on-site, down groundwater gradient. Contamination has not been adequately investigated, nor has the site been subject to risk assessment in order to understand the nature and extent of contamination onsite.



DMO	Parcel	Plan Lot Number	Location	Classification	Summary	Comment
11140	74386	LOT 112 ON DIAGRAM 88143	Extends across N and S boundaries of site – potentially onsite.	Possibly contaminated - investigation required	Known as 205 Abercrombie Road Hope Valley, this site was classified as PCIR in 2018 due to groundwater beneath the site being affected by an alkaline plume migrating from Lot 501 Anketell Road (moving westwards). The source site is an alumina refinery.	Cross gradient of site.
11158	74521	LOT 102 ON PLAN 3638	<20 m N (off-site)	Possibly contaminated - investigation required	Known as 38 Bickley Road Naval Base, this site was classified as PCIR in 2019 due to elevated concentrations of aluminium and arsenic potentially in the groundwater beneath site, extending from a plume from a nearby retired alumina residue storage area to the south of the site. GW impact detected to approximately 44m BGL.	Down gradient of site.



3.2 Current and Historical Certificates of Title

Review of the relevant Landgate (2023a) databases indicate that there are over 50 individual land parcels comprising the site. Specific details relating to the extent of the disturbance within the site boundary is not yet known, therefore the purchase Certification of Title (CoT) documentation was withheld until further detail is available. A plan showing the cadastral boundaries of relevant land parcels within the site boundary is provided in **Figures 4 and 4a**.

3.3 Historical Aerial Photography Review

Historical aerial photographs from the years 1953, 1970, 1981, 2005, 2018 and 2023 (Landgate, 2023a). The selection of these photograph year intervals was based on the preference of the available photographs at semi-regular intervals with high definition and lower altitude. Historical aerial photography are provided in **Figure 2** and are summarised in **Table 3-2** below.

**Table 3-2: Historical Aerial Photography Review**

	1953 (Black and White)	1970 (Black and White)	1981 (Colourised)	2005 (Colourised)	2018 (Colourised)	2023 (colourised)
North	<ul style="list-style-type: none"> Agricultural activity visible northeast of the site boundary – cleared land. Some unsealed tracks visible surrounding agricultural area. Predominantly undisturbed vegetation to the West of the agricultural area. Some cleared area north to northwest of the site boundary. 	<ul style="list-style-type: none"> Eastern portion of Alumina refinery footprint is visible – cleared land. Some additional clearing to the northwest of this footprint. Unsealed roads surrounding alumina refinery cleared area. Increase in cleared area/development towards northwest of site boundary. Rockingham Rd and Lee Rd construction. 	<ul style="list-style-type: none"> Discharge into alumina tailings dam is visible. Additional clearing toward northern end of tailings dam – expanding footprint. Mining/clearing adjacent (east) of Abercrombie Rd N. Industrial/commercial area visible west of Abercrombie Rd. Extensive industrial activity to the north of site boundary. 	<ul style="list-style-type: none"> Increased sized of overall tailings storage footprint. No wet tailings visible in the south eastern portion of tailings dam. Northern portion of tailings dam actively being discharged to. Rectangular, lined evaporation pond visible immediately north of Anketell Rd. Additional, non-operational cleared land to the west of tailings footprint. Anketell road has been constructed. 	<ul style="list-style-type: none"> Northern portion of alumina tailings dam appears to be the only dam actively discharged into. Construction of dam/storage to the west of the evaporation dam. Additional infrastructure to industrial/commercial area east of Lee Rd. 	<ul style="list-style-type: none"> Additional mining/clearing to the north of the tailings storage.
East	<ul style="list-style-type: none"> No sealed roads visible. Unsealed road on the eastern portion of site and to the northeast. Predominantly undisturbed vegetation. 	<ul style="list-style-type: none"> Minimal changes visible. 	<ul style="list-style-type: none"> Eastern end of Anketell Road is defined - appears unsealed. 	<ul style="list-style-type: none"> Increased agricultural activity and land development. Construction of Kwinana Fwy. 	<ul style="list-style-type: none"> Minimal noticeable changes. 	<ul style="list-style-type: none"> Minimal visible changes.
South	<ul style="list-style-type: none"> Some unsealed roads bordering the Spectacles Wetlands. There is a small surface water body or wetland to the east of the Spectacles. West of the Spectacles wetlands is predominantly undisturbed vegetation. Residential development to the southern end of Abercrombie Rd. Cleared land or agricultural activity southwest of the site boundary. 	<ul style="list-style-type: none"> Unsealed roads west of the Spectacles are more defined. Abercrombie Road is visible. Further clearing, potentially for agricultural activity, establishment of unsealed roads adjacent Abercrombie Rd. Clearing associated with alumina refinery where Kwinana Motorway now exists – east of Rockingham Rd. Various storage ponds visible. Construction of Rockingham Rd. 	<ul style="list-style-type: none"> Increased agricultural activity southeast of site boundary. Cleared land south of Anketell Rd and east of Abercrombie Rd. Extensive clearing/industrial activity and activity southwest of site boundary 	<ul style="list-style-type: none"> Infiltration ponds associated with WWTP have been constructed. Increased residential development southeast of WWTP. Kwinana Motorplex has been constructed. Land clearing to the west of Rockingham Rd. Increased industrial development west of Rockingham Rd. 	<ul style="list-style-type: none"> Further activity/mining at WA Limestone (West of Abercrombie Rd). 	<ul style="list-style-type: none"> Additional cleared land to the southeast of Kwinana freeway.
West	<ul style="list-style-type: none"> Unsealed road resembling Leath Rd. Predominantly undisturbed vegetation within project area. Patches of agricultural activity/non-native vegetation close to coast. No development visible along coastline. 	<ul style="list-style-type: none"> Establishment of industrial precinct and clearing along coastline. Port established along Kwinana Coastline. 	<ul style="list-style-type: none"> Further establishment of industrial precinct along coast including port to the north. 	<ul style="list-style-type: none"> Minimal visible changes. 	<ul style="list-style-type: none"> Minimal noticeable changes. 	<ul style="list-style-type: none"> Minimal visible changes.



3.3.1 Historical Aerial Imagery – Summary

Review of the historical aerial imagery indicates that significant development has occurred over the site area and surrounds between the years 1953 and 2005 with minimal changes occurring except 2005-2023.

Review of the historical aerial imagery is broad in nature due to the extensive area and many land parcels within and surrounding the project area. The most notable changes include residential development to the south, the construction and operational use of the Alumina Refinery north of Anketell Rd, and the construction major roads/highways (Rockingham Rd, Anketell Rd, Kwinana Freeway).

3.4 Freedom of Information Searches

3.4.1 DMIRS Dangerous Goods Licences and Storage Records

Senversa lodged a request with the Department of Mines, Industry Regulation and Safety (DMIRS) under the *Freedom of Information Act 1992* on 25 August 2023 to undertake a search in relation to the storage and licensing of dangerous goods to assess whether any potentially hazardous materials have been licenced for use or storage at the site. A search of DMIRS records was refined in scope and a decision date given for 19 January 2024. A copy of the Freedom of Information Notice email is provided in **Appendix C**.

3.4.2 DWER FOI

A freedom of information request through DWER was unsuccessful due to the size and complexity of the site. However, the intra-government advice sought from DWER by MRWA for sites not visible via Contaminated Sites Database as summarised in **Table 3-2**, with selected BSRs provided in **Appendix D**.

3.4.3 City of Kwinana FOI

Senversa lodged a request with the City of Kwinana under the *Freedom of Information Act 1992* on 25 August 2023 to undertake a search in relation to zoning, complaints, approvals and the storage and licensing of dangerous goods. A search of City of Kwinana records was unsuccessful due to the size and complexity of the site and did not identify any relevant documents.

3.5 State Library of Western Australia Database

A search of the State Library of Western Australia online catalogue was undertaken on 26 August 2023 for any historical information relating to the site. The search identified information regarding like-named sites/roads, MRWA study reports for the Westport project and public comment documents for other MRWA sites. The search did not provide any information specifically relevant to the objectives of the PSI or to the site that MRWA had not already provided.

3.6 MRWA Interview

An inquiry to MRWA was made on the 12th of December 2023, seeking any potential further records or anecdotal sources of information relating specifically relating to the imported fill material that was used to utilise the current grade to the west of Kwinana Freeway. MRWA was able to confirm that whilst the interchange at Kwinana and Anketell Roads is old, the requested information is not recorded under MRWA records. For the purpose of this investigation, it has been advised that it is assumed that clean fill was used for this area.



3.7 Site History Summary

Freedom of Information searches were largely unsuccessful due to the size of the site footprint and resourcing issues of the relevant government agencies. Historical aerial imagery suggests that the most notable changes to site use within the project area boundary over time include the development of primary roads and freeways from once undisturbed bushland, between 1981 and 2005. From 1970, significant industrial and commercial development has occurred at surrounding sites including contaminating activities such as alumina tailings storage, ATOM pipeline and wastewater treatment and storage.



4.0 Site Inspection and Limited Testing

4.1 Site Inspection

A site inspection in the form of a meandering walkover was undertaken on 14 August 2023 of the site by Senversa's Project Scientist (Ruby Turnbull) for the following purposes:

- To inspect the site for visual and/or olfactory lines of evidence of potential contamination (which includes potential primary and secondary sources), and to undertake opportunistic sampling of surficial PACM where encountered.
- To inspect the site surrounds for potentially contaminating activities that may not be apparent from aerial photography alone.
- To ground-truth the desktop component of this PSI, targeting areas of likely disturbance by surrounding development and historical roadworks or areas otherwise of interest identified by the desktop study.

There were no persons knowledgeable of historical site activities available for interview during the site inspection.

Neighbouring properties to the east of Kwinana Freeway which comprised rural and residential properties, agricultural land and a poultry farm were not directly inspected during the site visit. However, this area was driven and observed from publicly accessible vantage points.

Neighbouring private properties to the west of Kwinana Freeway were not directly inspected during the visit but were observed to include wastewater treatment ponds, Alcoa settlement ponds, fire station, limestone quarry, truck laydown and the Perth Motorplex. A sodium hydroxide pipeline (which signage indicates is owned by Alcoa and presumably relates to nearby operations) was observed along portions of the Anketell Road reserve. The Spectacles Wetland is also situated adjacent to the site.

A summary of the site inspection findings is provided in **Table 4.1** below and site photographs that are referenced are provided in **Appendix F**.

Table 4-1: Site Inspection Findings

Locations	West of Kwinana Freeway
Field Observations	<p>Predominantly road reserve comprising moderately vegetated bushland with cleared areas and tracks. At the intersection of Rockingham Road and Anketell Road, part of the site comprises a truck laydown, service station and car wash.</p> <p>Starting from the Freeway moving west, adjacent properties of note comprise Mandogalup Fire Station, The Spectacles Wetland, rural residential with deeply incised surface water drains (drainage to wetland), Alcoa settlement and drainage ponds, quarry, vacant land with various borrow pits, various industrial complexes and the Motorplex.</p>
ASS	<p>No indicators of ASS/PASS were observed at the time of inspection such as corrosion of concrete or steel structures or stunted/scalded vegetation.</p> <p>Signs of waterlogged soils were observed at the deeply incised drains adjacent to the rural residential properties which was predominantly cleared for grazing.</p>
Dangerous Goods and chemical storage	<p>A sodium hydroxide pipeline (which signage indicates is owned by Alcoa and presumably relates to nearby operations) was observed along portions of the Anketell Road reserve (Photographs 21-25 in Appendix F).</p>



Locations

West of Kwinana Freeway

Presence/absence of stockpiles	<p>Various stockpiles or push ups were observed along the road reserve, some appeared to be natural fill and bitumen waste (Photographs 17-19 and 19 in Appendix F).</p> <p>The stockpiles may be derived from the limestone quarry or surrounding commercial sites.</p>
Presence/absence of potential asbestos containing material (PACM)	<p>No asbestos register was available for the site. WaterCorp BYD plans were not provided however given the large site size and era of development it is likely some WaterCorp infrastructure is ACM.</p> <p>Several fragments of PACM were observed on the ground surface on the northwest verge of the intersection of Beard Street and Rockingham Road. Fragments were bonded cement sheeting, in good condition and were approximately 20 x 30 x 5 mm in size. A fragment was collected for analysis (see point 90 on Figure 3).</p>
Presence/absence of other materials	<p>Fly tipping was observed in the following areas:</p> <ul style="list-style-type: none"> Alongside a dirt track, immediately north of Anketell Rd that follows from the opposite of McLaughlan Rd to the west of Clementi Rd. Fly tipped material was observed at multiple locations alongside this dirt track. Materials observed include, tyres, wood, household furniture/items, textiles, glass, general waste (Photographs 66-68 and 70) in Appendix F). Located on Lot 114 on Plan 48295. Fly tipping was observed alongside a dirt track to the east of Abercrombie Rd. Materials observed include tyres, mattresses, household furniture/items, textiles, cardboard, paint cans, plastics, glass, white goods, oil in (Photographs 30-43, and 45 in Appendix F).
Groundwater bores/wells	<p>The following monitoring wells were observed:</p> <ul style="list-style-type: none"> Two sets monitoring wells were observed (Visible well IDs are KW58B2, 59B2), north of Kwinana Motorplex, immediately south of Anketell Road heading towards the Rockingham Road intersection (Photographs 47 and 49 in Appendix F). A monitoring well was observed alongside Clementi Rd. This well is believed to be commissioned by Water Corporation. A DWER monitoring well was identified on Mandogalup Rd, immediately east of Mandogalup Pioneer Reserve.
Surrounding land uses	<p>Neighbouring properties to the west of Kwinana Freeway were not directly inspected during the visit but were observed to include wastewater treatment ponds, Alcoa settlement ponds, fire station, limestone quarry, truck laydown, fuel station / car wash and Motorplex.</p> <p>Along adjacent portions of Anketell Road exists an Alcoa pipeline for sodium hydroxide movement and the Spectacles Wetland is also situated adjacent to the site. Access constraints were encountered due to safety requirements for working near a roadway, private property and soft-sand tracks.</p>

The above observations are considered typical of a large and busy transport corridor and road reserve in an industrial and rural area.

The inspection of the project area and surrounding sites reinforced areas of likely disturbance by the surrounding development and historical roadworks or areas otherwise of interest, that were identified in the desktop component of this PSI (**Sections 2.0 and 3.0**). Additional potentially contaminating activities that were not apparent in the desktop sections of this PSI, but were identified during the site inspection, include the occurrence of fly tipping of various materials and the miscellaneous stockpiles across the project area. The potential significance of the above fly-tipping and stockpile issues is further considered later in this report.

4.2 Material Sample Results

One suspected PACM fragment that were observed was collected, double bagged and submitted for analysis to a NATA accredited laboratory for confirmatory analysis for asbestos presence/absence and fibre type.



Laboratory analytical results are summarised in **Table 4-2** below and laboratory documents are provided in **Appendix G**.

Table 4-2: PACM Results

Location Code			PACM01
Date			14/08/2023
Lab Report No.			EP2312568-001
Analytes	Units	LOR	
Asbestos Detected	g/kg	0.1	No
Asbestos Type	-	--	-
Asbestos (Trace)	-	-	No
Sample Weight (dry)	g	0.01	9.80
Synthetic Mineral Fibre	-	-	No
Organic Fibre	-	-	Yes
Sample Description	-	-	Fragments of concrete sheeting scattered across vacant lot

In summary, laboratory results did not identify the presence of asbestos fibres. Whilst this is the case the above result may not be representative of all cement sheet fragments observed during the site walkover. Additionally, cement sheet fencing fragments may be perceived by future site users and construction workers as ACM.



5.0 Conceptual Site Model

5.1 CSM Introduction

A CSM describes the possible pathways by which exposure to potential contamination may occur. For exposure to occur, a complete pathway must exist between the source of contamination and the receptor (i.e. the person or ecosystem components potentially affected by the contamination). Where the exposure pathway is incomplete, exposure cannot occur, leaving no risk via that pathway. An exposure pathway will typically consist of the following elements:

- A source of contamination (e.g. a leak or spill).
- A release mechanism (e.g. migration in soil, leaching to water, emission to air).
- Retention in the transport medium (e.g. soil, groundwater, surface water or air).
- An exposure point (e.g. where a person comes into contact with contaminated dust or soil, or contaminated groundwater from a well, or in a building overlying volatile contamination).
- An exposure route (e.g. inhalation, ingestion, absorption through the skin).

5.2 APECs

Table 5-1 summarises the APECs collectively identified from the desktop review and inspection.

In general terms, decision-making regarding evaluation of the contamination status and relevance of each APEC to represent a contamination source was based upon holistic consideration of the following lines of evidence:

- Whether the issue is considered trivial in nature.
- Documented evidence (or reasonable inferences) of historical potentially contaminating land-use activities (having regard to DWER [2021] guidelines) identified from the desk-based review.
- Historical investigation findings (inferred through BSR information).
- For off-site APECs, the distance to the site and orientation relative to inferred groundwater direction.
- Visual and/or olfactory indicators of contamination identified during the site inspection.

Where the overall weight of evidence and professional judgement indicates a low likelihood of potential or actual contamination to the site, the related APECs were not carried forward into the preliminary CSM. Such APECs are shaded grey in **Table 5-1**. Shortlisted APECs are shown in **Figure 5** and **Figure 5a**.



Table 5-1: Shortlisted Areas of Potential Environmental Concern

Shortlisted APEC No.	Site Inspection Feature ID (Figure 1)	Description	Parcel ID/Address	Location relative to site	Evidence of Potential Contamination Issues and Relevance	CoPCs ¹	APEC Carried Through to CSM (Y/N)?
1	90	Scattered PACM Fragments	Lot 88 on Diagram 091262.	On-site Between Brown Av and Rockingham Rd.	<ul style="list-style-type: none">Visual evidence of PACM scatter (Photograph 90).No observed source.Likely from fly tipping (evidence of tyres adjacent to PACM scatter).	ACM	Yes
NA	91	Small stockpile resembling local geology (Bassendean Sand)	Lot 88 on Diagram 091262.	On-site Between Brown Av and Rockingham Rd	<ul style="list-style-type: none">Visual evidence of PACM (APEC 1) nearby however not considered to be related to stockpile.Stockpile appeared to be white sand – consistent with local geology (Spearwood). Likely earthworks related.	Nil	No
2	88	Better Choice Fuel Station	Lot 11 on Plan 412985 Lot	On-site Adjacent (to the east) of Rockingham Rd and Lee Rd (south of).	<ul style="list-style-type: none">Not a classified site under the CS Act.Fuel storage and dispensing is a higher risk potential contaminating land activity.Aerial imagery indicates that the site has been a fuel station since circa 2000, hence a fuel leaks and spills are plausible.No known investigations have taken place.Relevant as on-site.	Hydrocarbons Lead	Yes
NA	92	Bullet Truck Wash	Lot 13 on Plan 412985	On-site Adjacent (to the east) of Rockingham Rd and Lee Rd (south of).	<ul style="list-style-type: none">Not a classified site under the CS Act.Immediately northeast of APEC 2.Aerial imagery indicates that site has been used as a truck use since circa 2010.No known investigations.	Hydrocarbons	No
3	55	Deep Sump within vegetated area	Public Road (3129912)	On-site Immediately south of Anketell Rd, east pf Kwinana Motorplex access Rd.	<ul style="list-style-type: none">Adjacent to APEC 19 (DMO 15657).Likely to store runoff/stormwater.Relevant as on-site.	Nutrients Pathogens Pesticides Herbicides PFAS Hydrocarbons Metals	Yes
NA	22	Small pile of odorous Bitumen Waste	Public Road (3128702)	On-site Corner of Abercrombie Rd and Anketell Rd.	<ul style="list-style-type: none">Visual and olfactory evidence of Bitumen waste (Photograph 18)Located adjacent classified sites under the CS Act (DMO -15659, and DMO 15660) however, this is considered unrelated to bitumen stockpile.Proximity to road – high likelihood of fly tippingSurrounded by industrial land uses and earthworks activity – (WA Limestone)	Hydrocarbons Metals Sulfur	No
NA	24	Small stockpile of Bitumen	Lot 113 on Plan 20587	On-site Immediately east of Abercrombie Rd.	<ul style="list-style-type: none">Visual evidence of stockpile (Photograph 19)Surrounded by industrial land uses and earthworks activity – (WA Limestone, Eclipse Resources)Unknown sourceLow likelihood of contamination vertical or lateral.	Hydrocarbons Metals Sulfur	No
4	26	Sodium hydroxide solution pipeline	Lot 114 on Plan 48295	On-site Immediately east of Abercrombie Rd.	<ul style="list-style-type: none">Classified as CRR under the CS Act – DMO 15659Visual evidence of pipeline and associated signage. Signs indicate that the pipeline contains Caustic Acid. Signage indicates presence of asbestos in pipe infrastructure. Given pipeline appears undamaged there is low risk of ACM impact. (Photographs 21, 22, 23, 24, 25)Groundwater is contaminated with arsenic, aluminium, molybdenum fluoride, chloride and elevated alkalinity. Site is restricted to commercial/industrial use excluding childcare centres.Groundwater abstraction, as part of an on-going remediation program is permitted, provided all groundwater is sent to appropriate disposal facility.Under the classification, no soils may be excavated or disturbed without the implementation of health, safety and environmental management plan.Relevant as partially on-site.	Metals Alkalinity	Yes
NA	33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46.	Fly tipped material alongside dirt track – furniture, household items, tyres, textiles, timber, rubber, white goods, electronics, metal sheeting.	Lot 113 on Plan 20587	Off-site Immediately south of Anketell Rd, alongside dirt track.	<ul style="list-style-type: none">Visual evidence of fly tipping (Photographs 30-46).Nature of observed fly-tipping materials are considered unlikely to give rise to contamination.Trivial in the context of a major arterial road.	ACM Rubber Metals Plastics Hydrocarbons PFAS	No

¹ Having regard for Appendix B of DWER (2021) and/or historical investigations where completed.



Shortlisted APEC No.	Site Inspection Feature ID (Figure 1)	Description	Parcel ID/Address	Location relative to site	Evidence of Potential Contamination Issues and Relevance	CoPCs ¹	APEC Carried Through to CSM (Y/N)?
NA	67, 68, 69, 71	Fly tipped material alongside dirt track –tyres, textile, wooden furniture.	Public Road 3128702	On-site Immediately north of Anketell Rd, opposite to Mclaughland Rd, alongside dirt track.	<ul style="list-style-type: none"> Visual evidence of fly tipping (Photographs 67-71). Nature of observed fly-tipping materials are considered unlikely to give rise to contamination. Trivial in the context of a major arterial road. 	Nil	No
5	75, 77	Agricultural open sump and drain (western end)	Public Road 3139956	On-site Corner of Anketell Rd and Clementi Rd North of The Spectacles.	<ul style="list-style-type: none"> Visual evidence of Open Drain (Photographs 75 and 77). Water observed in drain flowing south, flowing into the Spectacles wetland area. Downgradient of agricultural land use. Aerial imagery indicate presence of agricultural land use and open drain dating back to 1953 (earliest date of available imagery). Water observed in drain flowing south, flowing into the Spectacles wetland area. Downgradient of agricultural land use. Aerial imagery indicates presence of agricultural land use and open drain dating back to 1953 (earliest date of available imagery). APEC 6 (firefighting service) adjacent to the East – Possibility of drain receiving runoff from containing contaminants and discharging into the Spectacles. Close proximity of drain to sites classified under the CS Act – DMO 74385 (Alumina Refinery) and DMO 4003 (Mandogalup Pioneer Reserve). Possibility of drain receiving runoff from containing contaminants and discharging into the Spectacles. Relevant as on-site. 	Nutrients Pathogens Pesticides Herbicides PFAS Hydrocarbons Metals	Yes
NA	78	Fly tipped material alongside dirt track –tyres	Public Road 3139956	On-site Immediately north of Anketell Rd, west of Mandogalup Rd.	<ul style="list-style-type: none"> Visual evidence of fly tipped material (Photograph 78). Nature of observed fly-tipping materials are considered unlikely to give rise to contamination. Trivial in the context of a major arterial road. 	Hydrocarbons	No
6	81	Mandogalup Fire Service	Lot 76 on Plan 211720	Partially on-site Corner of Mandogalup Rd and Anketell Rd.	<ul style="list-style-type: none"> Active firefighting service – possibility for historical and current use and storage of AFFF foam or other PFAS containing material. Adjacent to eastern end of agricultural drain. Relevant as within close vicinity of the site. 	PFAS Hydrocarbons	Yes
7	N/A	Kwinana Wastewater Treatment Plant / Capital Recycling	Lot 2129 on Plan 173137	Off-site South of Anketell Rd, immediately west of Mclaughlan Rd.	<ul style="list-style-type: none"> Current land use as a wastewater treatment plant to the north, and recycling plant to the southern end. Cross-gradient to site. Classified as PCIR under the CS Act – DMO3171. Licensed under the EP Act (L6543/1991/10). A raw sewerage spill on-site was reported to DWER (formerly DER) in 2011, some remediation has occurred (excavation of solids). There are knowledge gaps associated with remediation validation of impacted soils. Ongoing monitoring events - nutrients exceed ecological guidelines. Potential groundwater mounding beneath the infiltration ponds on the site. Surficial groundwater flows in an easterly direction towards the Spectacles Wetland. A pathway by which nutrient impacts may be transported to the nearby wetland has been identified. Previous soil investigations found no potential contaminants above health or ecological investigation levels at southern end of site. Groundwater conditions towards southern end of site remain uncharacterised. Remediation works were carried out on-site in 2015 to remove minor amounts of ACM associated with the decommissioning of redundant infrastructure of the WWTP. ACM impacted soils were successfully remediated. Further investigations are required to assess the risk posed by nutrients and other potential contaminants to the ecosystem. Moreover, delineation of soil and groundwater impacts associated with WWTP at southern portion of site is required. Relevant since within close vicinity of the site. 	Nutrients Pathogens PFAS ACM	Yes



Shortlisted APEC No.	Site Inspection Feature ID (Figure 1)	Description	Parcel ID/Address	Location relative to site	Evidence of Potential Contamination Issues and Relevance	CoPCs ¹	APEC Carried Through to CSM (Y/N)?
8	N/A	Alumina Refinery	Lot 501 on Plan 72707	Partially on-site Immediately north of Anketell Rd, between Abercrombie Rd and Mandogalup Pioneer Reserve.	<ul style="list-style-type: none"> Current land use as an Alumina Refinery. Site infrastructure includes alumina refinery residue storage and disposal areas, cooling ponds, pipelines and a network of groundwater recovery and monitoring bores. These land uses have potential to cause contamination. Classified as CRR under the CS Act – DMO 74385. The source site is Lot 100 Anketell Road, Hope valley. This Site comprises a source of alkali groundwater contamination that has migrated to affect a parcel of land to the east (Lot 89, Plan 217732– APEC 16). The affected site has been classified separately. Abstraction of groundwater at source site is restricted to remediation of contamination and industrial refinery purposes. The defined MRWA site boundary may encroach on residue ponds. 	Metals Alkalinity	Yes
9	N/A	Mandogalup Pioneer Reserve	Lot 89 on Plan 217732	Partially on-site North of Anketell Rd, immediately west of Clementi Rd.	<ul style="list-style-type: none"> Site is classified as PCIR under the CS Act – DMO 4003. Groundwater beneath northwest portion of site is affected by an alkali groundwater contamination plume emanating from adjacent Lot 100 Anketell Road (source site) – Alumina Refinery. Plume is inferred to be extending eastward towards wetlands. Groundwater contamination plumes from the source site are being actively managed via recovery bores and periodic monitoring. Investigations on the site are limited and do not meet DWER guidelines. Further groundwater investigations are required to delineate lateral and vertical extent of groundwater impact. Groundwater should be tested to confirm suitability for use. Relevant as partially on-site. 	Metals Alkalinity	Yes
10	N/A	Vacant Land	Lot 114 on Plan 48295 Lot 115 on Plan 48295	Partially on-site Immediately south of Anketell Rd. East of Kwinana Motorplex to west of McLaughlin Road. North of WWTP.	<ul style="list-style-type: none"> Classified as CRR under the CS Act - DMO 15659, and DMO 15660. Groundwater is contaminated with arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity. No soil investigations have been carried out. No soils may be excavated or disturbed without the implementation of a health, safety and environmental management plan. The site is restricted to commercial/industrial use only. Groundwater abstraction is only permitted as part of an on-going groundwater remediation program as long as purged water is sent to an appropriate disposal facility. The contamination is derived from the adjacent alumina processing facility (now Kwinana Motorplex) and for the pipeline of transporting mineral processing waste and operation landfill. The source site is classified as CRR. Groundwater contamination is migrating northwest of the source site boundary. 	Metals Fluoride Chloride Alkalinity	Yes
11	N/A	Part of Kwinana Motorplex (eastern portion, south of Anketell Rd)	Lot 51 on Plan 20582	Partially on-site	<ul style="list-style-type: none"> Classified under the CS Act as CRR – DMO 15657. Groundwater is contaminated with arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity. Land use is restricted to commercial/industrial only. Groundwater is not suitable for use without treatment for the presence of contamination. No soils may be excavated or disturbed without the implementation of a health, safety and environmental management plan. The contamination is derived from the adjacent alumina processing facility (now Kwinana Motorplex) and for the pipeline of transporting mineral processing waste and operation landfill. Relevant as partially on-site. 	Metals Fluoride Chloride Alkalinity	Yes
12	N/A	Kwinana Motorplex, immediately adjacent to Rockingham Rd, and south of Anketell Rd.	Lot 435 on Plan 220492	Partially on-site	<ul style="list-style-type: none"> Classified under the CS Act as CRR – DMO 15656. Current site use as a motor vehicle racetrack. The source site has been used for the disposal of mineral processing waste from the adjacent bauxite/aluminium processing facility, and for a pipeline for the transportation of mineral processing waste and operating landfill. No soils may be excavated or disturbed without the implementation of a health, safety and environmental management plan. Groundwater abstraction, as part of an on-going groundwater remediation program, is permitted provided all groundwater is sent to an appropriate disposal facility. Relevant as partially on-site. 	Metals Fluoride Chloride Alkalinity Landfill Gas PFAS	Yes



Shortlisted APEC No.	Site Inspection Feature ID (Figure 1)	Description	Parcel ID/Address	Location relative to site	Evidence of Potential Contamination Issues and Relevance	CoPCs ¹	APEC Carried Through to CSM (Y/N)?
13	N/A	Semi-rural property with residential dwelling.	Lot 112 On Plan 88143	North of Anketell Rd, immediately east of Abercrombie Rd Partially on-site	<ul style="list-style-type: none"> Classified under the CS Act as PCIR - DMO 74386 No soil investigations have been carried out and the quality of the soils are unknown. Alkali groundwater plumes present beneath site. Abstraction of groundwater at source site is restricted to remediation of contamination and industrial refinery purposes. Relevant as partially on-site. 	Metals Fluoride Chloride Alkalinity	Yes
14	N/A	Commercial yard	Lot 224 on Plan 3638	Corner of Rockingham Road and Macedonia St Partially on-site	<ul style="list-style-type: none"> Classified under the CS Act as CRR - DMO 2623. The site was historically used as a commercial yard and fuel storage and distribution facility. Hydrocarbon contamination has been identified in soils within the southeast of the site and groundwater contamination within the superficial aquifer at 10m depth across the site. Relevant as partially on-site. 	Hydrocarbons	Yes
15	NA	Millenium Metals Scrapyard	Lot 22 on Plan 40237	Leath Street, western site boundary Partially on-site	<ul style="list-style-type: none"> Classified under the CS Act as PCIR. The site appears to currently be used as a metal scrap yard (Millenium Metals). Relevant as partially on-site. 	Metals	Yes
16	NA	Rail siding	Lot 52 on diagram 18462 Road Reserve PCIR	Western portion of site (west of Rockingham Road) On-site	<ul style="list-style-type: none"> Classified under the CS Act as PCIR. The site was classified due to one million litres of saline cooling water to soils and groundwater. The cooling water was alkaline and contained elevated levels of sodium hydroxide and sodium carbonate. No soil or groundwater investigations have been carried out. Relevant as on-site. 	Salinity	Yes
17	NA	Inferred Alcoa alumina residue storage pond affected sites	Lot 102, 103 and 104 on Plan 3638 Lot 51 on Plan 10536 Lot 422 on Plan 215630 Lot 1053 on Plan 64792 Lot 303 on Plan 88389 Lot 500 on Plan 54384 Lot 50 on Plan 10536 Lot 421 on Plan 215630 Lot 417 on Plan 215630 Lot 420 on Plan 215630 Lot 248 on Plan 29999	Western portion of site (east of Rockingham Road) Partially on-site	<ul style="list-style-type: none"> These sites are all classified as PCIR under the CS Act. Lot 103 on Plan 3638 was classified due metal impacted groundwater extending from a plume from the retired alumina residue storage area. It is inferred the other land parcels are also classified for the same reason. Relevant as on-site. 	Metals Fluoride Chloride Alkalinity	Yes
18	NA	Former service station	Lot 2 on Deposited Plan 419343 Lot 201 on Plan 407762	Adjacent west of Anketell Road – Rockingham Road intersection On-site	<ul style="list-style-type: none"> Classified under the CS Act as CRU – DMO 81972 Historically used as a service station. Hydrocarbons are present in groundwater beneath the site. The NoC states groundwater beneath this site is not suitable for use without treatment for the presence of hydrocarbon contamination. The NoC states a basement should not be constructed at the site without further contamination assessment and/or remediation. Relevant as on-site. 	Hydrocarbons	Yes
19	NA	ATOM pipeline (inferred hydrocarbon fuel pipeline)	Rockingham Road/Anketell Road intersection.	Partially on-site	<ul style="list-style-type: none"> Inferred hydrocarbon fuel pipeline. Relevant as on-site. 	Hydrocarbons	Yes

In summary, 19 APECs have been shortlisted as representing plausible contaminant sources for further CSM consideration. In addition to these shortlisted APECs, portions of the site are mapped as medium to high risk of ASS being present within 3 m of the natural surface. Potential ASS issues are also considered by the CSM.



5.3 Exposure Pathways and Transport Mechanisms

For the purpose of this assessment, possible exposure pathways are identified as natural and/or man-made pathways for the preferential migration of COPC in dust, liquid and/or gaseous state. Potential contaminant migration pathways for the COPCs include:

- Volatilisation of CoPCs in soil, surface water and groundwater followed by inhalation.
- Degradation of organic material and associated production of ground gases, followed by inhalation of ground gases, asphyxiation and/or creation of explosive atmospheres. [This pathway is specific to APEC 19 (Kwinana Motorplex facility and adjacent landfill)].
- Direct contact with contaminated soil (including subsequent incidental ingestion).
- Direct contact with contaminated surface water (including subsequent incidental ingestion).
- Airborne dust generation followed by inhalation of dust (including asbestos fibres).
- Leaching of contaminants from soil to groundwater.
- On-site and off-site abstraction of impacted groundwater (e.g. dewatering during construction, abstraction for construction dust suppression purposes).
- Contaminated groundwater discharge to receiving surface water receptors via lateral movement along the groundwater flow path.
- Contaminated surface water and sediment run-off aquatic receptors including the Spectacles wetlands.
- Migration of CoPC impacts along preferential pathways including underground services.

The above list of exposure pathways and transport mechanisms reflects the high number and variety of APECs and associated CoPCs shortlisted in **Section 5.2** (and absence of investigation data in many instances).

5.4 Receptors

For the purpose of this assessment, 'receptors' include people, ecological receptors, groundwater and water supply wells that are, or may be, adversely affected by the CoPCs. Potential receptors on or near to the site, which have exposure pathways that may be complete include the following:

- Construction workers conducting excavations, dewatering, or clearing within impacted areas of the grade separations that may come into direct contact with impacted soil, soil vapour, landfill gas and groundwater.
- Future maintenance workers that may come into direct contact with impacted soil, soil vapour, landfill gas and groundwater.
- Future site users under ongoing use as public open space (i.e. cycle and footpaths and parks adjacent to the site) and road reserve.
- Groundwater and any users of groundwater off-site such as for reticulation and other non-potable beneficial uses.
- Ecological receptors, most significantly the Spectacles wetlands nearby to the eastern portion of the site.
- Surrounding residential, commercial and industrial land users.

5.5 Assessment of Risk to Environment and Human Health

A large number and variety of APECs have been shortlisted as potential sources that may pose a plausible risk to human health and/or the environment. For some APECs no known soil or groundwater investigation has been performed whilst for other APECs investigations (and in some cases also remediation) have been completed however the external reports have not been obtained and reviewed as part of this PSI.



From **Section 5.2** the types of APECs can broadly be categorised as follows:

- Scattered PACM debris (cement sheeting fragments).
- Fuel storage, transport and dispensing.
- Alumina refinery and ancillary infrastructure.
- Open sumps and drains (also potentially represent a contaminant pathway and receptor).
- Firefighting depot.
- Wastewater treatment.
- Landfilling.
- Scrapyard.

The presence of scattered PACM debris is the only identified APEC identified that is associated with the use of the site as a road reserve. All other APECs relate to surrounding industry. In the context of the proposed transport corridor works potentially unacceptable SPR linkages include:

- Exposure of site construction workers and future maintenance workers to contaminated soil disturbed by civil earthworks. This includes potential sources that are wholly within the defined site or where site encroaches into private land and the level of disturbance is unclear (for instance the alumina residue ponds in APEC 15).
- Exposure of site construction workers and future maintenance workers to contaminated groundwater dewatered during earthworks works (including groundwater abstraction for dust suppression purposes).
- Exposure of site construction workers and future maintenance workers to soil vapours and landfill gas during earthworks.
- Exposure of site construction workers and future maintenance workers to contaminated surface water during earthworks.
- Exposure to off-site land users, plus terrestrial and aquatic ecology from contaminated soil, groundwater or surface water emissions from the site (including reuse of contaminated media elsewhere).

In addition there is a medium to high risk of ASS being present within 3 m of the natural surface in portions of the site. Where ASS is not appropriately managed resultant soil acidification and mobilisation of metals can lead to groundwater and surface water deterioration that in some circumstances may constitute contamination.

For some of the APECs, including parts of the site, existing CS Act classification restrictions aim to mitigate potential SPR linkages (although not necessarily specific to major transport corridor road works). These restrictions variously include:

- Land use restrictions.
- Groundwater abstraction restrictions.
- Implementation of health, safety and environmental management plans prior to disturbing soil.
- Restriction on basement structures.

Provision of project conceptual design information would enable further contextualisation of CSM risks. This is particularly the case with regard to:

- Finished road levels and the need to undertake deep excavation (and where).
- The extent to which private land within the site boundary will actually be disturbed.
- Drainage design information and the potential to exacerbate groundwater contamination issues.



5.6 Broader Project Constructability Considerations

In addition to potential human health and ecological risks there may be various constructability implications associated with the APECs listed in **Table 5-1** above and ASS risk mapping. Key implications may include:

- Disposal of surplus fill (including ability to reuse elsewhere along the transport corridor), particularly where such material is deemed a 'waste' under waste regulations.
- Discharge of dewatered groundwater effluent.
- Potential building and structure corrosivity.
- PFAS specific waste management implications.
- ASS management.



6.0 Conclusion and Recommendations

6.1 Conclusion

A PSI with limited sampling was undertaken to provide MRWA with a preliminary characterisation of the contamination status of the site to assess potential risk to human health and environment and inform proposed transport corridor works. The following conclusions are made.

The key findings of the investigation were as follows.

- The eastern portion of the site is surrounded by remnant bushland, livestock paddocks and The Spectacles Wetlands. The central portion of the site is surrounded (most notably) by an alumina refinery with significant residue storage facilities. The western portion of the site is surrounded by various industrial premises. The project footprint variously encroaches onto these premises.
- The eastern portion of the site adjacent to the Spectacles Wetlands is mapped as being a combination of high to moderate and low to moderate risk of ASS within 3 m of the natural surface level. The remainder of the site to the west is mapped as having no known risk of ASS within 3 m of the natural surface level.
- From the site walkover and desktop review a wide range of areas of potential environmental concern APECs were identified broadly including small scale fly tipping, fuel storage & dispensing, fuel transmission pipelines, agricultural open sump and drains, fire station, wastewater treatment, recycling yard, alumina refinery, landfilling, metal scrapyards. Several of these sites are classified under the CS Act (2003) as PCIR or CRR. The presence of scattered PACM debris is the only identified APEC identified that is associated with the use of the site as a road reserve. All other APECs relate to surrounding industry.
- A total of 19 APECs were shortlisted as representing plausible contaminant sources that warrant CSM. Potential ASS issues were also considered by the CSM.
- The CSM identified that in the context of the proposed transport corridor works a range of potentially unacceptable SPR linkages exist associated with contaminated soil and groundwater (which encroaches onto parts of the site). These SPR linkages may give rise to human health risks (site construction workers, future maintenance workers, surrounding off-site users) and environmental risks (groundwater quality, terrestrial and aquatic ecology). Additionally, where ASS is not appropriately managed resultant soil acidification and mobilisation of metals could lead to groundwater and surface water deterioration that in some circumstances may constitute contamination.
- For some of the APECs, including parts of the site, existing CS Act classification restrictions aim to mitigate potential SPR linkages (although not necessarily specific to major transport corridor road works). These restrictions variously include land use restrictions, groundwater abstraction restrictions, the implementation of health, safety and environmental management plans prior to disturbing soil and restriction on basement structures.
- Provision of project conceptual design information would enable further contextualisation of CSM risks. This is particularly the case with regard to (i) finished road levels and the need to undertake deep excavation (and where), (ii) the extent to which private land within the site boundary will actually be disturbed, and (iii) drainage design information and the potential to exacerbate groundwater contamination issues. In addition to potential human health and ecological risks there may be broader project constructability considerations such as disposal of surplus fill and dewatered effluent.



6.2 Recommendations

Based on the PSI findings targeted intrusive investigations are recommended to verify risks and assist MRWA and stakeholders in project planning. Such investigations should be optimised towards portions of the site where the presence of contamination is most likely and future disturbance under the Anketell Road and Thomas Road transport corridor upgrade most significant. Existing data from nearby investigations may also optimise investigations. Proposed intrusive investigations should be defined in a SAQP consistent with DWER guideline requirements.



7.0 Principles and Limitations of Investigation

7.1 General Principles and Limitations of Investigation

The following principles (summarised in the table below) are intended to be referred to in resolving any ambiguity or exercising such discretion.

7.2 Project Specific Uncertainties

Table 7-1: Project Specific Uncertainties

Area	Field Observations and Analytical Results
Elimination of Uncertainty	Some uncertainty is inherent in all site investigations. Furthermore, any sample, either surface or subsurface, taken for chemical testing may or may not be representative of a larger population or area. Professional judgment and interpretation are inherent in the process, and even when exercised in accordance with objective scientific principles, uncertainty is inevitable. Additional assessment beyond that which was reasonably undertaken may reduce the uncertainty.
Failure to Detect	Even when Site investigation work is executed competently and in accordance with the appropriate Australian guidance, such as the National Environmental Protection (Assessment of Site Contamination) Amendment Measure ('the ASC NEPM'), it must be recognised that certain conditions present especially difficult target analyte detection problems. Such conditions may include, but are not limited to, complex geological settings, unusual or generally poorly understood behaviour and fate characteristics of certain substances, complex, discontinuous, random, or heterogeneous distributions of existing target analytes, physical impediments to investigation imposed by the location of services, structures and other man-made objects, and the inherent limitations of assessment technologies.
Limitations of Information	The effectiveness of any site investigation may be compromised by limitations or defects in the information used to define the objectives and scope of the investigation, including inability to obtain information concerning historic site uses or prior site assessment activities despite the efforts of the user and assessor to obtain such information.
Level of Assessment	The investigation herein should not be considered to be an exhaustive assessment of environmental conditions on a property. There is a point at which the effort of information obtained, and the time required to obtain it outweigh the benefit of the information gained and, in the context of private transactions and contractual responsibilities, may become a material detriment to the orderly conduct of business. If the presence of target analytes is confirmed on a property, the extent of further assessment is a function of the degree of confidence required and the degree of uncertainty acceptable in relation to the objectives of the assessment.
Comparison with Subsequent Inquiry	The justification and adequacy of the investigation findings in light of the findings of a subsequent inquiry should be evaluated based on the reasonableness of judgments made at the time and under the circumstances in which they were made.
Data Useability	Investigation data generally only represent the site conditions at the time the data were generated. Therefore, the usability of data collected as part of this investigation may have a finite lifetime depending on the application and use being made of the data. In all respects, a future reader of this report should evaluate whether previously generated data are appropriate for any subsequent use beyond the original purpose for which they were collected or are otherwise subject to lifetime limits imposed by other laws, regulations or regulatory policies.



8.0 References

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Figures

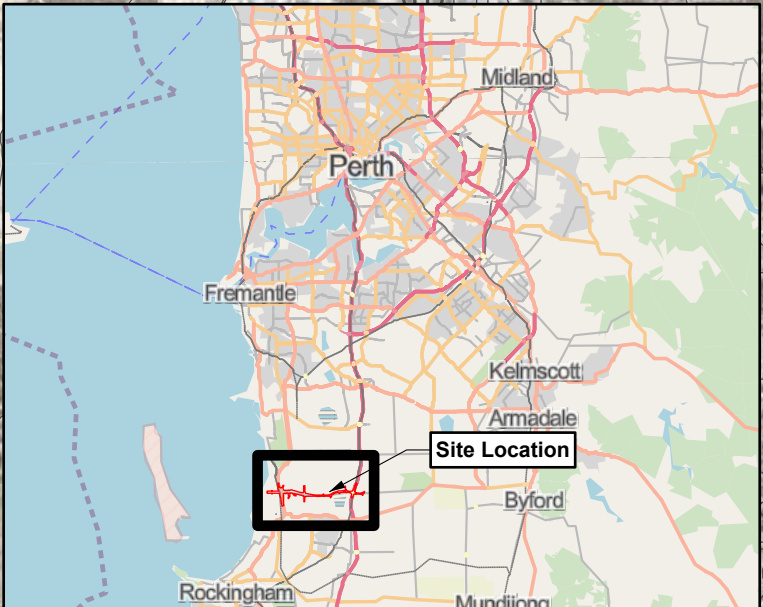
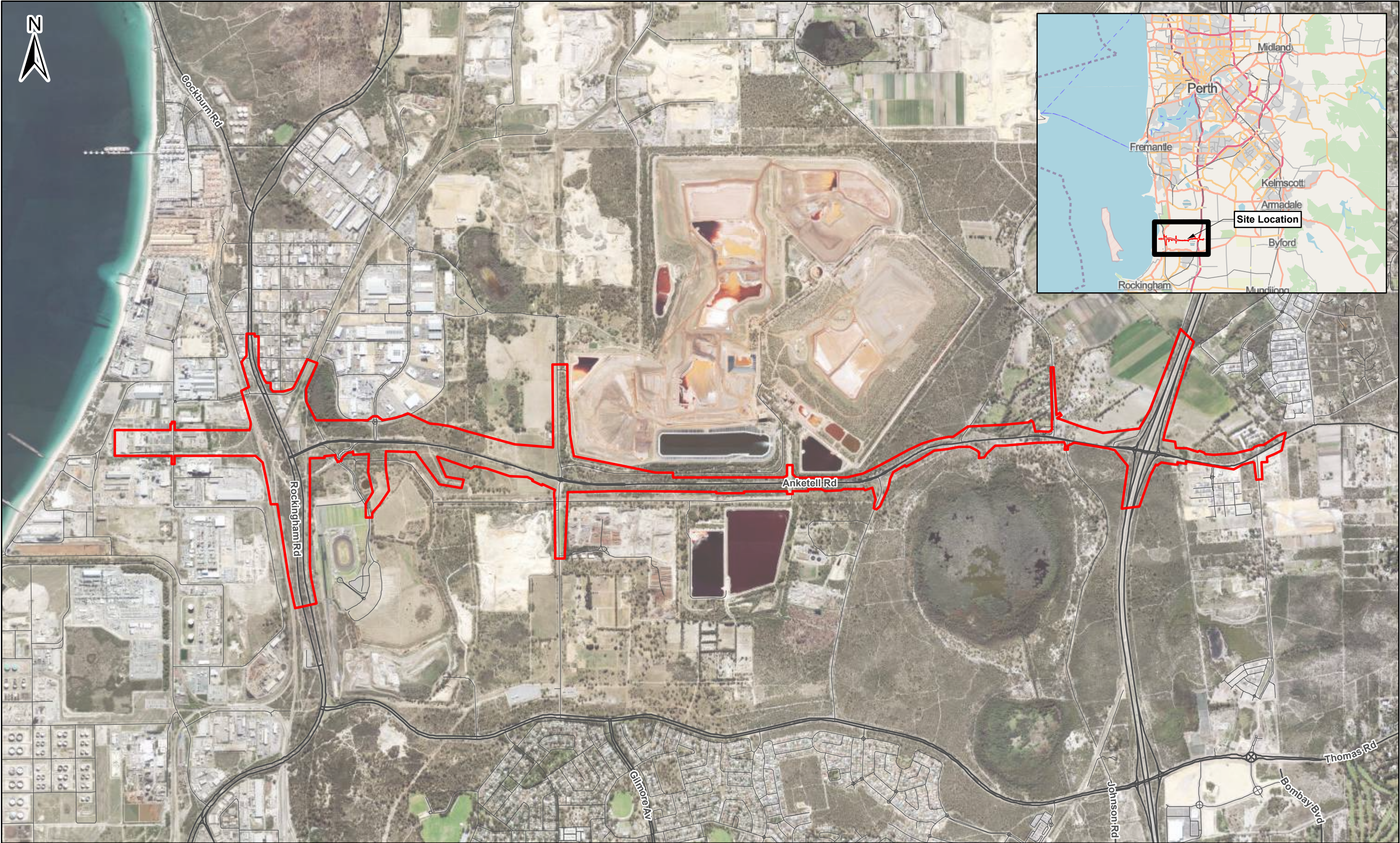
Figure 1: Site Location

Figure 2: Historical Aerial Imagery – 2023-1953


Figure 3: Site Inspection Observations

Figure 4: Known Contaminated Sites

Figure 5: Short Listed Areas of Potentially Environmental Concern



Path: S:\01_Jobs\6.WA_Jobs\P20806_MRWAs_Anketell-Thomas Rd Transport Corridor_PSI\APRXP20806.aprx



Legend

- Major Road
- Minor Road
- Site Boundary

Created:	E. Marha	Date:	30/11/2023
Reviewed:	I. Daniels	Revision:	0
Approved:		Scale:	1:25,000 (A3)
File:	P20806_003_F001		

02505001,0001,500

Metres

Coordinate System: GDA2020 MGA Zone 50

Figure No: 1

Title: Site Location

Project: Anketell Road Transport Corridor Preliminary Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: MRWA



Legend

Site Boundary

Aerial Imagery © Landgate

Created:	E. Marha	Date:	30/11/2023
Reviewed:	I. Daniels	Revision:	0
Approved:		Scale:	1:24,000 (A3)
File:	P20806_003_F002a		
<div><div><div>01252505007501,000</div><div><div></div></div><div>Metres</div></div><div>Coordinate System: GDA2020 MGA Zone 50</div></div>			

Figure No:
Title:

2a
Historical Aerial Imagery - 2023

Project:

Anketell Road Transport Corridor Preliminary Site Investigation

Location:

Anketell Rd, Anketell, WA 6167

Client:

MRWA



Legend	
	Site Boundary

Created:	E. Marha	Date:	30/11/2023
Reviewed:	I. Daniels	Revision:	0
Approved:		Scale:	1:24,000 (A3)
File:	P20806_003_F002b		
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Figure No:	2b
Title:	Historical Aerial Imagery - 2018
Project:	Anketell Road Transport Corridor Preliminary Site Investigation
Location:	Anketell Rd, Anketell, WA 6167
Client:	MRWA



Legend

Site Boundary

Aerial Imagery © Landgate

Created:	E. Marha	Date:	30/11/2023
Reviewed:	I. Daniels	Revision:	0
Approved:		Scale:	1:24,000 (A3)
File:	P20806_003_F002c		
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Figure No:
Title:

2c
Historical Aerial Imagery - 2005

Project:

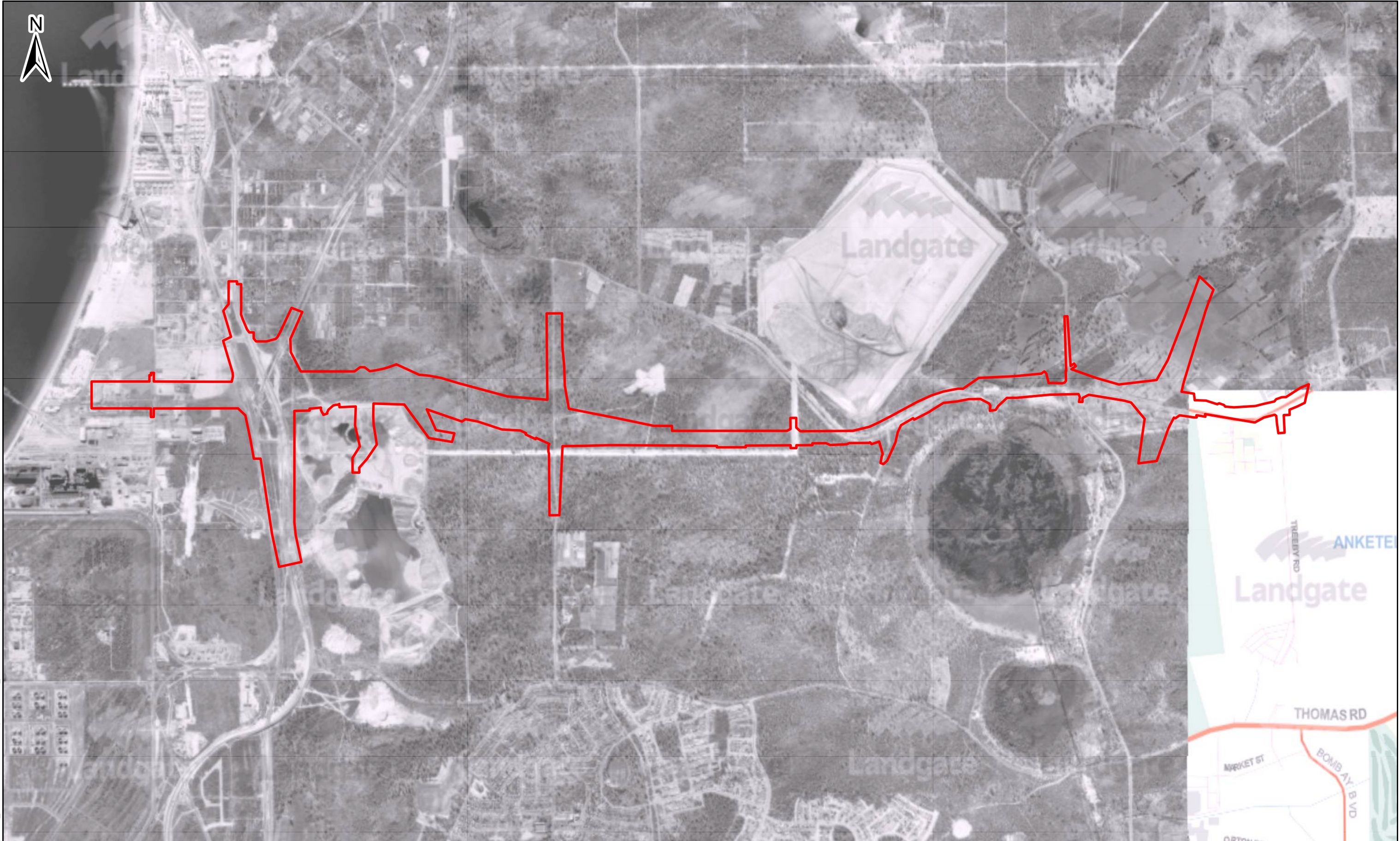
Anketell Road Transport Corridor Preliminary Site Investigation

Location:

Anketell Rd, Anketell, WA 6167

Client:

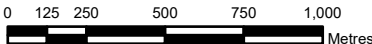
MRWA



Legend

Site Boundary

Created:	E. Marha	Date:	30/11/2023
Reviewed:	I. Daniels	Revision:	0
Approved:		Scale:	1:24,000 (A3)
File:	P20806_003_F002e		



Coordinate System: GDA2020 MGA Zone 50

Aerial Imagery © Landgate

Figure No:	2e
Title:	Historical Aerial Imagery - 1970
Project:	Anketell Road Transport Corridor Preliminary Site Investigation
Location:	Anketell Rd, Anketell, WA 6167
Client:	MRWA



Legend

 Site Boundary

Aerial Imagery © Landgate

Created:	E. Marha
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Date:	30/11/2023
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Reviewed: I. Daniels

Revision:	0
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Approved:

P20806_003_F002f

Coordinate System: GDA2020 MGA Zone 50

Figure No:

2f

Title:

Historical Aerial Imagery - 1953

Project:

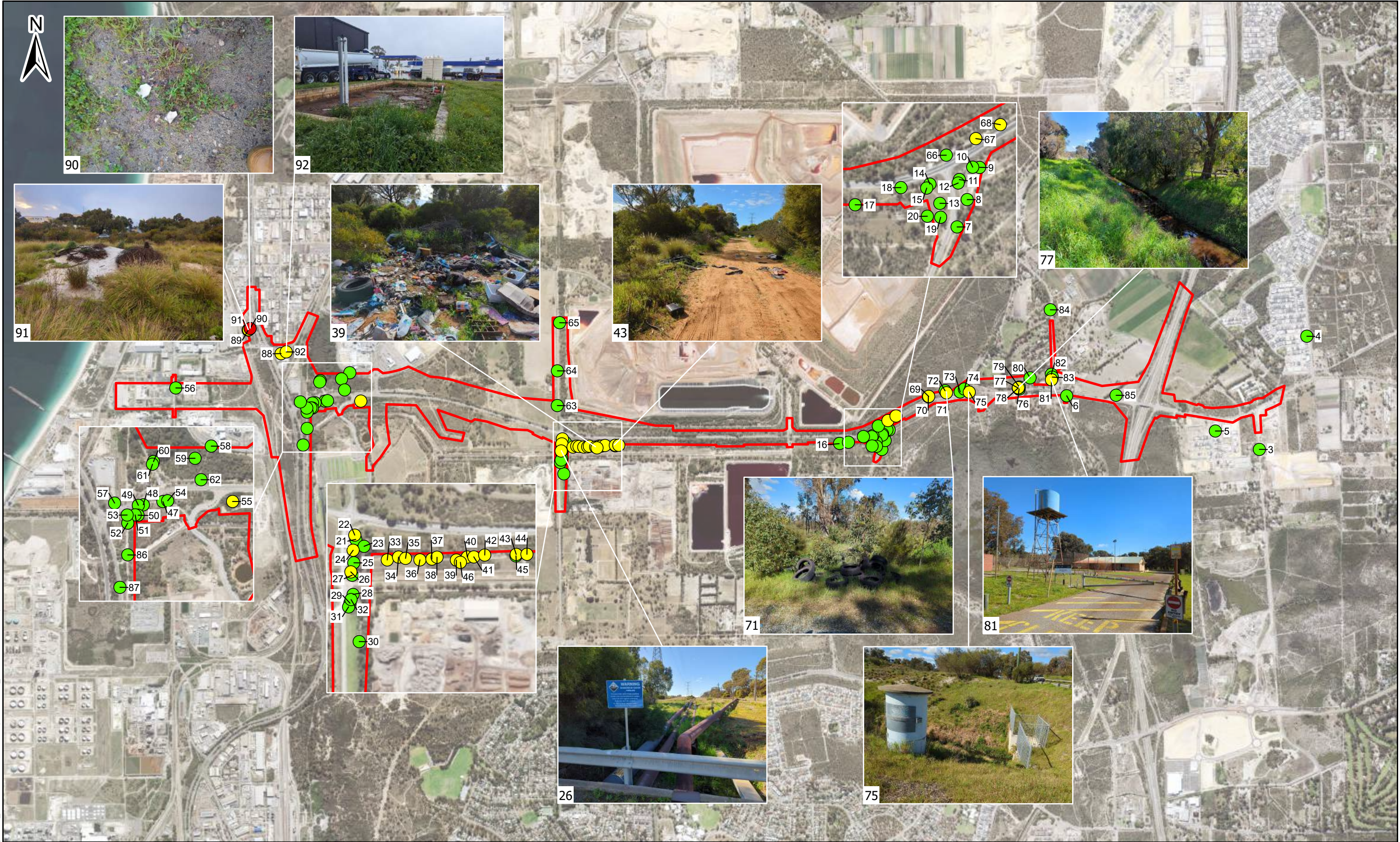
Anketell Road Transport Corridor Preliminary Site Investigation


Location:

Anketell Rd, Anketell, WA 6167

Client:

MRWA





Legend

- Potential Asbestos Containing Material
- Area of Potential Concern
- General Site Feature
- Site Boundary

Created:	E. Marha	Date:	30/11/2023
Reviewed:	R. Turnbull	Revision:	0
Approved:		Scale:	1:25,000 (A3)
File:	P20806_003_F003		

01252505007501,0001,250

Metres

Coordinate System: GDA2020 MGA Zone 50

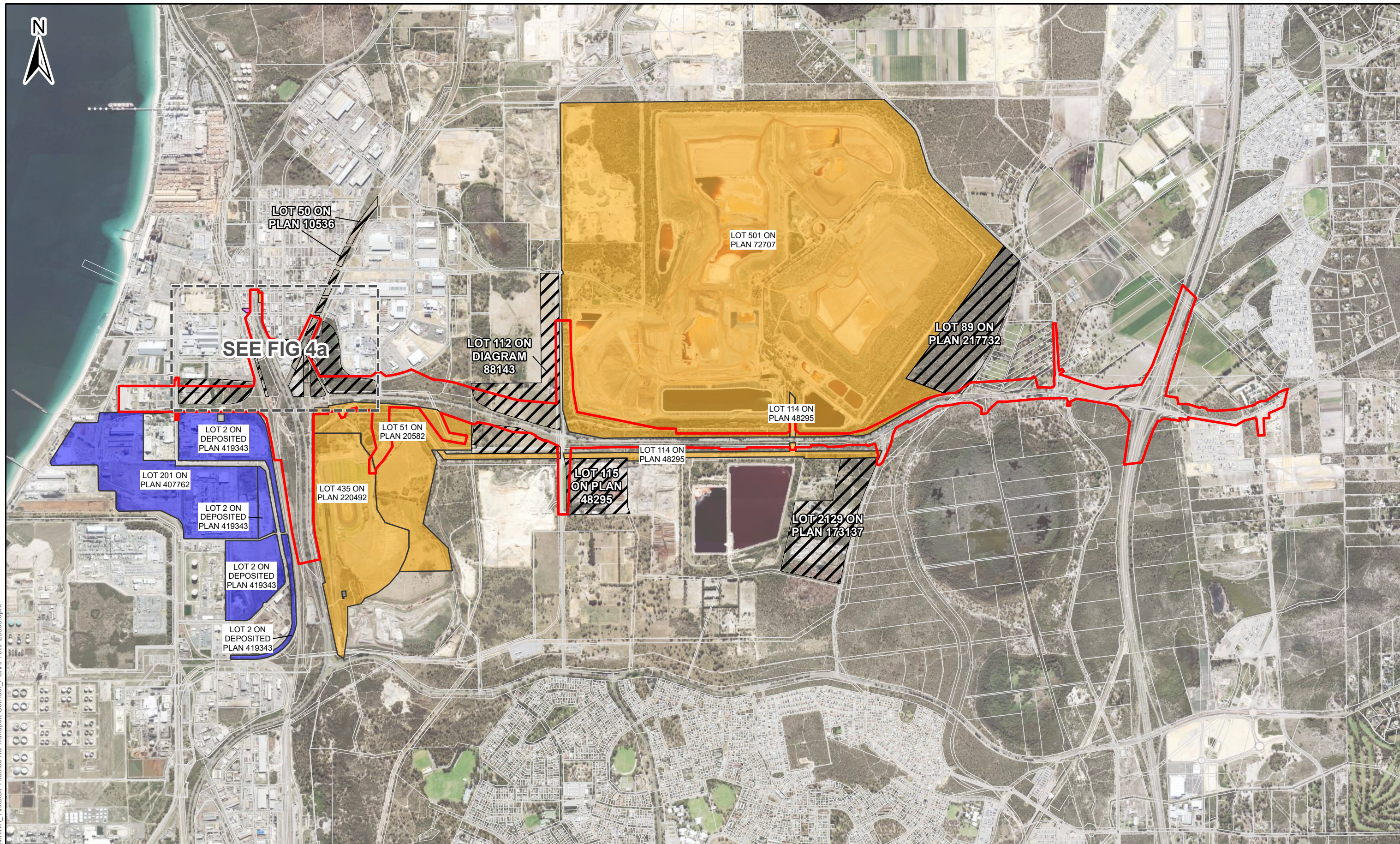
Figure No:3

Title:Site Inspection Observations

Project:Anketell Road Transport Corridor Preliminary Site Investigation

Location:Anketell Rd, Anketell, WA 6167

Client:MRWA



Path: S:\01_Jobs\6.WA_Jobs\P20806_MRWA_Anketell-Thomas Rd Transport Corridor_PSI\APRXP20806.aprx




- Legend**
- PCIR (Possibly Contaminated - Investigation Required)
 - Landgate Contaminated Sites Database (DWER-059)
 - CRR (Contaminated - Remediation Required)
 - CRU (Contaminated - Restricted Use)
 - RRU (Remediated For Restricted Use)
 - Lot Boundary
 - Site Boundary

Aerial Imagery (20/04/2023) © Metromap

Created:	E. Marha	Date:	20/12/2023
Reviewed:	R. Turnbull	Revision:	0
Approved:		Scale:	1:25,000 (A3)
File:	P20806_003_F004		
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Figure No:	4
Title:	Known Contaminated Sites
Project:	Anketell Road Transport Corridor Preliminary Site Investigation
Location:	Anketell Rd, Anketell, WA 6167
Client:	MRWA



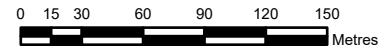


Path: S:\01_Jobs\6.WA_Jobs\P20806_MRWA_Anketell-Thomas Rd Transport Corridor_PSI\APRXP\IP20806.aprx

Legend

-  PCIR (Possibly Contaminated - Investigation Required)
- Landgate Contaminated Sites Database (DWER-059)
-  CRR (Contaminated - Remediation Required)
-  CRU (Contaminated - Restricted Use)
-  RRU (Remediated For Restricted Use)
-  Lot Boundary
-  Site Boundary

Created:	E. Marha	Date:	20/12/2023
Reviewed:	R. Turnbull	Revision:	0
Approved:		Scale:	1:3,700 (A3)
File:	P20806_003_F004a		



0 15 30 60 90 120 150 Metres

Coordinate System: GDA2020 MGA Zone 50

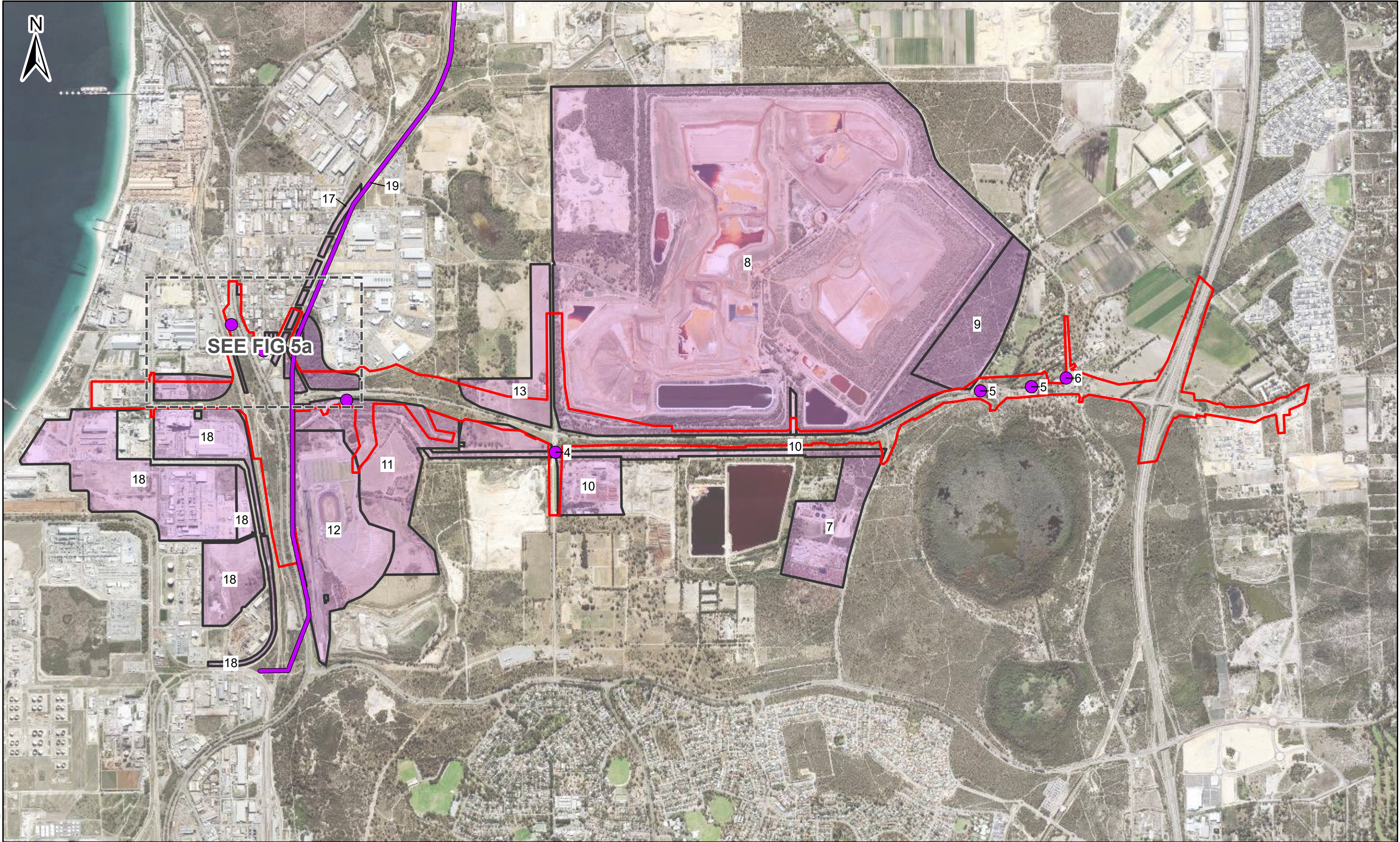
Figure No: 4a


Title: Known Contaminated Sites

Project: Anketell Road Transport Corridor Preliminary Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: MRWA









Path: S:\01_Jobs\6.WA_Jobs\P20806_MRWA_Anketell-Thomas Rd Transport Corridor_PSI\APRXP20806.aprx

Legend

Shortlisted Areas of Potential Environmental Concern (See Table 5.1)

-  APEC
-  APEC
-  APEC
-  Site Boundary

Created:	E. Marha	Date:	30/11/2023
Reviewed:	I. Daniels	Revision:	0
Approved:		Scale:	1:24,000 (A3)
File:	P20806_003_F005		

02404809601,440

Metres

Coordinate System: GDA2020 MGA Zone 50

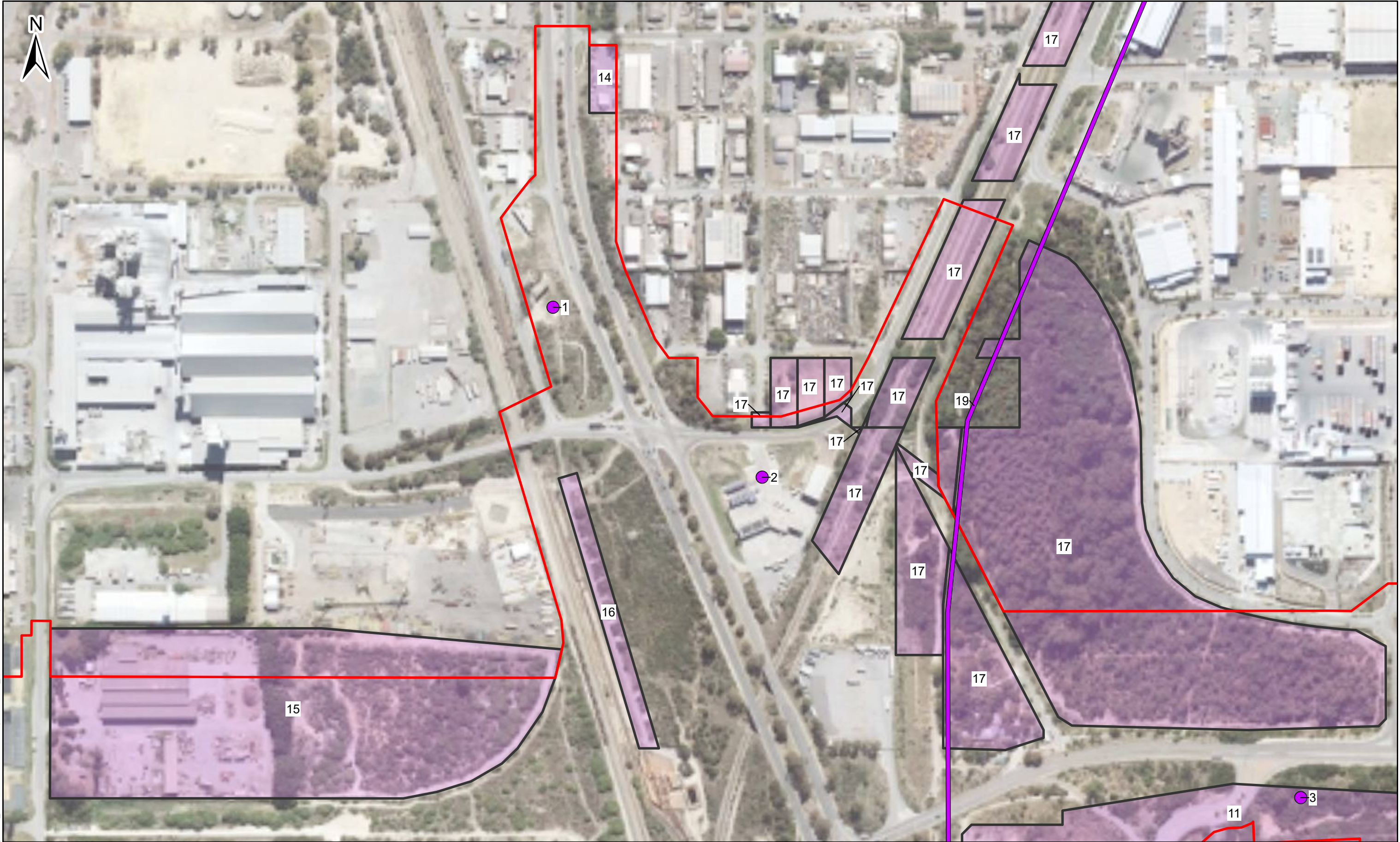
Figure No: 5


Title: Short Listed Areas of Potential Environmental Concern

Project: Anketell Road Transport Corridor Preliminary Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: MRWA









Path: S:\01_Jobs\6.WA_Jobs\P20806_MRWA_Anketell-Thomas Rd Transport Corridor_PSI\APRXP20806.aprx

Legend

Shortlisted Areas of Potential Environmental Concern (See Table 5.1)

-  APEC
-  APEC
-  APEC
-  Site Boundary

Created:	E. Marha	Date:	30/11/2023
Reviewed:	I. Daniels	Revision:	0
Approved:		Scale:	1:3,700 (A3)
File:	P20806_003_F005a		

0

35

70

140

210

Metres

Coordinate System: GDA2020 MGA Zone 50

Figure No: 5a

Title: Short Listed Areas of Potential Environmental Concern

Project: Ankettel Road Transport Corridor Preliminary Site Investigation

Location: Ankettel Rd, Ankettel, WA 6167

Client: MRWA



Appendix A: DWER Registered Bores



Basic Site Data Availability Summary

Site Ref	Site Category Name	Data Category	First Measurement	Last Measurement	No of Readings
509331	Rain/climate	Meteorological - TS archive	11/06/1977	23/05/1983	2071
614013	Stream Gauging	Water level-flow - TS archive	15/06/1976	21/05/2001	82692
614013	Stream Gauging	Water levels - discrete	15/06/1976	09/09/2010	238
614013	Stream Gauging	Water quality indicators - discrete	15/06/1976	23/06/2011	2172
6140666	Surface (other)	Water quality indicators - discrete	23/06/2004	23/06/2004	3
6140841	Surface (other)	Water quality indicators - discrete	25/07/1997	09/07/2004	75
6140955	Surface (other)	Water quality indicators - discrete	30/05/2008	28/08/2009	30
6142528	Surface (other)	Water levels - discrete	15/11/1988	03/11/2023	430
6142528	Surface (other)	Water quality indicators - discrete	22/08/2008	08/06/2009	213
6142542	Surface (other)	Water levels - discrete	06/06/2008	09/12/2010	19
6142542	Surface (other)	Water quality indicators - discrete	04/02/1991	23/06/2011	164
6142738	Surface (other)	Water quality indicators - discrete	31/08/2000	13/09/2004	19
61402975	Groundwater	Water levels - discrete	30/06/1943	30/06/1943	1
61402975	Groundwater	Water quality indicators - discrete	30/06/1943	30/06/1943	1
61403006	Groundwater	Water levels - discrete	15/02/1971	15/02/1971	3
61403007	Groundwater	Water levels - discrete	30/06/1969	30/06/1969	3



Basic Site Data Availability Summary

61403007	Groundwater	Water quality indicators - discrete	01/01/1900	30/06/1969	2
61403058	Groundwater	Water levels - discrete	30/06/1970	30/06/1970	2
61403058	Groundwater	Water quality indicators - discrete	30/06/1970	30/06/1970	1
61403059	Groundwater	Water levels - discrete	01/01/1900	01/01/1900	2
61403062	Groundwater	Water levels - discrete	30/06/1971	30/06/1971	2
61403062	Groundwater	Water quality indicators - discrete	30/06/1971	30/06/1971	1
61403066	Groundwater	Water levels - discrete	01/01/1900	01/01/1900	2
61403066	Groundwater	Water quality indicators - discrete	01/01/1900	01/01/1900	1
61403107	Groundwater	Water levels - discrete	01/01/1900	01/01/1900	1
61403158	Groundwater	Water levels - discrete	30/06/1968	30/06/1968	1
61403158	Groundwater	Water quality indicators - discrete	30/06/1968	30/06/1968	1
61403383	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	2
61403383	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2
61403384	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1
61403384	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2
61403385	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1
61403385	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2



Basic Site Data Availability Summary

61403386	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1
61403386	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2
61403387	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1
61403387	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2
61403388	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1
61403388	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2
61403389	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1
61403389	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2
61403390	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1
61403390	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2
61403391	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1
61403391	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2
61403392	Groundwater	Water levels - discrete	30/06/1983	30/06/1983	1
61403392	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1983	2
61403393	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1
61403393	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2
61403394	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1



Basic Site Data Availability Summary

61403394	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2
61403395	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1
61403395	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	3
61403396	Groundwater	Water levels - discrete	30/06/1976	30/06/1976	1
61403396	Groundwater	Water quality indicators - discrete	30/06/1976	30/06/1976	2
61403397	Groundwater	Water levels - discrete	15/02/1978	15/02/1978	1
61403397	Groundwater	Water quality indicators - discrete	15/02/1978	15/02/1978	2
61403398	Groundwater	Water levels - discrete	15/08/1978	15/08/1978	2
61403398	Groundwater	Water quality indicators - discrete	15/08/1978	15/08/1978	1
61403399	Groundwater	Water levels - discrete	15/06/1978	15/06/1978	1
61403399	Groundwater	Water quality indicators - discrete	15/06/1978	15/06/1978	2
61403400	Groundwater	Water levels - discrete	15/07/1978	15/07/1978	2
61403400	Groundwater	Water quality indicators - discrete	15/07/1978	15/07/1978	2
61403401	Groundwater	Water levels - discrete	15/07/1978	15/07/1978	1
61403402	Groundwater	Water quality indicators - discrete	15/07/1978	15/07/1978	1
61403403	Groundwater	Water levels - discrete	15/07/1978	20/10/1983	4
61403403	Groundwater	Water quality indicators - discrete	15/07/1978	15/07/1978	2



Basic Site Data Availability Summary

61403404	Groundwater	Water levels - discrete	30/06/1978	30/06/1978	2
61403404	Groundwater	Water quality indicators - discrete	30/06/1978	30/06/1978	2
61403405	Groundwater	Water levels - discrete	15/05/1978	15/05/1978	1
61403406	Groundwater	Water levels - discrete	15/08/1978	15/08/1978	2
61403406	Groundwater	Water quality indicators - discrete	15/08/1978	15/08/1978	2
61403409	Groundwater	Water levels - discrete	30/06/1977	30/06/1977	1
61403410	Groundwater	Water levels - discrete	01/01/1900	01/01/1900	1
61403411	Groundwater	Water levels - discrete	30/06/1977	30/06/1977	1
61403412	Groundwater	Water levels - discrete	01/01/1900	01/01/1900	1
61403413	Groundwater	Water levels - discrete	15/12/1979	15/12/1979	1
61403414	Groundwater	Water levels - discrete	15/11/1979	15/11/1979	1
61403606	Groundwater	Water levels - discrete	15/02/1983	15/02/1983	2
61403606	Groundwater	Water quality indicators - discrete	15/02/1983	15/02/1983	2
61403753	Groundwater	Water levels - discrete	15/07/1977	15/07/1977	3
61403754	Groundwater	Water levels - discrete	15/08/1977	15/08/1977	3
61403755	Groundwater	Water levels - discrete	15/08/1977	15/08/1977	3
61403768	Groundwater	Water levels - discrete	29/07/1982	29/07/1982	1



Basic Site Data Availability Summary

61403769	Groundwater	Water levels - discrete	30/11/1989	30/11/1989	2
61403770	Groundwater	Water levels - discrete	21/01/1991	21/01/1991	1
61403771	Groundwater	Water levels - discrete	02/08/1982	02/08/1982	2
61403772	Groundwater	Water levels - discrete	15/07/1987	15/07/1987	2
61403773	Groundwater	Water levels - discrete	27/07/1982	27/07/1982	2
61403774	Groundwater	Water levels - discrete	01/12/1987	01/12/1987	1
61403775	Groundwater	Water levels - discrete	15/09/1982	15/09/1982	2
61403776	Groundwater	Water levels - discrete	31/05/1989	31/05/1989	2
61403881	Groundwater	Water levels - discrete	08/12/1993	08/12/1993	2
61403881	Groundwater	Water quality indicators - discrete	08/12/1993	08/12/1993	1
61406514	Groundwater	Water levels - discrete	15/09/1979	15/09/1979	1
61410067	Groundwater	Water levels - discrete	31/05/1974	12/11/1985	220
61410067	Groundwater	Water quality indicators - discrete	08/04/1983	08/04/1983	31
61410068	Groundwater	Water level-flow - TS archive	05/04/2018	06/06/2023	11320
61410068	Groundwater	Water levels - discrete	14/10/1976	07/06/2023	664
61410068	Groundwater	Water quality indicators - discrete	16/09/1974	07/06/2023	353
61410084	Groundwater	Water levels - discrete	04/06/1974	29/09/2023	877



Basic Site Data Availability Summary

61410084	Groundwater	Water quality indicators - discrete	12/12/1980	01/12/1993	141
61410085	Groundwater	Water levels - discrete	25/10/1976	13/10/1992	313
61410085	Groundwater	Water quality indicators - discrete	16/09/1974	12/12/1980	70
61410270	Groundwater	Water levels - discrete	05/09/1984	13/03/1997	196
61410270	Groundwater	Water quality indicators - discrete	17/03/1993	25/03/1998	104
61410271	Groundwater	Water levels - discrete	05/09/1984	12/01/1996	165
61410272	Groundwater	Water levels - discrete	05/09/1984	13/03/1997	198
61410272	Groundwater	Water quality indicators - discrete	17/03/1993	15/10/1997	110
61410273	Groundwater	Water levels - discrete	05/09/1984	13/03/1997	196
61410273	Groundwater	Water quality indicators - discrete	17/03/1993	25/03/1998	119
61410279	Groundwater	Water levels - discrete	05/09/1984	12/01/1996	159
61410418	Groundwater	Water levels - discrete	20/04/1993	05/05/2010	258
61410418	Groundwater	Water quality indicators - discrete	22/03/1994	03/03/2010	95
61419851	Groundwater	Water levels - discrete	30/06/1995	29/09/2023	734
61419851	Groundwater	Water quality indicators - discrete	27/07/1995	08/06/2009	574
61419852	Groundwater	Water levels - discrete	30/06/1995	29/09/2023	730
61419852	Groundwater	Water quality indicators - discrete	27/07/1995	08/06/2009	574



Basic Site Data Availability Summary

61419853	Groundwater	Water levels - discrete	30/06/1995	29/09/2023	736
61419853	Groundwater	Water quality indicators - discrete	26/07/1995	08/06/2009	574
61419854	Groundwater	Water levels - discrete	30/06/1995	29/09/2023	654
61419854	Groundwater	Water quality indicators - discrete	26/07/1995	15/04/1998	150
61419855	Groundwater	Water levels - discrete	20/06/1995	08/06/2009	155
61419855	Groundwater	Water quality indicators - discrete	26/07/1995	08/06/2009	574
61419856	Groundwater	Water levels - discrete	20/06/1995	08/06/2009	156
61419856	Groundwater	Water quality indicators - discrete	26/07/1995	08/06/2009	574
61419857	Groundwater	Water levels - discrete	20/06/1995	08/06/2009	156
61419857	Groundwater	Water quality indicators - discrete	27/07/1995	08/06/2009	489
61425000	Groundwater	Water levels - discrete	08/10/1996	13/03/1997	6
61425000	Groundwater	Water quality indicators - discrete	04/09/1996	25/03/1998	91



Appendix B: BYDA Results



Job No 35101735

Phone: 1100
www.byda.com.au

Caller Details

Contact: Brandon Henry
Company: Senversa
Address: 190 Flinders Street
Adelaide SA 5000

Caller Id: 3077012
Phone: 0417 822 624
Email: brandon.henry@senversa.com.au

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.



User Reference: P20806
Working on Behalf of: Private
Enquiry Date: 21/09/2023
Start Date: 03/10/2023
End Date: 03/10/2023

Address:
761 Anketell Road
Wandi WA 6167

Job Purpose:
Design

Location of Workplace:
Road Reserve

Onsite Activities:
Tendering

Location in Road:
Road

- Check that the location of the dig site is correct. If not you must submit a new enquiry.
- Should the scope of works change, or plan validity dates expire, you must submit a new enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:
Full site

Your Responsibilities and Duty of Care

- The lodgement of an enquiry does not authorise the project to commence. You must obtain all necessary information from any and all likely impacted asset owners prior to excavation.
- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at www.byda.com.au
- For more information on safe excavation practices, visit www.byda.com.au

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days. Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.

** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.

Asset owners highlighted with a hash # require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
229946806	APA Group Transmission (WA)	1800 103 452	NOTIFIED
229946814	ATCO Gas Australia	1300 926 755	NOTIFIED
229946820	Australian Terminals Operations Management (ATOM)	0448 776 047	NOTIFIED
229946822	Australian Terminals Operations Management (ATOM)	0448 776 047	NOTIFIED
229946821	Australian Terminals Operations Management (ATOM)	0448 776 047	NOTIFIED
229946826	BOC Limited	0428 631 752	NOTIFIED
229946805	BP Refinery Kwinana Pty Ltd	(08) 6119 7522	NOTIFIED
229946819	CSBP Limited	(08) 6378 5646	NOTIFIED

Lodge Your Free Enquiry Online - 24 Hours a Day, Seven Days a Week

Seq. No.	Authority Name	Phone	Status
229946828	Dampier Bunbury Natural Gas Pipeline	(08) 9223 4928	NOTIFIED
229946804	Department of Planning Lands and Heritage	(08) 6551 8002	NOTIFIED
229946807	LBNCo Pty Ltd	(02) 9719 0900	NOTIFIED
229946808	NBN Co (WA)	1800 687 626	NOTIFIED
229946815	Nextgen (WA)	1800 262 663	NOTIFIED
229946803	Optus (WA)	1800 505 777	NOTIFIED
229946818	Public Transport Authority - Bus Stops	13 62 13	NOTIFIED
229946827	Telstra (WA)	1800 653 935	NOTIFIED
229946825	TPG Telecom (WA)	1800 786 306	NOTIFIED
229946824	TPG Telecom (WA)	1800 786 306	NOTIFIED
229946823	TPG Telecom (WA)	1800 786 306	NOTIFIED
229946817	Vocus (WA)	1800 262 663	NOTIFIED
229946813	Water Corporation	13 13 95	NOTIFIED
229946812	Water Corporation	13 13 95	NOTIFIED
229946811	Water Corporation	13 13 95	NOTIFIED
229946810	Water Corporation	13 13 95	NOTIFIED
229946809	Water Corporation	13 13 95	NOTIFIED
229946816	Western Power	1300 769 345	NOTIFIED

END OF UTILITIES LIST

Please Note: For some DBYD enquiries, you might receive multiple responses from APA Group (APA). Please read all responses carefully as they will relate to different assets. It is your responsibility to action all requirements set out in APA's DBYD responses.



For your immediate information **THERE IS AN APA HIGH-PRESSURE GAS TRANSMISSION PIPELINE AND/OR ASSOCIATED INFRASTRUCTURE** in the area of your proposed works. This is **NOT an approval** to carry out work within the **APA pipeline easement**. Please **DO NOT** proceed until the next steps below are completed.

Issued Date: 21/09/2023

From: Infrastructure Protection Officer
APA Group

Phone: 1800 103 452

Email: APAProtection@apa.com.au

Company: Senversa

Phone: +61417822624

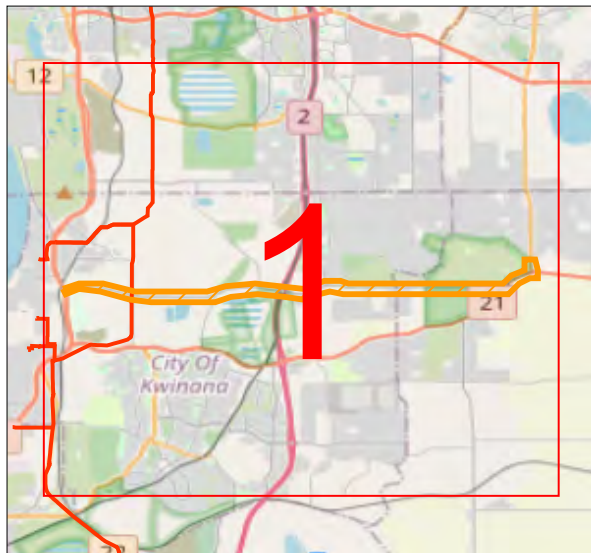
Email: brandon.henry@senversa.com.au

RE: DBYD Seq No: **229946806**

Validity: This response is valid for **30 days** from the **Issued Date**

Utility ID: 70850

Worksite Address: 761 Anketell Road
Wandi



Scale: 1 : 184000

0 2km

Please Check: Have you received multiple responses from APA? Refer to statement at top of page.

Next Step:



Please contact an APA Infrastructure Protection Officer immediately on **1800 103 452** (business days – 8:00am to 5:00pm AEST) to discuss the exact nature and extent of your works.

DO NOT ATTEMPT TO PHYSICALLY LOCATE THE PIPELINE. Although the route of the pipeline is marked out by warning signs it shall not be inferred that the pipe is buried under and in a straight line between signs. No depths on the pipeline should be assumed. Only an **APA representative** can locate the pipeline and is required to be scheduled for locations. APA also operates natural gas transmission pipelines on behalf of Australian Gas Networks.

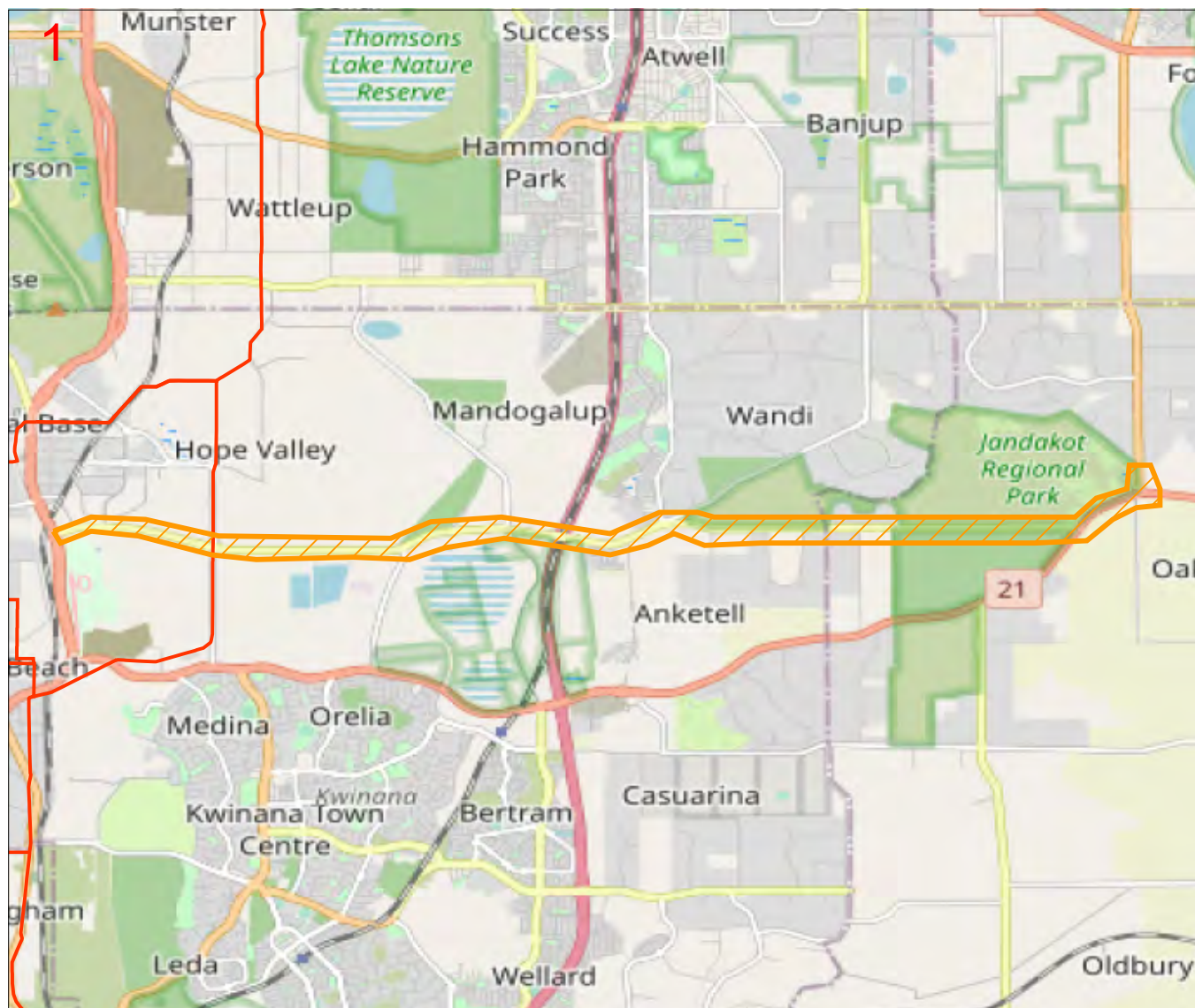
Damage to a high-pressure gas transmission pipeline could result in:-

- ❖ possible explosion and fire;
- ❖ possible injury or loss of life;
- ❖ substantial repair and gas restoration liability damage costs;
- ❖ gas escaping at pressures of up to 15,000 kPa; and
- ❖ loss of gas to thousands of customers.




Thank you for your interest in maintaining a safe and secure gas pipeline network.

APA Group Transmission does not guarantee the accuracy or completeness of the map and does not make any warranty about the data. APA Group Transmission is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.

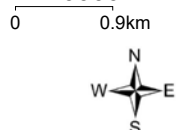
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Legend

-  DBYD Requests
-  APA Pipelines
-  APA Associated Infrastructure

Scale: 1: 70000



This response is valid for **30 days** only from the **Issued Date**.

APA DBYD Transmissions Dial Before You Dig Enquiry

ISSUED DATE: 21/09/2023
SEQUENCE NO: 229946806

DATA SOURCE:

Pipeline Data Copyright APA Group,
Property Parcels Copyright respective
State Governments, mapping data
Copyright [OpenStreetMap](#) contributors,
DBYD Dig Location provided by DBYD.

Mapping data is **Quality Level D** as defined by AS5488. This means the information is indicative only, and the actual location may vary significantly from that shown on plans.



DO NOT PROCEED until you have contacted APA on **1800 103 452** (business days – 8:00am to 5:00pm AEST) to discuss the exact nature and extent of your works.

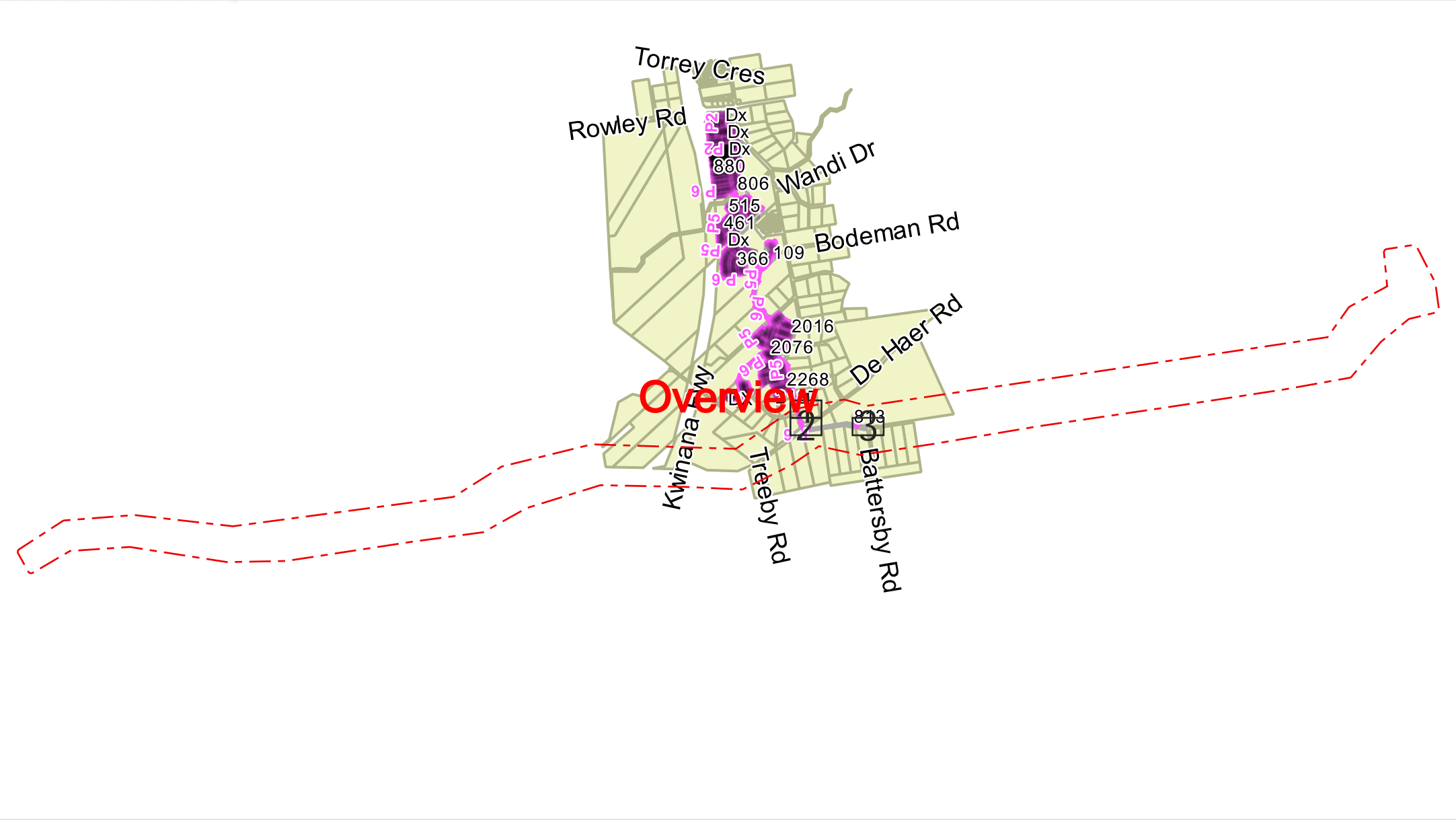
Damage to APA assets could have serious consequences. Do NOT attempt to physically locate the pipeline. If you receive multiple DBYD responses from APA, they will relate to different assets. Read all responses carefully and action all requirements.

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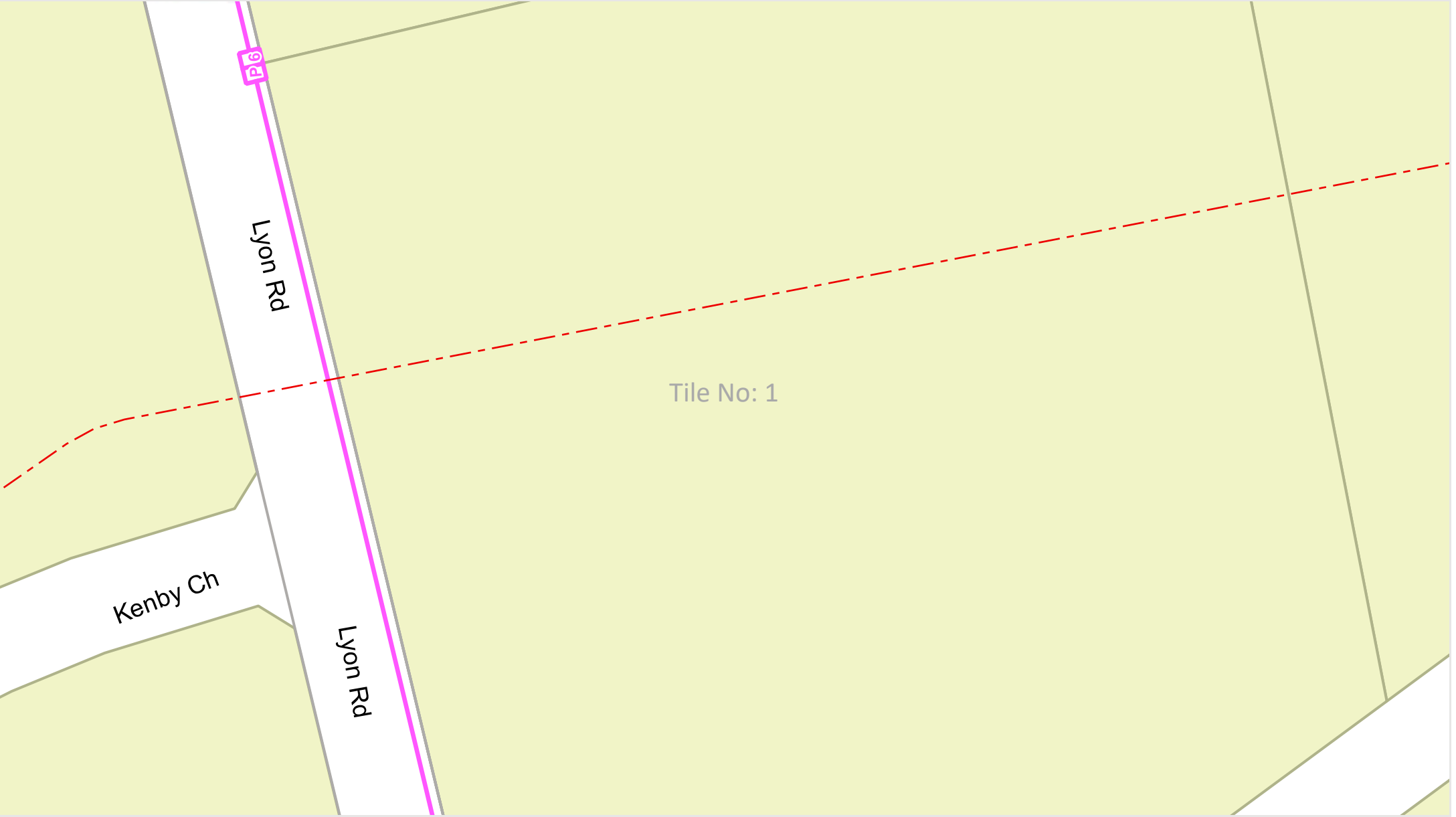


Legend | Scale: 1:46907



Pits — Conduits

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither LBN Co or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.

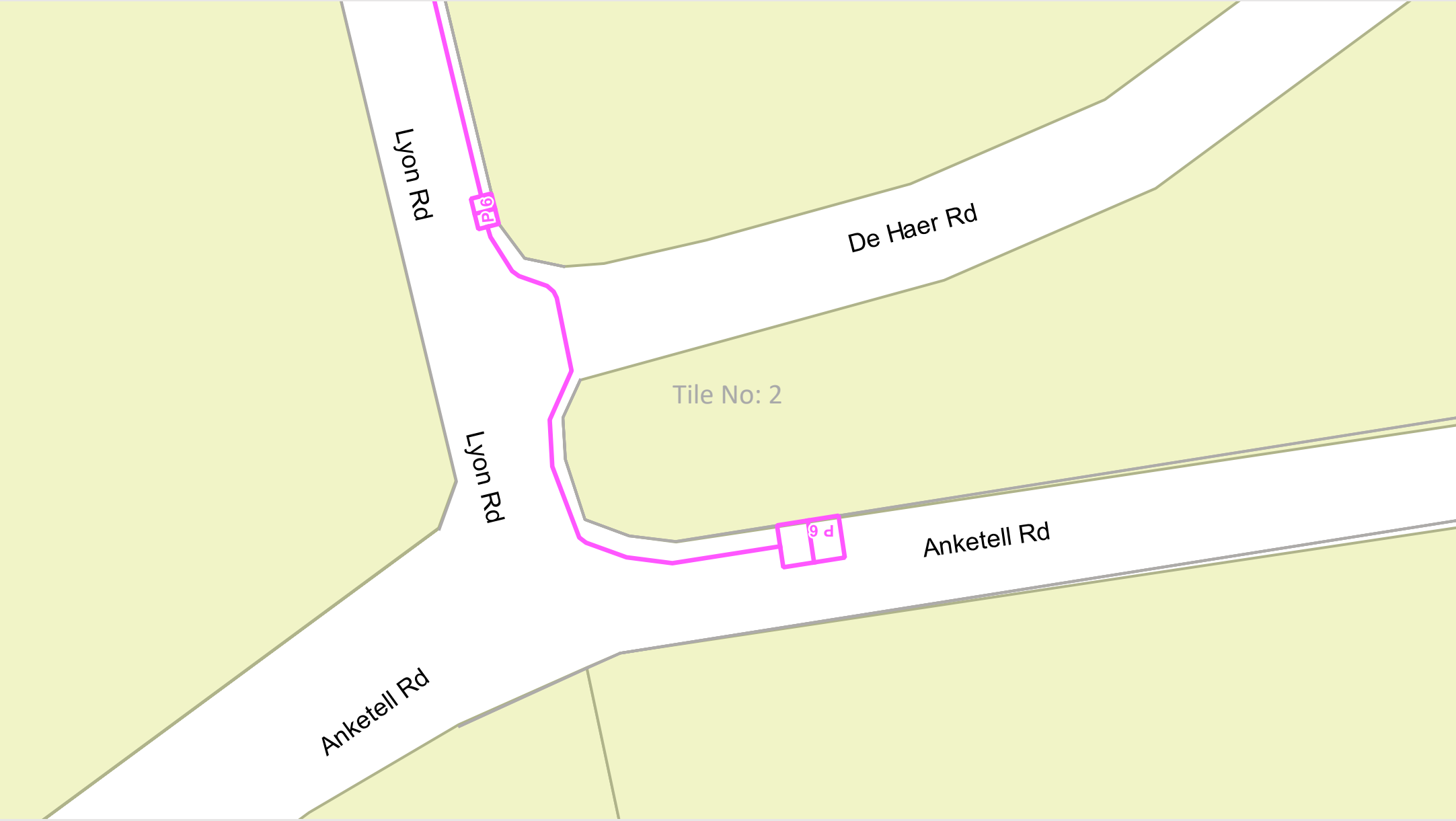


Legend | Scale: 1:1000



 Pits  Conduits

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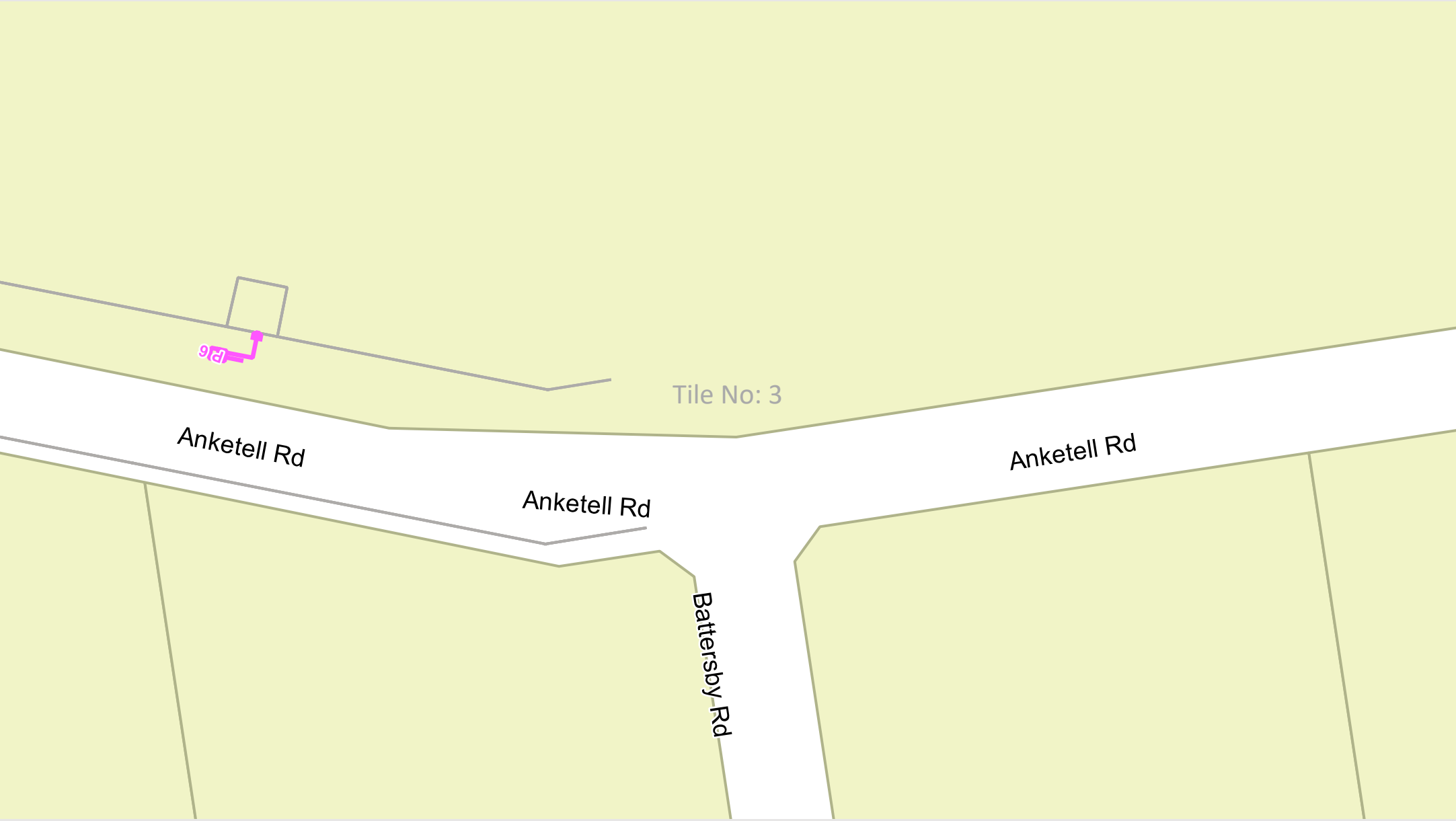


Legend | Scale: 1:1000



 Pits  Conduits

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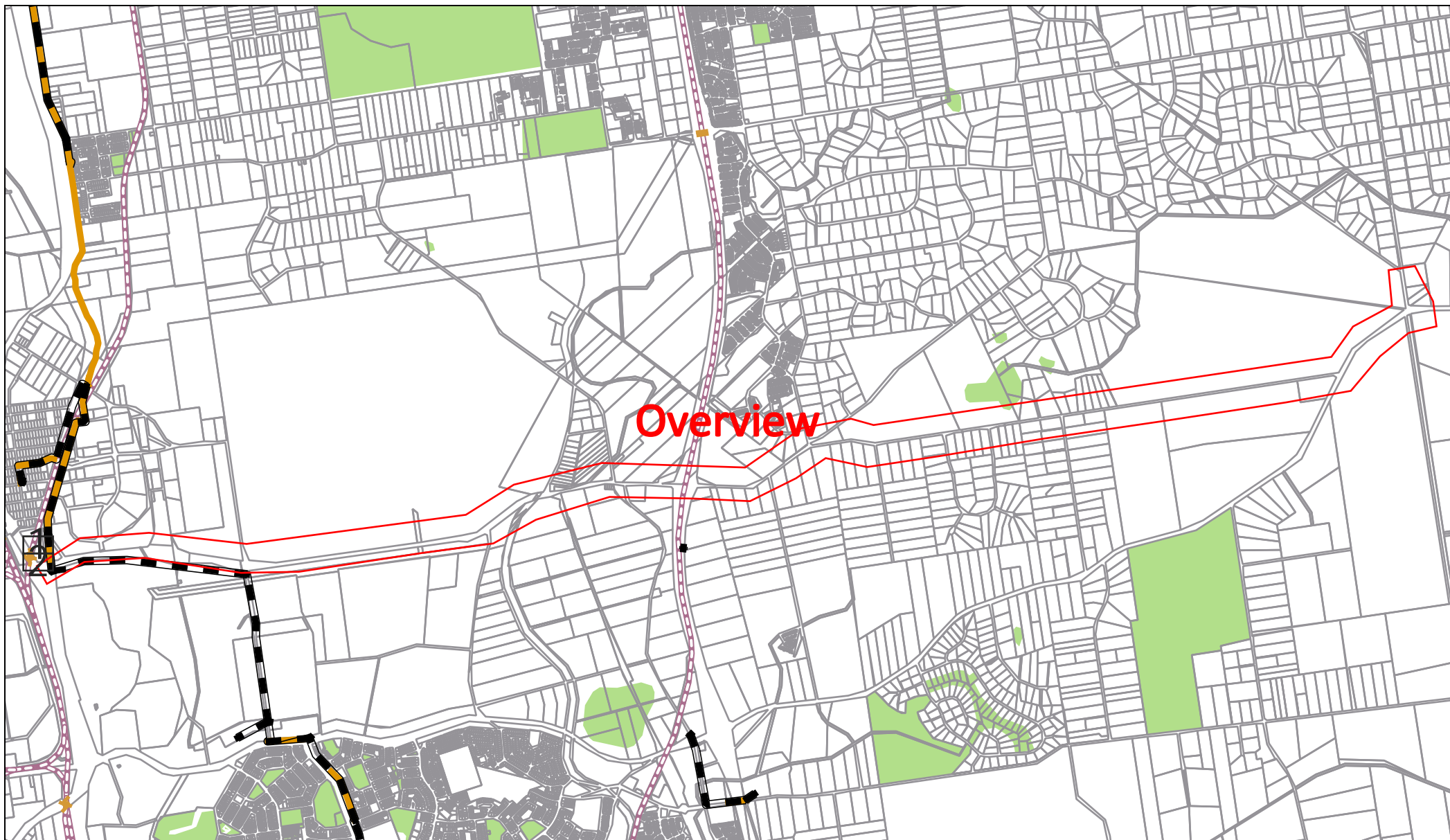


Legend | Scale: 1:1000



 Pits  Conduits

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Sequence Number: 229946815

Date: 21/09/2023

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LEGEND

Digsite



Area

Assets



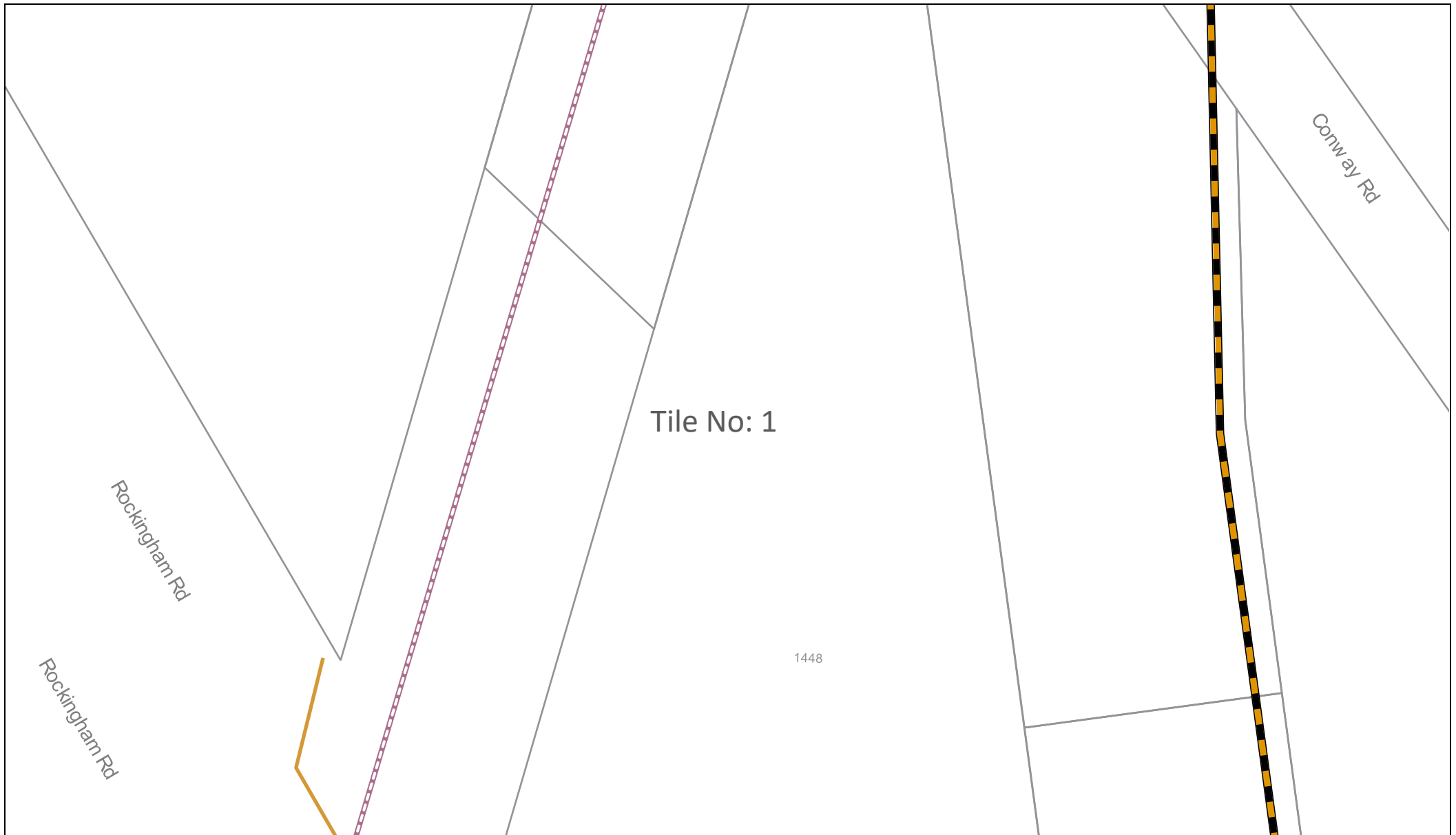
Cable



3rd Party Duct



Marker Post



Sequence Number: 229946815

Date: 21/09/2023

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LEGEND

Digsite



Area

Assets



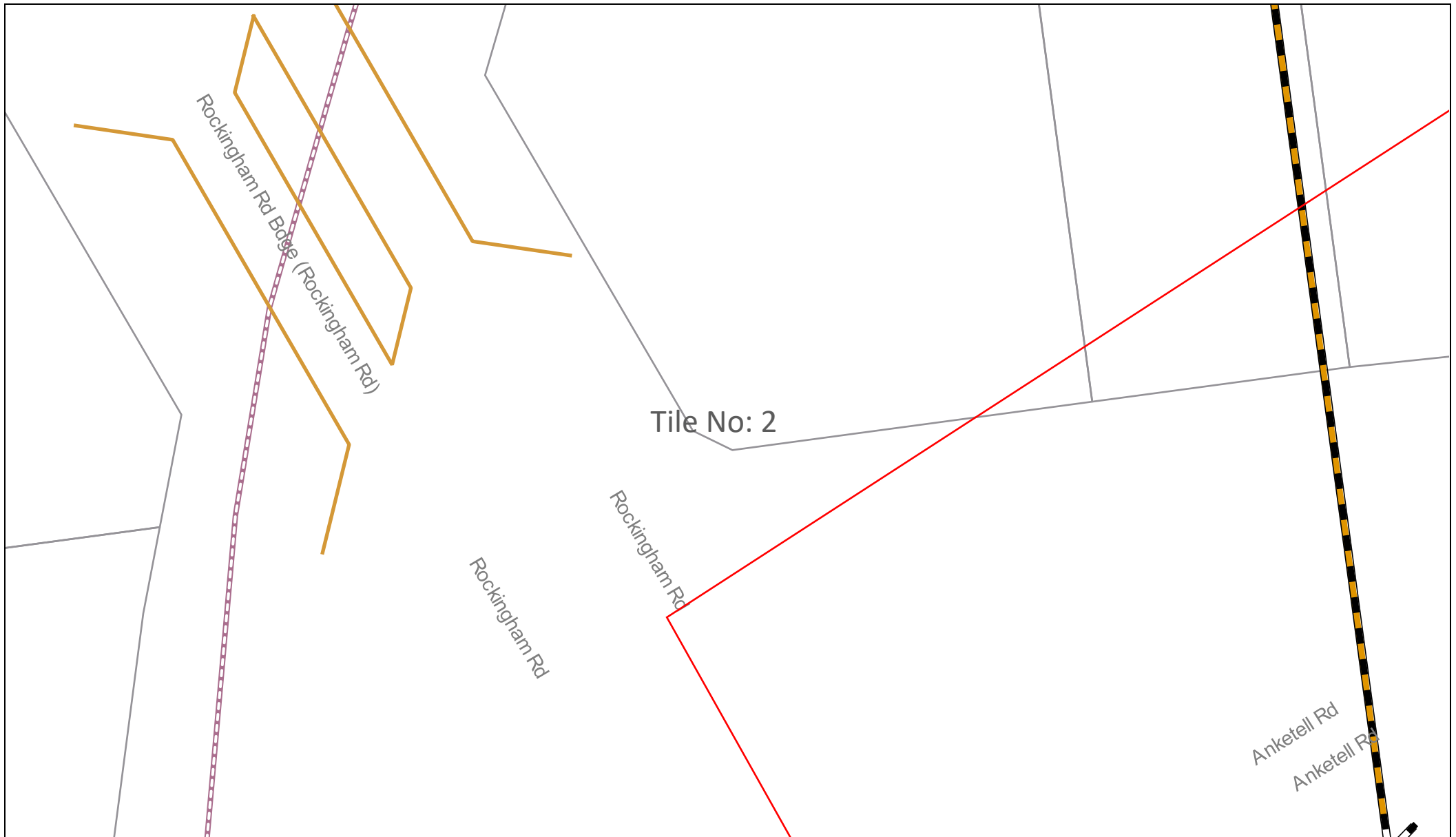
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3rd Party Duct



Marker Post



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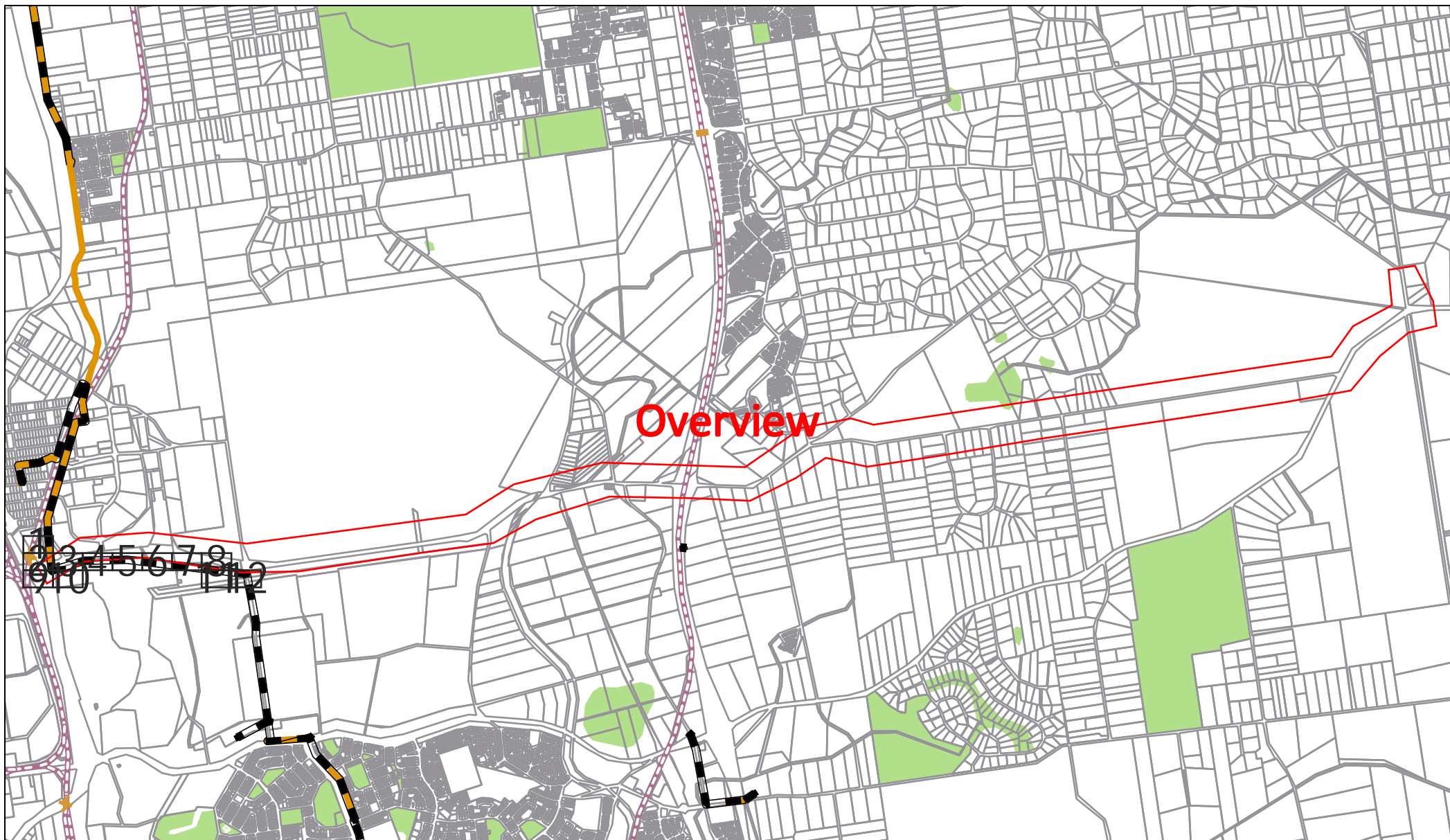
LEGEND

Digsite



Assets





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LEGEND

Digsite



Area

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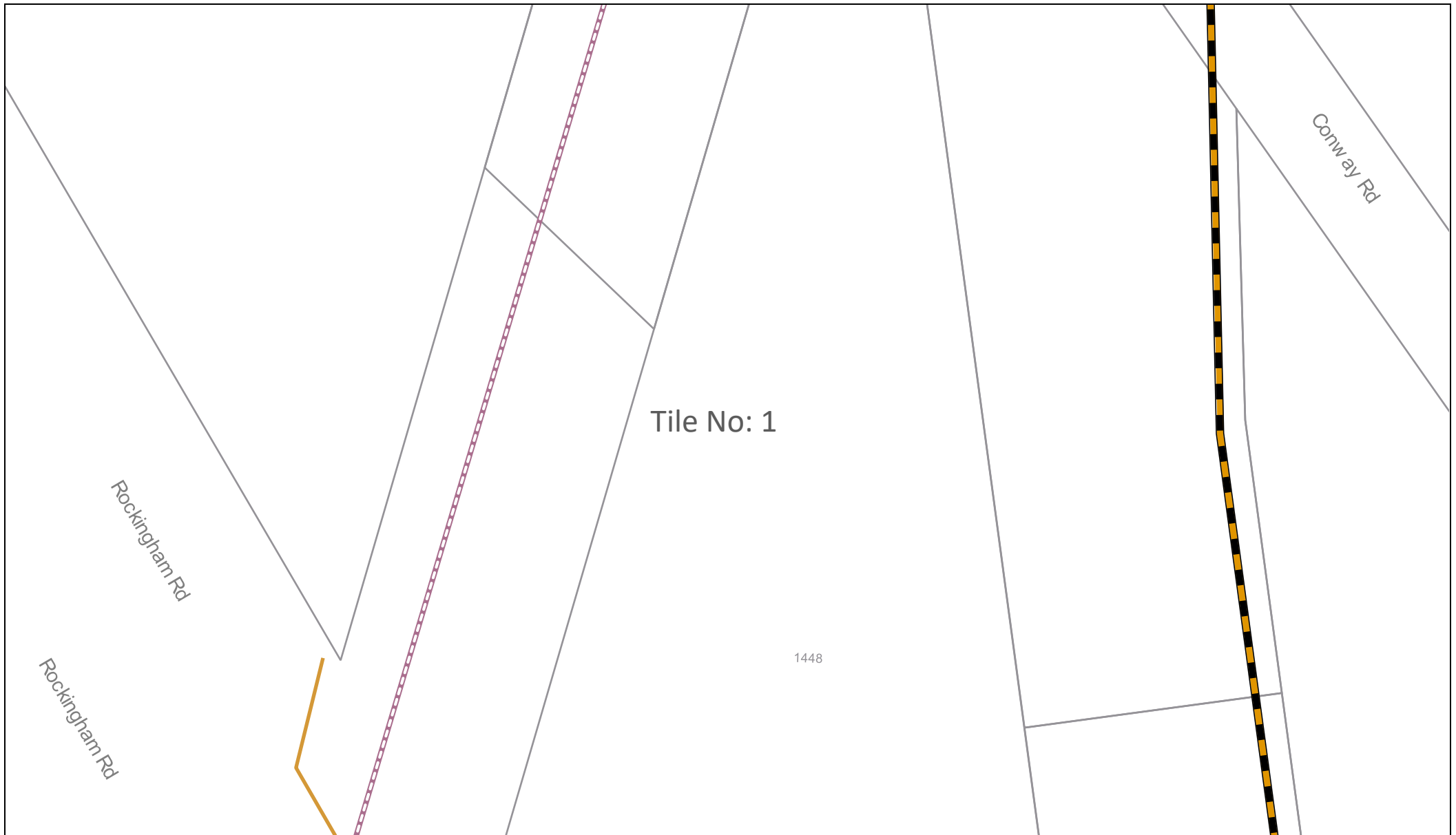
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Marker Post



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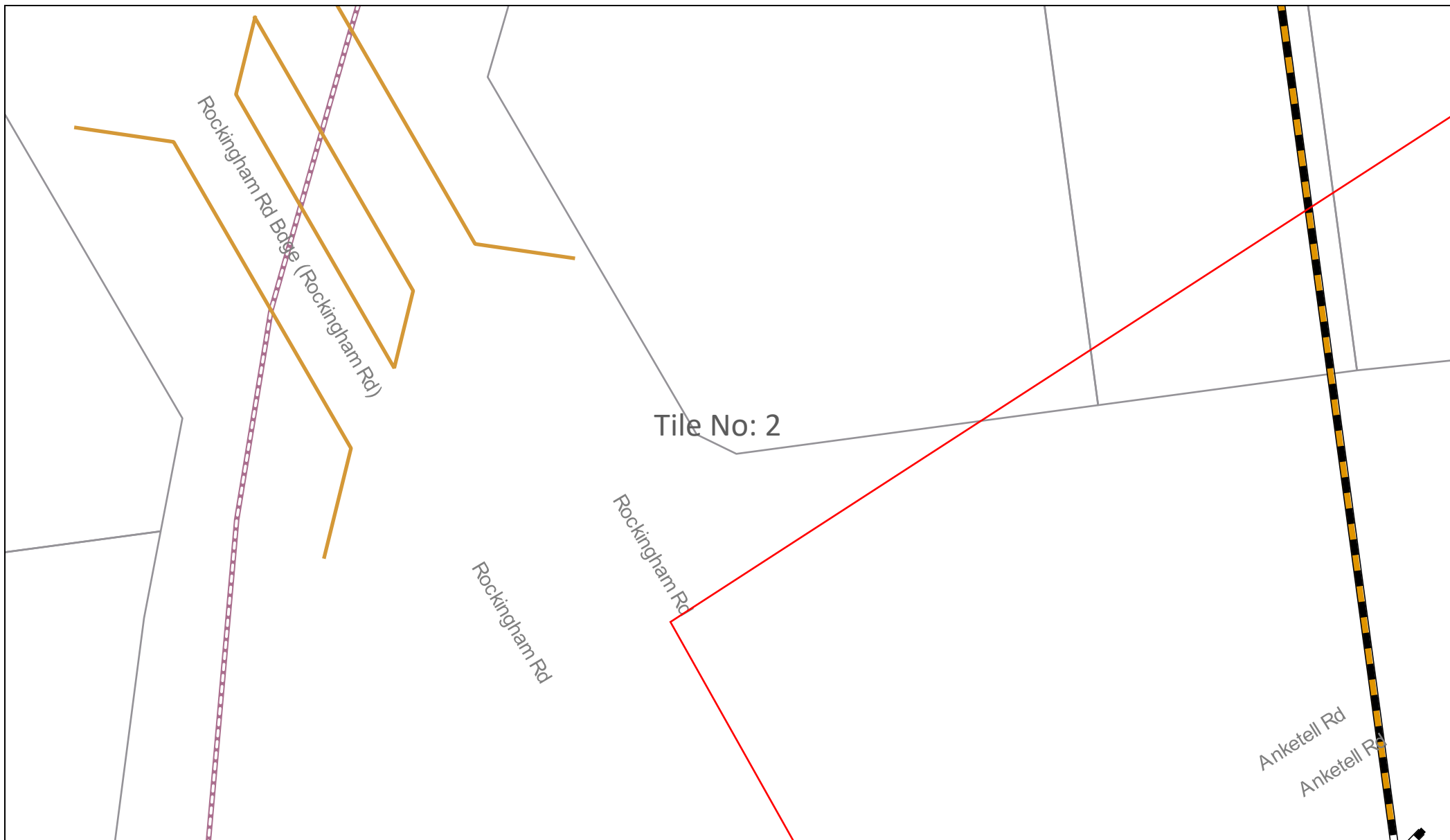
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Digsite



Assets





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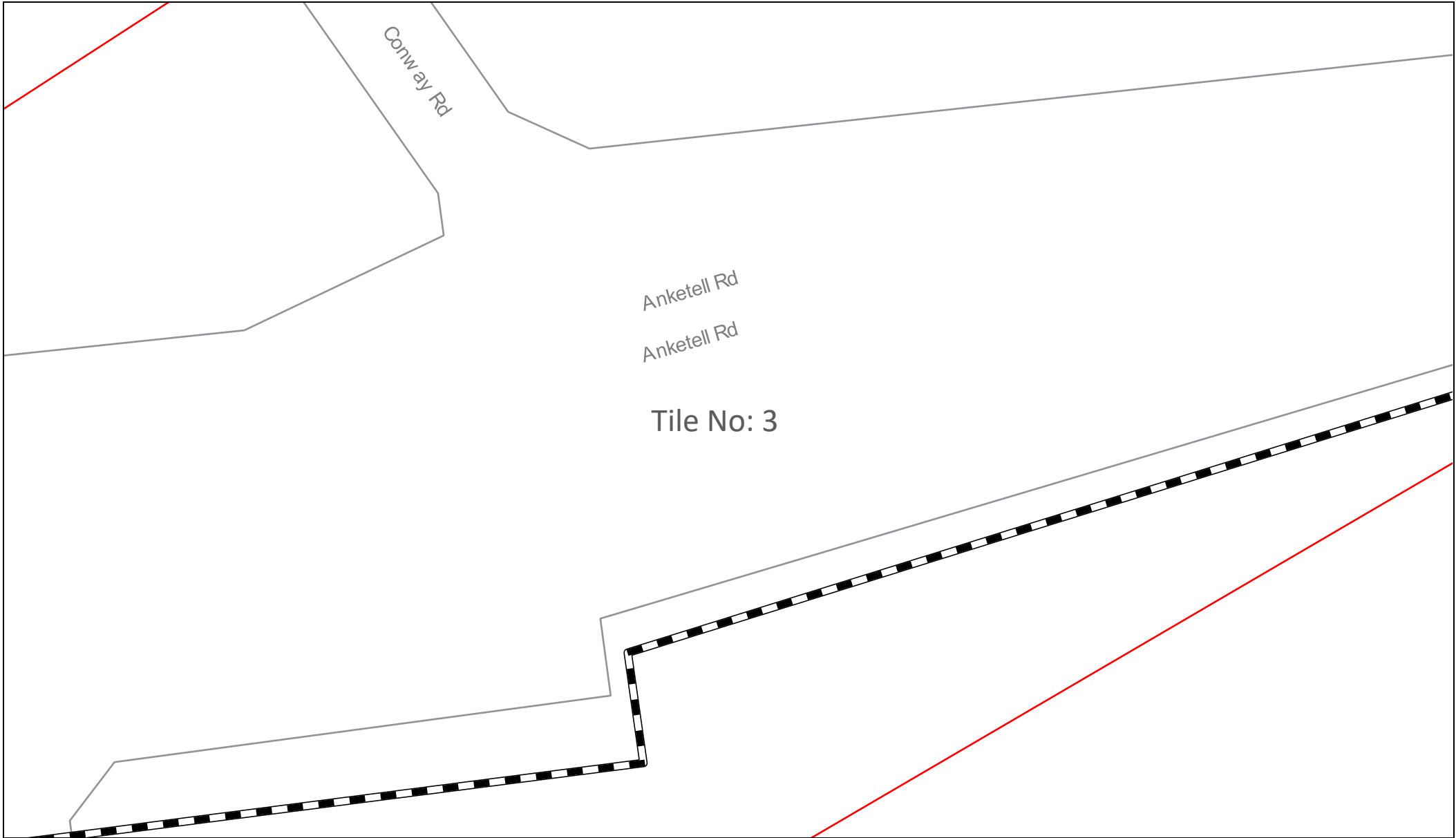
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LEGEND

Digsite	Assets
Area	Cable
	3rd Party Duct
	Marker Post



Sequence Number: 229946815

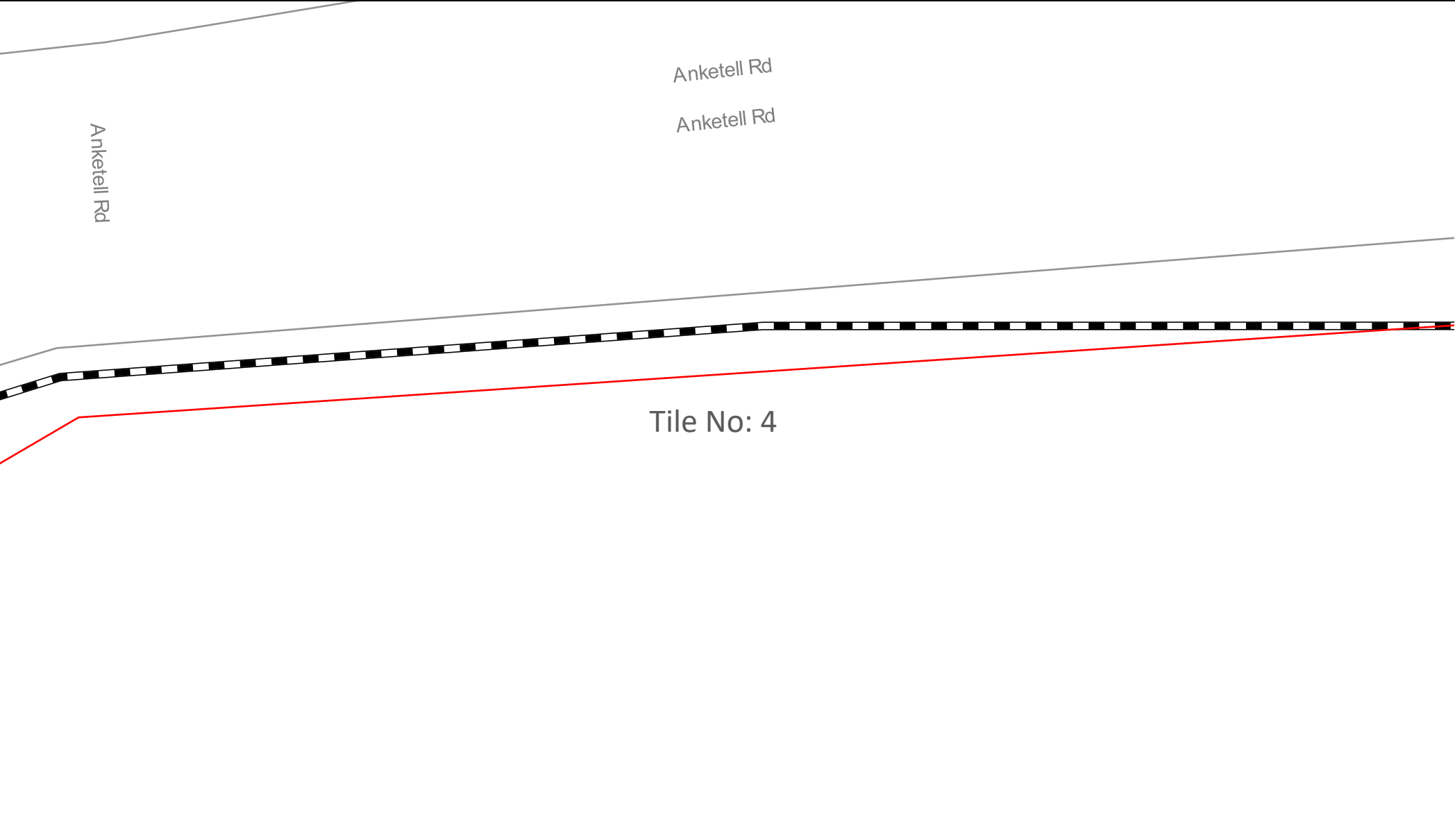
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LEGEND

Digsite	Assets
 Area	 Cable
	 3rd Party Duct
	 Marker Post



Sequence Number: 229946815

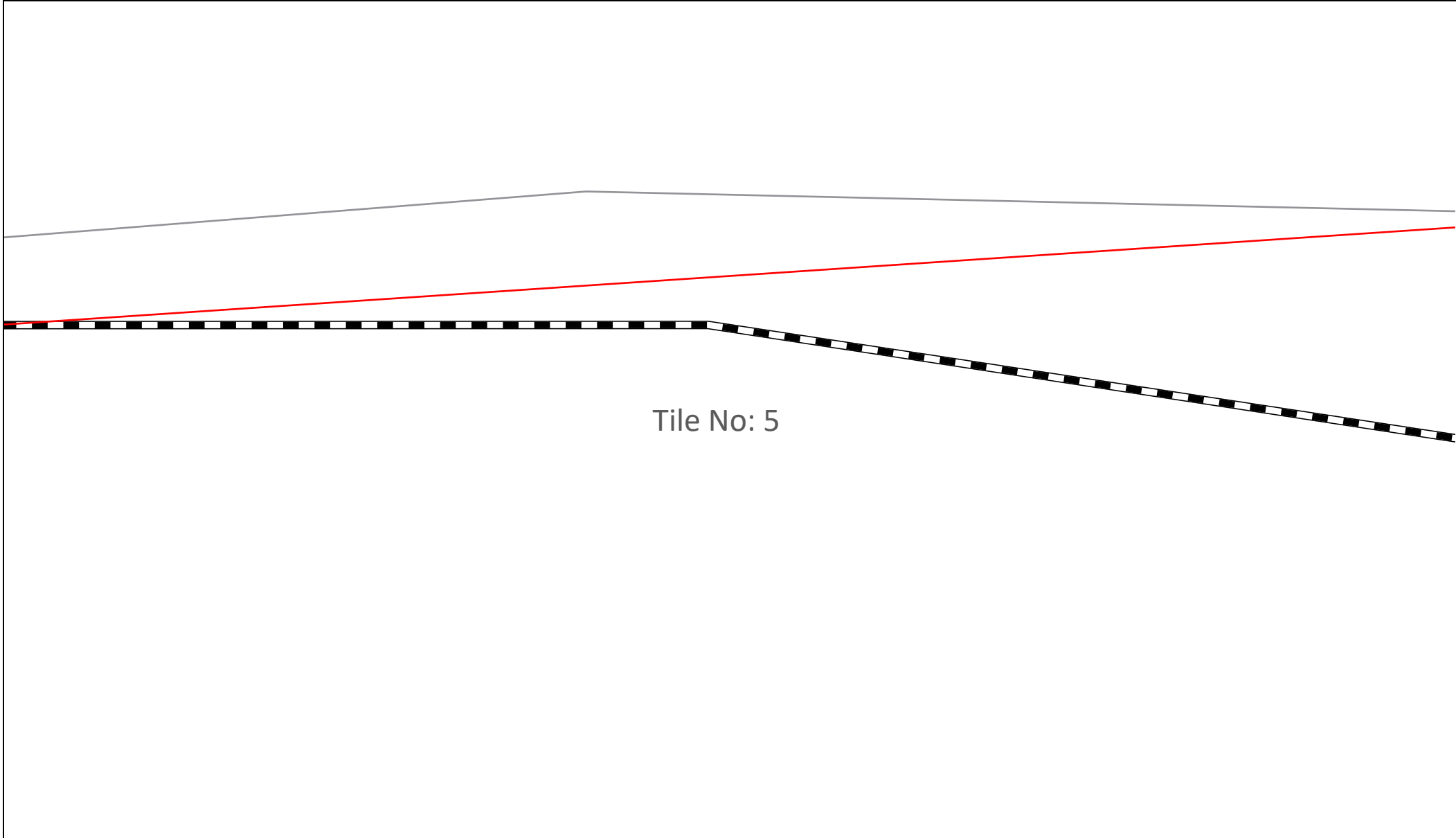
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LEGEND

Digsite	Assets
Area	Cable
	3rd Party Duct
	Marker Post



Sequence Number: 229946815

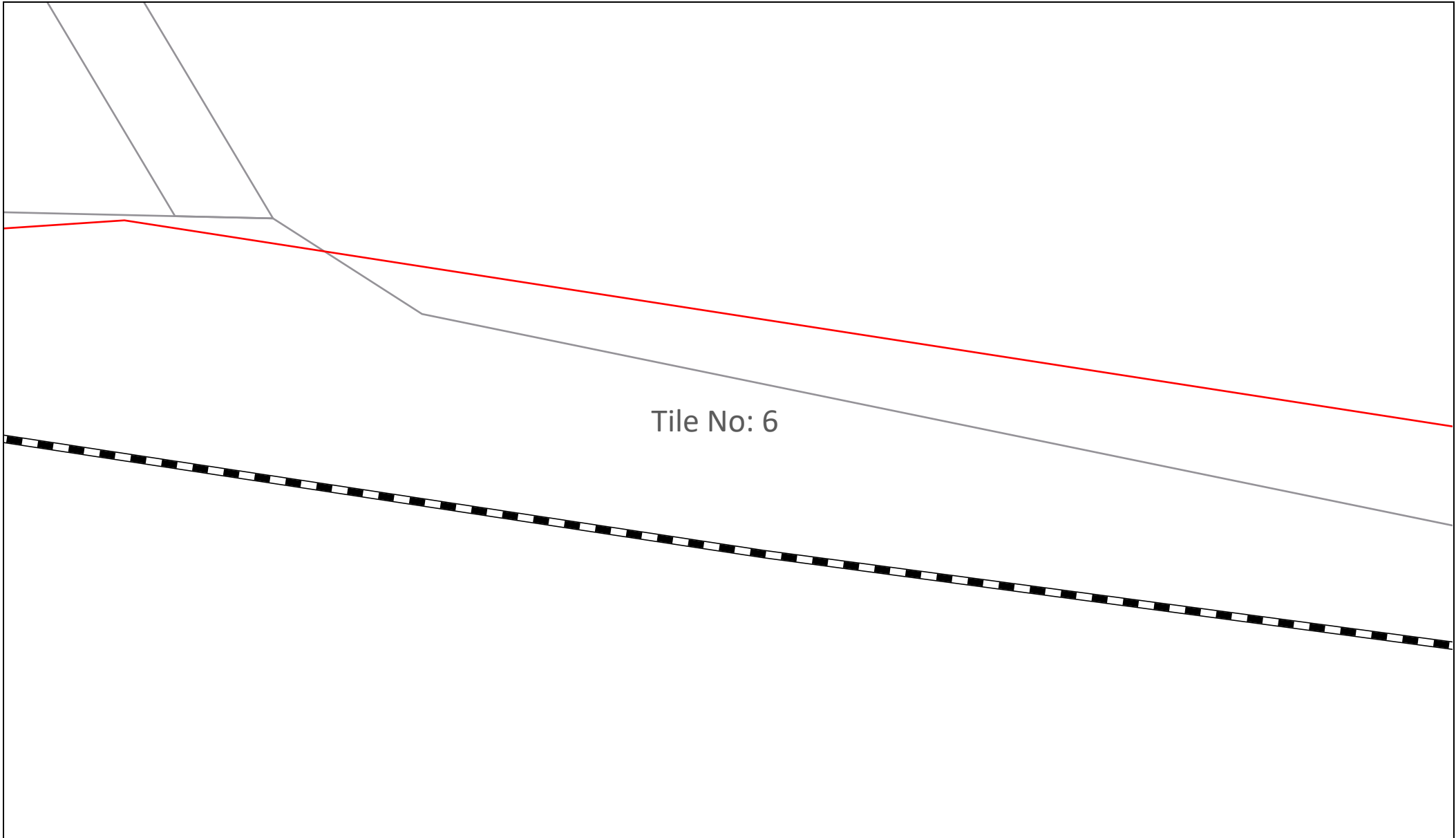
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Sequence Number: 229946815

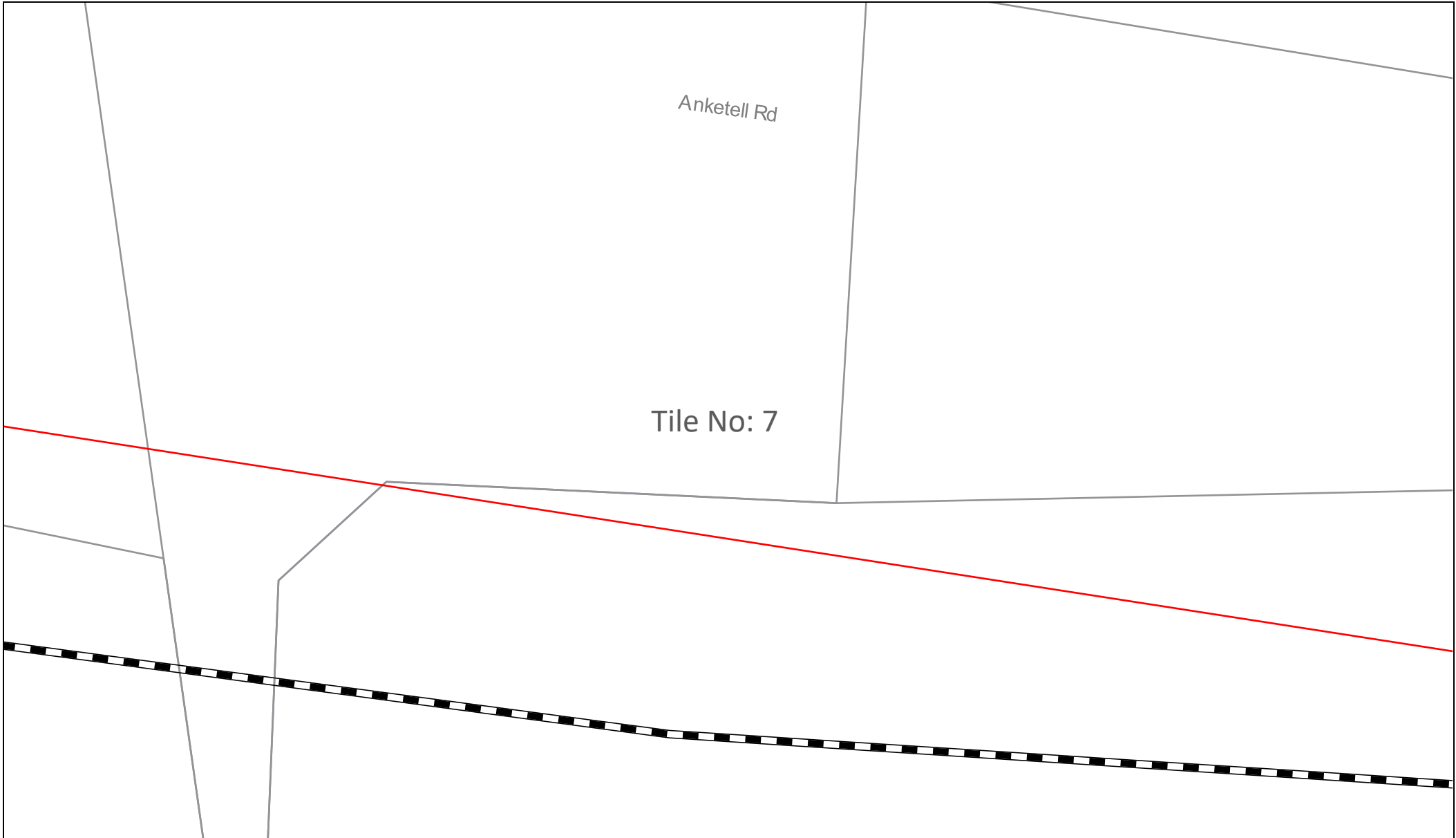
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LEGEND

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| |  Marker Post |



Sequence Number: 229946815

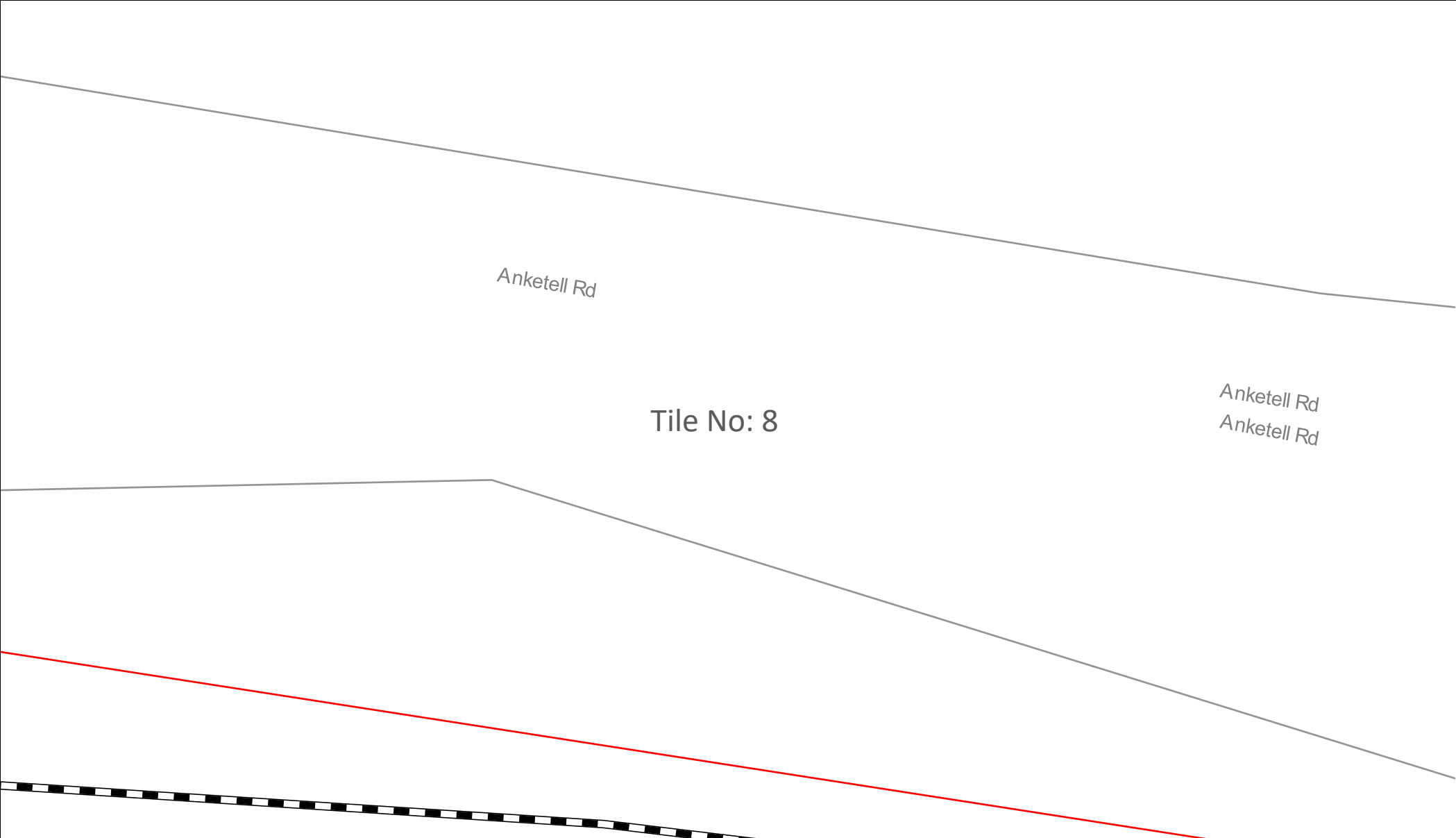
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LEGEND

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|  Area |  Cable |
| |  3rd Party Duct |
| |  Marker Post |



Sequence Number: 229946815

Date: 21/09/2023

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LEGEND

Digsite

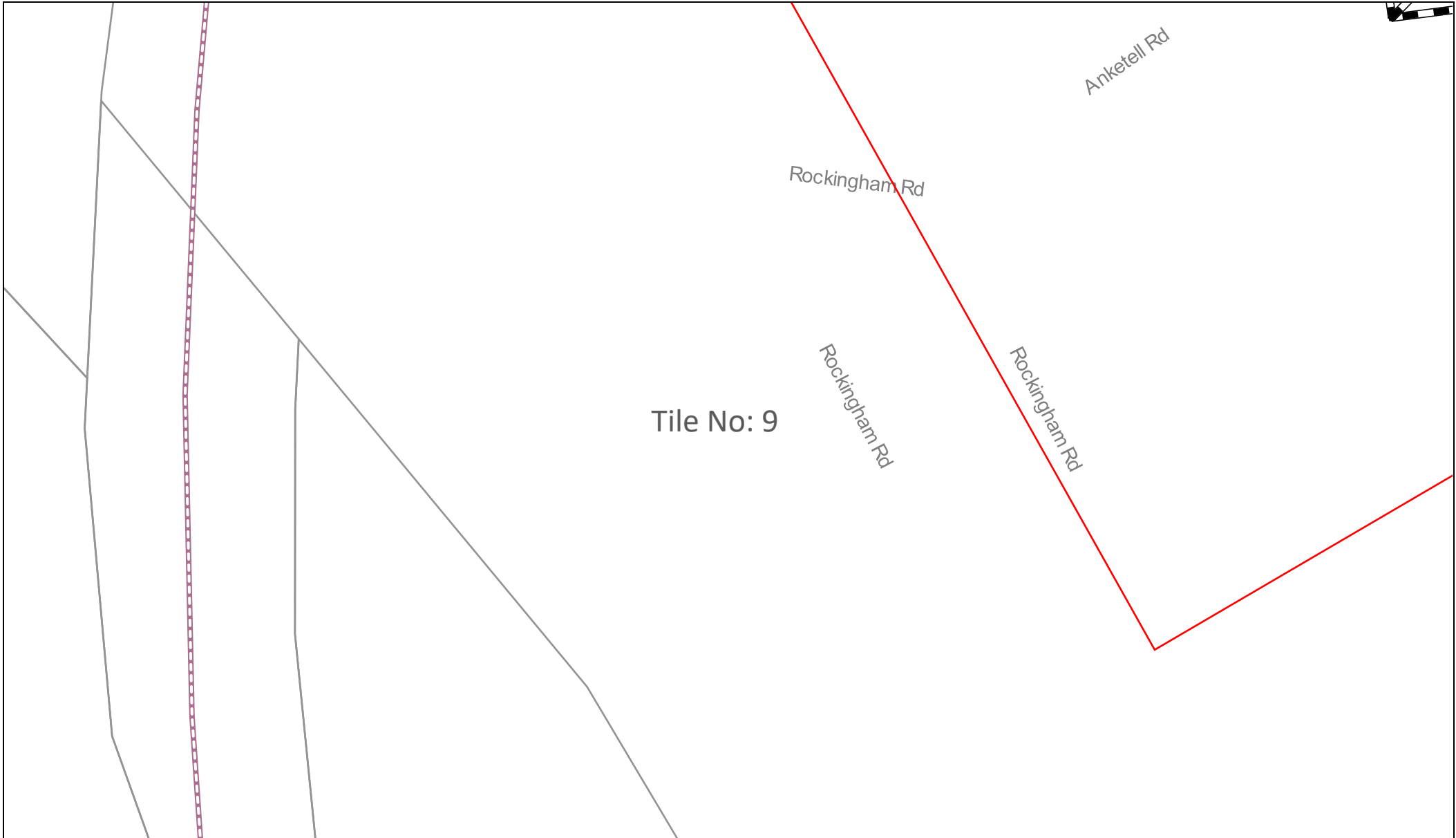
 Area

Assets

 Cable

 3rd Party Duct

 Marker Post



Sequence Number: 229946815

Date: 21/09/2023

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LEGEND

- | Digsite | Assets |
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|  Area |  Cable |
| |  3rd Party Duct |
| |  Marker Post |

Tile No: 10

Sequence Number: 229946815

Date: 21/09/2023

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LEGEND

Digsite



Area

Assets



Cable



3rd Party Duct



Marker Post

Tile No: 11

Sequence Number: 229946815

Date: 21/09/2023

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LEGEND

Digsite



Area

Assets



Cable



3rd Party Duct



Marker Post



Sequence Number: 229946815

Date: 21/09/2023

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LEGEND

Digsite	Assets
 Area	 Cable
	 3rd Party Duct
	 Marker Post

Plant Location Details



21/09/2023

Brandon Henry
Sensversa
190 Flinders Street
Adelaide SA 5000
Phone: +61417822624

Nextgen Networks Pty Ltd
Level 6, 333 Collins Street
Melbourne VIC 3000
T 1800 032 532
E Damage.Relocations@vocus.com.au

Dear **Brandon Henry**

The following is a response to your Dial Before You Dig enquiry

Assets Affected:

Nextgen Assets

Sequence No:

229946815

Location:

761 Anketell Road, Wandl WA 6167

IMPORTANT:

- Please read and understand all the information and disclaimers provided below
- Sketches and Plans provided by Nextgen Networks are circuit diagrams only and indicate the presence of telecommunications plant in the general vicinity of the geographical area shown; exact ground cover and alignments cannot be given with any certainty and cover may alter over time. Telecommunications plant seldom follow straight lines and careful on site investigation is essential to uncover and reveal its exact position
- The accuracy and/or completeness of the information in the plans can not be guaranteed often due to changes in the surrounding land subsequent to Nextgen's deployment and, accordingly the plans are intended to be indicative only

"DUTY OF CARE"

When working in the vicinity of telecommunications plant you have a legal "Duty of Care" that must be observed. The following points must be considered:

1. It is the responsibility of the owner and any consultant engaged by the owner, including an architect, consulting engineer, developer, and head contractor to design for minimal impact and protection of Nextgen Networks plant. Nextgen Networks will provide free plans and sketches showing the presence of its network to assist at this design stage.
2. It is the owner's (or constructor's) responsibility to:
 - a) Request plans of Nextgen Networks plant for a particular location at a reasonable time before construction begins
 - b) Visually locate Nextgen Networks plant by vacuum excavation (pot-holing) where construction activities may damage or interfere with Nextgen Networks plant (see "Essential Precautions and Approach Distances" section for more information)
 - c) Contact Nextgen Networks Network (see below for details) if Nextgen Networks plant is wholly or partly located near planned construction activities

DAMAGE

ANY DAMAGE TO Nextgen Networks NETWORK MUST BE REPORTED TO 1800 032 532 IMMEDIATELY

- The owner is responsible for all plant damage when works commence prior to obtaining Nextgen Networks plans, or failure to follow agreed instructions
- Nextgen Networks reserves all rights to recover compensation for loss or damage to its cable network or other property including consequential losses

CONCERNING NEXTGEN NETWORK PLANS

- Phone 1100. Dial Before You Dig for free plans of Nextgen Networks plant locations. Please give at least 2 business days notice
- Nextgen Networks plans and information provided are valid for 30 days from the date of issue
- Nextgen Networks retains copyright in all plans and details provided in conjunction with your request. These plans and or details should be disposed of by shredding or any other secure disposal method after use
- Nextgen Networks plans or other details are provided for the use of the applicant, its servants, or agents, and shall not be used for any unauthorised purpose
- Please contact the Network Help Desk (see below for details) immediately should you locate Nextgen Networks assets not indicated on these plans
- Nextgen Networks, its servants or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and or details so supplied to the applicant, its servants and agents, and the applicant agrees to indemnify Nextgen Networks against any claim or demand for any such loss or damage
- Please ensure Nextgen Networks plans and information provided remains on-site at all times throughout your construction phase

ESSENTIAL PRECAUTION AND APPROACH DISTANCE

NOTE: If the following clearances cannot be maintained, please contact the Nextgen Network Help Desk (see below for details) for advice on how best to resolve this situation

1. On receipt of plans and sketches and before commencing excavation work or similar activities near Nextgen Networks plant, carefully locate this plant first to avoid damage. Undertake prior exposure (vacuum excavation) such as potholing when intending to excavate or work closer to Nextgen Networks plant than the following approach distances:
 - Where Nextgen Networks plant is in an area where road and footpaths are well defined by kerbs or other features a minimum clear distance of 600mm must be maintained from where it could be reasonably presumed that plant would reside
 - In non established or unformed reserves and terrain, this approach distance must be at least 1.5 metres
 - In country/rural areas which may have wider variations in reasonably presumed plant presence, the following minimum approach distances apply:
 - d) Parallel to major plant: 10 metres (for optic fibre cable)
 - e) Parallel to other plant: 5 metres

Note: Even pot-holing needs to be undertaken with extreme care, common sense and employing techniques least likely to damage cables. For example - vacuum excavation.

 - If construction work is parallel to Nextgen Networks plant, then careful pot-holing at least every 5m is required to establish the location of all plant, hence continuing nominal locations before work can commence
2. Maintain the following minimum clearance between construction activity and actual location of Nextgen Networks Plant.

Jackhammers/Pneumatic Breakers	<i>Not within 1.0m of actual locations</i>
Vibrating Plate or Wackers Packer Compactors	<i>Not within 0.5m of Nextgen Networks ducts 300mm compact clearance cover before compactor can be used across Nextgen Networks ducts, and 600mm clearance across Nextgen Networks cables in the solid</i>
Boring Equipment (in-line, horizontal and vertical)	<i>Not within 2.0m of actual location Constructor to check depth via vacuum excavation (pot-hole)</i>
Heavy Vehicle Traffic (over 3 tonnes)	<i>Not to be driven across Nextgen Networks ducts with less than 600mm cover. Not to be driven across Nextgen Networks fibre with less than 1.2m cover Constructor to vacuum excavate (pot-hole) and expose plant</i>
Mechanical Excavators, Boring and Tree Removal	<i>Not within 1.0m of actual location Constructor to vacuum excavate (pot-hole) and expose plant</i>

- All Nextgen Networks pits and manholes should be a minimum of 1.2m in from the back of kerb after the completion of your work
- All Nextgen Networks conduit should have the following minimum depth of cover after the completion of your work:

Footway 450mm

Roadway 450mm at drain invert and 600mm below the pavement subgrade level invert

- All Nextgen Networks fibre in the solid should have the following minimum depth of cover after the completion of your work:

Footway 600mm

Roadway 1200mm at drain invert and 1200mm below the pavement subgrade level invert

- For clearance distances relating to Nextgen Networks above ground infrastructure please contact the Network Help Desk (see below for details)

FURTHER ASSISTANCE

Over-the-phone assistance can be obtained by calling the Network Help Desk below.

Nextgen require 5 clear business days notice to conduct an on-site location. The initial on site location visit will not normally incur a charge, but at the discretion of Nextgen subsequent site visits may incur a charge to be applied at an hourly rate.

Where an on-site location is provided, the owner is responsible for all vacuum excavation work (pot-holing) to visually locate and expose Nextgen Networks plant.

If plant location plans or visual location of Nextgen Networks plant by vacuum excavation reveals that the location of Nextgen Networks plan is situated wholly or partly where the owner plans to work, then Nextgen Networks must be contacted through the Network Help Desk to discuss possible engineering solutions.

The contact number for the Network Help Desk is 1800 032 532.

NOTE:

If Nextgen Networks relocation or protection works are part of the agreed solution, then payment to Nextgen Networks for the cost of this work shall be the responsibility of the principal developer. The principal developer will be required to provide Nextgen Networks with the details of their proposed work showing how Nextgen Networks plant is to be accommodated and these details must be approved by the Nextgen National Operations Manager prior to the commencement of site works.

RURAL LANDOWNER - IMPORTANT INFORMATION

Where Nextgen Networks owned cable crosses agricultural land Nextgen Networks will provide a one off free-on-site electronic cable location. Please note that the exact location of cables can only be verified by visual proving by pot holing, which is not covered by this service. The Network Integrity HelpDesk Officer will provide assistance in determining whether a free-on-site location is required. Please ring the Nextgen Network Help Desk as listed above.

PRIVACY NOTE

Your information has been provided to Nextgen Networks by DBYD to enable Nextgen Networks to respond to your DBYD request. Nextgen Networks keeps your information in accordance with its privacy statement entitled 'Protecting Your Privacy' which can be obtained from Nextgen Networks either by calling 1800 032 532 or visiting our website www.nextgengroup.com.au

Warning: Nextgen Networks plans show only the presence of cables and plant. They only show their position relative to road boundaries, property fences etc, at the time of installation and Nextgen Networks does not warrant or hold out that such plans are accurate thereafter due to changes that may occur over time.

DO NOT ASSUME DEPTH OR ALIGNMENT of cables or plant as these vary significantly.

The customer has A DUTY OF CARE when excavating near Nextgen Networks cables and plant. Before using machine excavators NEXTGEN PLANT MUST FIRST BE PHYSICALLY EXPOSED BY VACUUM EXCAVATION (potholing) to identify its location.

Nextgen Networks will seek compensation for damages caused to its property and losses caused to Nextgen Networks and its customers.

EXPERIENCED PLANT LOCATORS (for your area)

On-site assistance should be sought from an Experienced Plant Locator if the telecommunications plant cannot be located within 2.5 metres of the locations indicated on the drawings provided. On-site advice should be obtained from a suitably qualified contractor highly skilled in locating Nextgen Networks plant. If there is any doubt whatsoever about the actual location of the telecommunications plant, the best method for locating the telecommunications plant or the correct interpretation of the drawings provided. In the case where Nextgen Networks plant is outside a recognised road reserve Nextgen Networks recommends that the Network Help Desk is contacted for assistance prior to engaging an Experienced Plant Locator.

For the assistance of customers Nextgen Networks has established strict criteria to assess the skill of contractors that may be engaged by owners requiring Nextgen Networks plant locating services to perform any of the following activities if requested to do so by the owner:

- Review Nextgen Networks plans to assess the approximate location of Nextgen Networks plant
- Advise owners of the approximate location of Nextgen Networks plant according to the plans
- Advise the owners of the best method for locating Nextgen Networks plant
- Advise owners of the hazard of unqualified persons attempting to find the exact location of Nextgen Networks plant and working in the vicinity of Nextgen Networks plant without first locating its exact position
- Perform trial hole explorations by vacuum excavation (pot-holing) to expose Nextgen Networks plant with a high degree of skill, competence and efficiency and utilising all necessary safety equipment

Nextgen Networks does not accept any liability or responsibility for the performance of or advice given by any Plant Locator engaged by you but we will, if requested, recommend suitably qualified plant locators.

GENERAL DISCLAIMER

While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither Nexgen or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.

21/09/2023

Brandon Henry
Senversa
190 Flinders Street
Adelaide SA 5000

Dear Brandon Henry

DIAL BEFORE YOU DIG - JOB: 35101735 SEQ: 229946817

Thank you for your request regarding the location of telecommunication services. You requested the information for the below area:

Enquiry Date: 21/09/2023
Address: 761 Anketell Road
Suburb: Wandi
State: WA, 6167

Additional Information: Full site

STOP

According to our records your enquiry with the following details impacts our infrastructure. A detailed Plan is normally attached to this response, however due to the large area, a single overview plan has been provided.

In order to have your enquiry response adequately assessed, you are required to contact damage.relocations@vocus.com.au to discuss your works in more detail.

IMPORTANT INFORMATION

Drawings and Plans provided by the Vocus Group are reference diagrams which were correct at the time the asset was built. Exact ground cover and alignments cannot be provided with any certainty, as these may alter over time. Depths of Telecommunications plant vary considerably as do alignments. The plans provided are to be used as a guide only. It is essential to uncover / pothole the asset and positively identify the assets exact location.

Yours sincerely,
Vocus Group DBYD Team

EMERGENCY CONTACT: 1800 262 663

Vocus Level 12, 60 Miller Street

North Sydney NSW 2060

T: 1300 88 99 88

E: info@vocus.com.au

The Vocus Group includes related bodies corporate of Vocus Communications Limited ACN 084 115 499

DUTY OF CARE

When working in the vicinity of telecommunications plant, you have a legal “Duty of Care” that must be observed. The following points must be considered:

It is the responsibility of the constructor to design for protection and minimal impact of the Vocus Group plant. The Vocus Group will provide free plans showing the presence of its network to assist at the design stage. It is the constructors’ responsibility to:

- a. Request plans of the Vocus Group plant for a particular location at a reasonable time before construction begins through Dial Before You Dig.
- b. Visually locate the Vocus Group plant by vacuum excavation (potholing) where construction activities may damage or interfere with the Vocus Group plant (see “Clearances for work in the vicinity of the Vocus Group Plant” section for more information).
- c. Contact the Vocus Group (see below for details) if the Vocus Group plant is wholly or partly located near planned construction activities.

NOTE: Plans are provided free of charge up to 1 Km radius. Larger plans may incur a cost.

DAMAGE

ANY DAMAGE TO VOCUS GROUP NETWORK MUST BE REPORTED TO 1800 262 663 IMMEDIATELY

The constructor is responsible for all plant damage when works commence prior to obtaining the Vocus Group plans, or failure to follow instructions.

The Vocus Group reserves all rights to recover compensation for loss or damage to its cable network or other property including consequential losses.

ASSET RELOCATIONS

You are not permitted to relocate or alter any Vocus Group assets or network under any circumstance.

For all enquiries relating to the relocation of Vocus Group assets please email Damage.Relocations@vocus.com.au

ON SITE LOCATION

Region	Onsite Locations Contact	Phone	Mobile	Fax	After Hours
NSW - Sydney	QC Communications	(02) 9620 2407		(08) 9620 1701	
NT – Alice Springs	Chambers Engineering	(08) 8955 5022	0418 837 833 0418 897 332	(08) 8955 5322	
NT – Darwin	Anywair Electrics	(08) 8988 1658	0418 890 071	(08) 8988 4654	0418 890 071
NT – Darwin	Northern Communications Services		0407 904 319		(08) 8927 3994
QLD - Brisbane	Optilinx	Scheduling (07) 3901 7353	After Hours or Emergency 0404 010 658	(07) 3901 7352	
SA – Adelaide	Trenchless Pipe-Laying Contractors	(08) 8376 5911		(08) 8376 5944	
VIC – Melbourne	Linktech	Scheduling (03) 8805 0300			
WA – Perth	Abaxa / WH Location Services	Scheduling 1300 369 642	After Hours or Emergency 0411 746 657 - Boyd	(08) 9256 2922	

The Vocus Group accepts no liability for the information provided to the Constructor by the Locators provided above. Further, the Constructor acknowledges that the Locator is the agent of the Constructor and that the Vocus Group takes no responsibility for the locators' acts or omissions.

**If any of the above numbers are uncontactable and your call is urgent,
please call the Vocus National Service Desk on 1800 262 663**

- For all work within 2.5 metres of nominal location, the Constructor is required to prove the actual location of the plant by potholing and exposing before commencing work.
- Potholing to expose and locate the Vocus Group plant is required before work commences, at least every 3 metres where the Constructors works are parallel to the Vocus Group plant.
- The Constructor is responsible for all plant damages when works commence without the Vocus Group plans or by failure to follow advice and/or instructions from the Vocus Group.

NOTE: No machinery shall be used within 1 metre of the Vocus Group plant until the actual location has been determined by potholing using hand tools.

NOTE: No heavy earth working machinery shall be used within 5 metres of the Vocus Group plant until the actual location has been determined by potholing using hand tools.

CLEARANCES FOR WORK IN THE VICINITY OF VOCUS GROUP PLANT

These figures represent the minimum clear cover to be maintained over the Vocus Group plant. Please note that the actual cover over existing plant might be greater or less than recommended figures. Exact alignment and depths cannot be given with certainty as such levels can change over time.

Footpath and Verge Areas	450mm
Roadways	600mm

These figures represent the minimum clearance between construction and actual location of the Vocus Group plant.

Jackhammers / Pneumatic Breakers	Not within 2.5 metres of actual location
Vibrating plate or Wacker Packer compactors	Not within 500mm of actual location
Heavy Vehicle Traffic	Not to be driven across Vocus Group plant with less than 600mm cover. The constructor is to check the depth by potholing using hand tools.
Mechanical Excavators	Not within 1 metre of actual location. The constructor is to pothole and expose plant using hand tools.
Boring Equipment (in-line, horizontal and vertical)	Not within 2.5 metres of actual location. The constructor is to pothole and expose plant.

Access to the Vocus Group pits must remain accessible and at ground level at all times.

Any information provided is valid only for 30 days from the date of issue of this document. If the work operations extend beyond this period, or if the designs are altered in any way, you are requested to re-submit your proposal for re-assessment by contact Dial Before You Dig.

Phone 1100 or check the website for more details <http://www.1100.com.au>

RESOLUTION OF POINTS OF CONFLICT

Should plant location and potholing reveal points of conflict between the Constructors planned works and the existing Vocus Group plant, the constructor should contact the Vocus Group for advice and to discuss possible solutions. The contact details are;

Fibre Operations

Phone: 1800 262 663

Email: support@vocus.com.au

Or Urgent enquiries after business hours contact 1800 262 663

ASSESSMENT OF RISK AND PROTECTIVE ACTIONS

Where protective works are required around existing Vocus Group plant, the details will be worked out on a case by case basis. Protective works are the responsibility of the Constructor.

Where relocation or protection of Vocus Group plant is part of an agreed solution, the costs of these works will be the responsibility of the Constructor. The Vocus Group will provide an estimated cost for works. Work by the Vocus Group will not commence until a Purchase Order is received.

Schedule	The Criminal Code
Chapter 10	National infrastructure
Part 10.6	Telecommunications Services
Division 474	Telecommunications offences

474.6 Interference with facilities

- (1) A person is guilty of an offence if the person tampers with, or interferes with, a facility owned or operated by:

- (a) a carrier; or
- (b) a carriage service provider; or
- (c) a nominated carrier.

Penalty: Imprisonment for 1 year.

- (2) For the purposes of an offence against subsection (1), absolute liability applies to the physical element of circumstance of the offence, that the facility is owned or operated by a carrier, a carriage service provider or a nominated carrier.

- (3) A person is guilty of an offence if:

- (a) the person tampers with, or interferes with, a facility owned or operated by:

- (i) a carrier; or
- (ii) a carriage service provider; or
- (iii) a nominated carrier; and

- (b) this conduct results in hindering the normal operation of a carriage service supplied by a carriage service provider.

Penalty: Imprisonment for 2 years.

- (4) For the purposes of an offence against subsection (3), absolute liability applies to the following physical elements of circumstance of the offence:

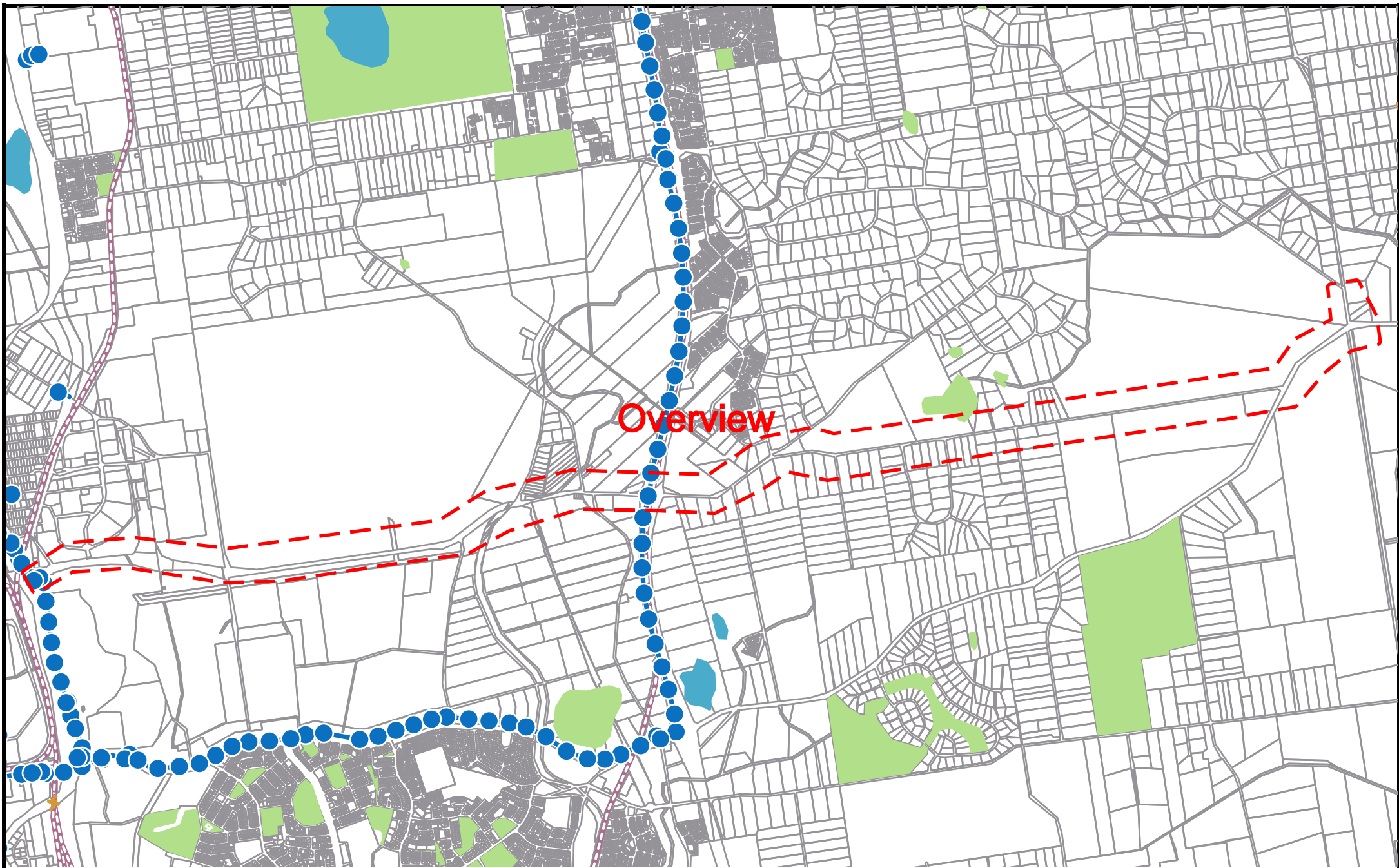
- (a) that the facility is owned or operated by a carrier, a carriage service provider or a nominated carrier;
- (b) that the carriage service is supplied by a carriage service provider.

- (5) A person is guilty of an offence if:

- (a) the person uses or operates any apparatus or device (whether or not it is comprised in, connected to or used in connection with a telecommunications network); and



- (b) this conduct results in hindering the normal operation of a carriage service supplied by a carriage service provider.

Penalty: Imprisonment for 2 years.



SEQUENCE NUMBER: 229946817
JOB NUMBER: 35101735
ADDRESS: 761 Anketell Road, Wandl, WA 6167

LEGEND

-  Vocus Group Pit
-  Vocus Group Conduit

SCALE: 1:47080



Before You Dig Australia (BYDA) Pipeline Location Information

Australian Terminal Operations Management
22 Albert Road
South Melbourne, VIC 3250

To: (‘Enquirer’)

Brandon Henry
190 Flinders Street
Adelaide SA 5000

Email: brandon.henry@sensversa.com.au

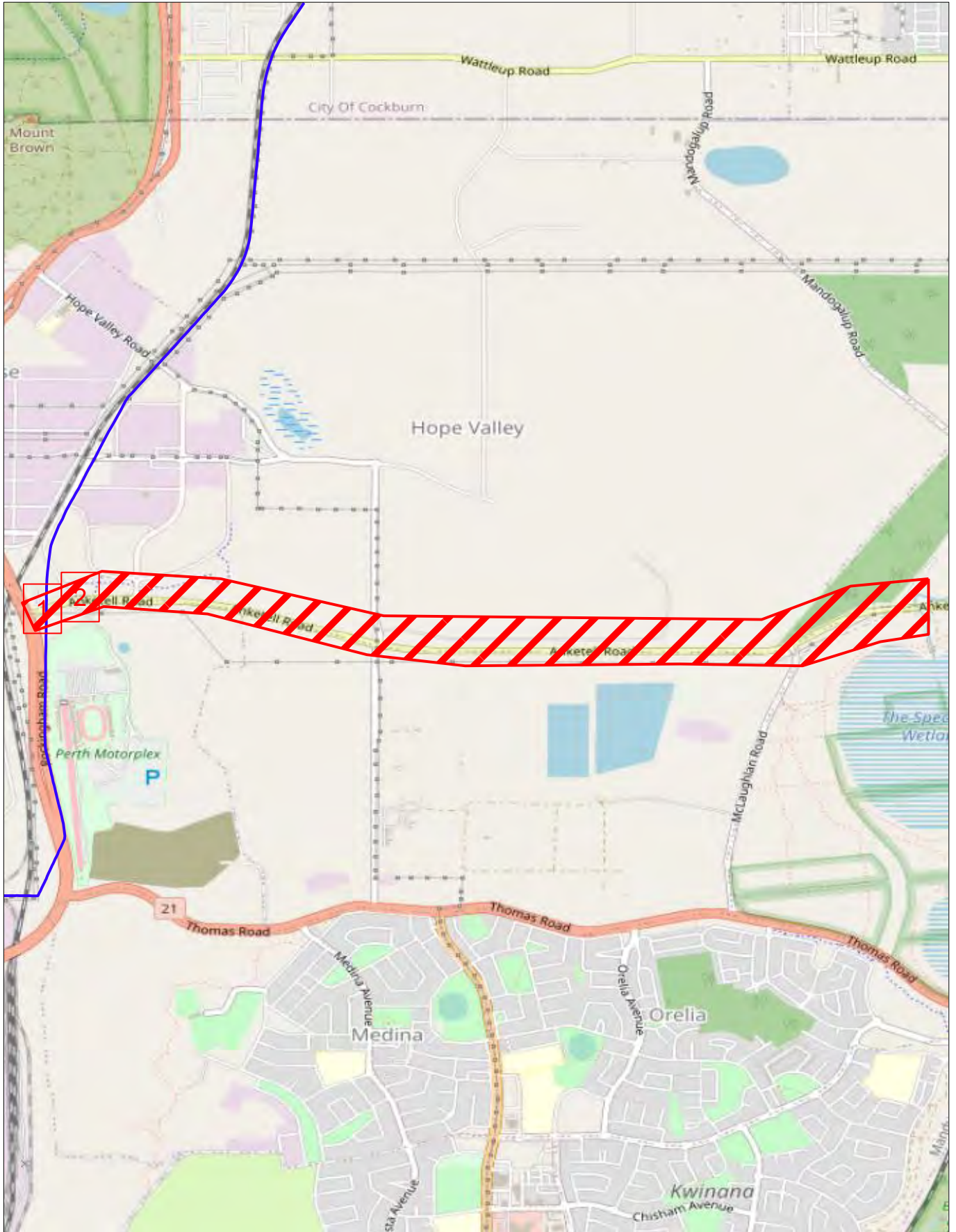
Phone: +61417822624

Enquiry Details	
Utility ID	90426
Sequence Number	229946820
Enquiry Date	21/09/2023 13:42
Response	AFFECTED
Address	761 Anketell Road Wandi
Location in Road	Road
Activity	Tendering

Enquirer Details	
Customer ID	3077012
Contact	Brandon Henry
Company	
Email	brandon.henry@sensversa.com.au
Phone	+61417822624

Enquirer Responsibilities

This pipeline location information must be read in conjunction with the DBYD Response Form provided to you (the enquirer) by Mipela GeoSolutions on behalf of ATOM (*ATOM DBYD Response Form.pdf*)
When working in the vicinity of a pipeline you have certain legal obligations with which you must comply. The purpose of these obligations is to ensure safe work.
In commencing work in the vicinity of a pipeline following receipt of this DBYD Response Form, you are deemed to have accepted the terms and conditions attached.



ATOM makes every effort that the information contained on this map is up to date and correct but accepts no responsibility for this information.
The information is provided as a guide only.



0 0.3km


LEGEND:

1

Detail Map

 Pipeline Asset

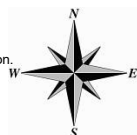


 Affected BYDA Work Area

1



ATOM makes every effort that the information contained on this map is up to date and correct but accepts no responsibility for this information. The information is provided as a guide only.



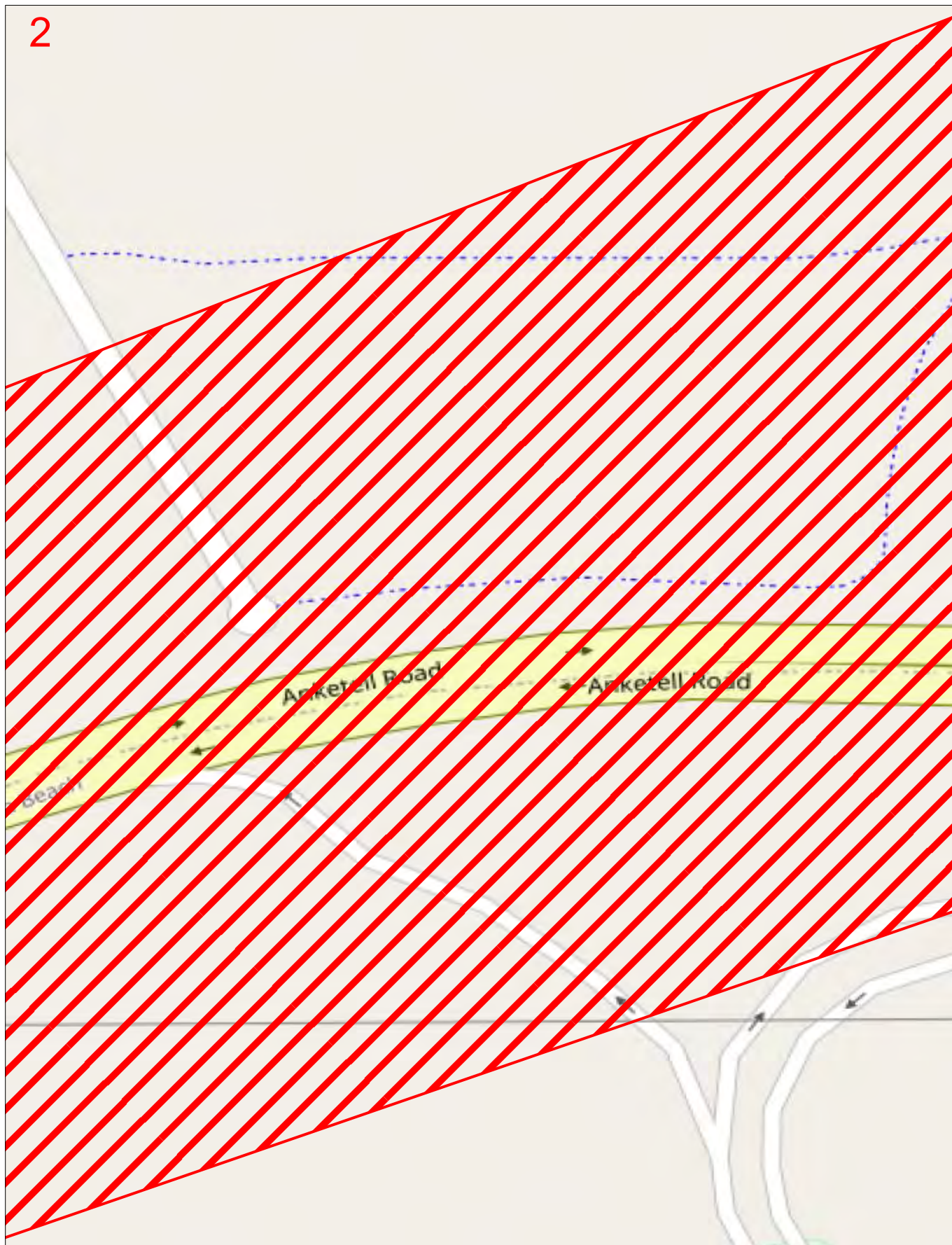
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LEGEND:

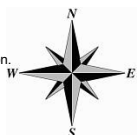
- Pipeline Asset
- Property Boundary

- Affected BYDA Work Area
-

2



ATOM makes every effort that the information contained on this map is up to date and correct but accepts no responsibility for this information. The information is provided as a guide only.



0 0.01km

LEGEND:

- Pipeline Asset
- Property Boundary

- Affected BYDA Work Area



Before You Dig Australia (BYDA) Pipeline Location Information

Australian Terminal Operations Management
22 Albert Road
South Melbourne, VIC 3250

To: (‘Enquirer’)

Brandon Henry
190 Flinders Street
Adelaide SA 5000

Email: brandon.henry@sensversa.com.au

Phone: +61417822624

Enquiry Details	
Utility ID	90426
Sequence Number	229946821
Enquiry Date	21/09/2023 13:42
Response	NOT AFFECTED
Address	761 Anketell Road Wandi
Location in Road	Road
Activity	Tendering

Enquirer Details	
Customer ID	3077012
Contact	Brandon Henry
Company	
Email	brandon.henry@sensversa.com.au
Phone	+61417822624

Enquirer Responsibilities

This pipeline location information must be read in conjunction with the DBYD Response Form provided to you (the enquirer) by Mipela GeoSolutions on behalf of ATOM (*ATOM DBYD Response Form.pdf*)
When working in the vicinity of a pipeline you have certain legal obligations with which you must comply. The purpose of these obligations is to ensure safe work.
In commencing work in the vicinity of a pipeline following receipt of this DBYD Response Form, you are deemed to have accepted the terms and conditions attached.



ATOM makes every effort that the information contained on this map is up to date and correct but accepts no responsibility for this information.
The information is provided as a guide only.



0 0.3km

LEGEND:

1

Detail Map

 Pipeline Asset



Not Affected
BYDA Work
Area

Date: 21/09/2023

Enquirer Name: Brandon Henry
Enquirer Address: 190 Flinders Street
Email: brandon.henry@sensversa.com.au
Phone: +61417822624

Dear Brandon Henry

The following is our response on behalf of each of the TPG carriers (listed below) to your Before You Dig Australia enquiry – Sequence **229946823**

It is provided to you on a confidential basis under the following conditions and must be shredded or securely disposed of after use.

Assets Affected: 761 Anketell Road Wandl

Carriers (each a “TPG carrier”) and assets affected:

PIPE Networks

Location:

According to our records, the underground assets in the vicinity of the location stated in your enquiry are **AFFECTED**. Please read the below information and disclaimers in addition to the any attached plans provided prior to any construction activities.

IMPORTANT INFORMATION

- The information provided is valid for 30 days from the date of this response. If your work site area changes or your construction activity is beyond 30 days please contact Before You Dig Australia on 1100 or www.1100.com.au to re-submit a new enquiry.
- Due to the nature of underground assets and the age of some assets and records, our plans are indicative of the general location only and may not show all assets in the location. You should not solely rely on these plans when undertaking construction works. It is also inaccurate to assume depth or that underground network conduit and cables follow straight lines, and careful on-site investigations are essential to locate an asset's exact position prior to excavation. It is your responsibility to locate and confirm the exact location of our infrastructure using non-destructive techniques. We make no warranty or guarantee that our plans are complete, current or error free, and to the maximum extent permitted by law we exclude all liability to you, your employees, agents and contractors for any loss, damage or claim arising out of or in connection with using our plans.
- Please note that some of our conduits carry electrical cables and gas pipes. Please exercise extreme care when working within the vicinity of these conduit and take into account the minimum clearance distances under Duty Of Care below.
- You (and your employee and contractors) must not open, move, interfere, alter or relocate any of our assets without our prior approval.
- **Note** It is a criminal offence under the *Criminal Code Act 1995 (Cth)* to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by us as a result of such unauthorised works may be claimed against you.

DAMAGE

- You must report immediately any damage to our network on **1800 786 306** (24hrs). We will hold you liable and seek compensation for any loss or damage to our network, our property and our customers that is caused by or arises out of your activities.

DUTY OF CARE

You have a duty of care to carefully locate, validate and protect our assets when carrying out works near our infrastructure. For construction activities that may impact on or interfere with our network, you will need to call us on **1800 786 306** to discuss a suitable engineering solution, lead time and cost involved. The below precautions must be taken when working in the vicinity of our network:

- Contact us on **1800 786 306** to discuss and obtain relevant information and plans on our infrastructure in a particular location if the information provided in this response is insufficient.
- Physically locate and mark on-site our network infrastructure using non-destructive techniques i.e. pot holing or hand digging every 5 metres prior to commencing any construction activities. Assets located must be marked to AS5488 standard. **NO CONSTRUCTION WORK IS ALLOWED UNTIL THIS STEP IS COMPLETED.** You must use an approved telecommunications accredited locator, or we can provide a locator for you at your expense. If we provide you with a locator, and this locator attended the site and is proven to be grossly negligent in physically locating and marking our infrastructure, then to the extent any TPG carrier is liable for this locator's negligence, acts and omissions, the total liability aggregated for all TPG carriers is limited, at our option, to attend the site and re-mark the infrastructure or to pay for a third party to re-mark the infrastructure.
- If you require us to locate or monitor our infrastructure, please allow five business days' notice for us to respond.
- Ensure all information, including our network requirements and any associated plans provided by us are kept confidential and remain on-site throughout your construction works.

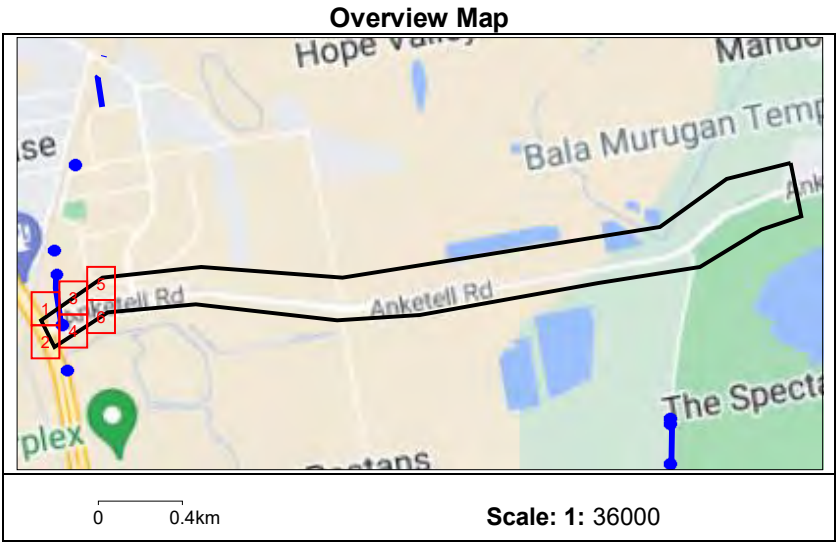
- Use suitably qualified and supervised professionals, particularly if you are working near assets that contain electricity cables or gas pipes.
- Ensure the below minimum clearance distances between the construction activities and the actual location of our assets are met. If you need clearance distances for our above ground assets, or if the below distances cannot be met, call **1800 786 306** to discuss.

Minimum assets clearance distances.

- 300mm when laying asset inline, horizontal or vertical.
 - 1000mm when operating vibrating equipment. Eg: vibrating plates. No vibrating equipment on top of asset.
 - 1000mm when operating mechanical excavators or jackhammers/pneumatic breakers.
 - 2000mm when performing directional bore in-line, horizontal and vertical.
 - No heavy vehicle over 3 tonnes to be driven over asset with less than 600mm of cover.
- Reinstate exposed TPG network infrastructure back to original state.

PRIVACY & CONFIDENTIALITY

- Privacy Notice – Your information has been provided to us by Before You Dig Australia to respond to your Before You Dig Australia enquiry. We will keep your personal information in accordance with TPG’s privacy policy, see www.tpg.com.au/about/privacy.
- Confidentiality – The information we have provided to you is confidential and is to be used only for planning and designing purposes in connection with your Before You Dig Australia enquiry. Please dispose of the information by shredding or other secure disposal method after use. We retain all intellectual property rights (including copyrights) in all our documents and plans.



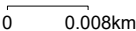

TPG Telecom Limited
















Enquiry Number: 229946823

Map Sheet: 1

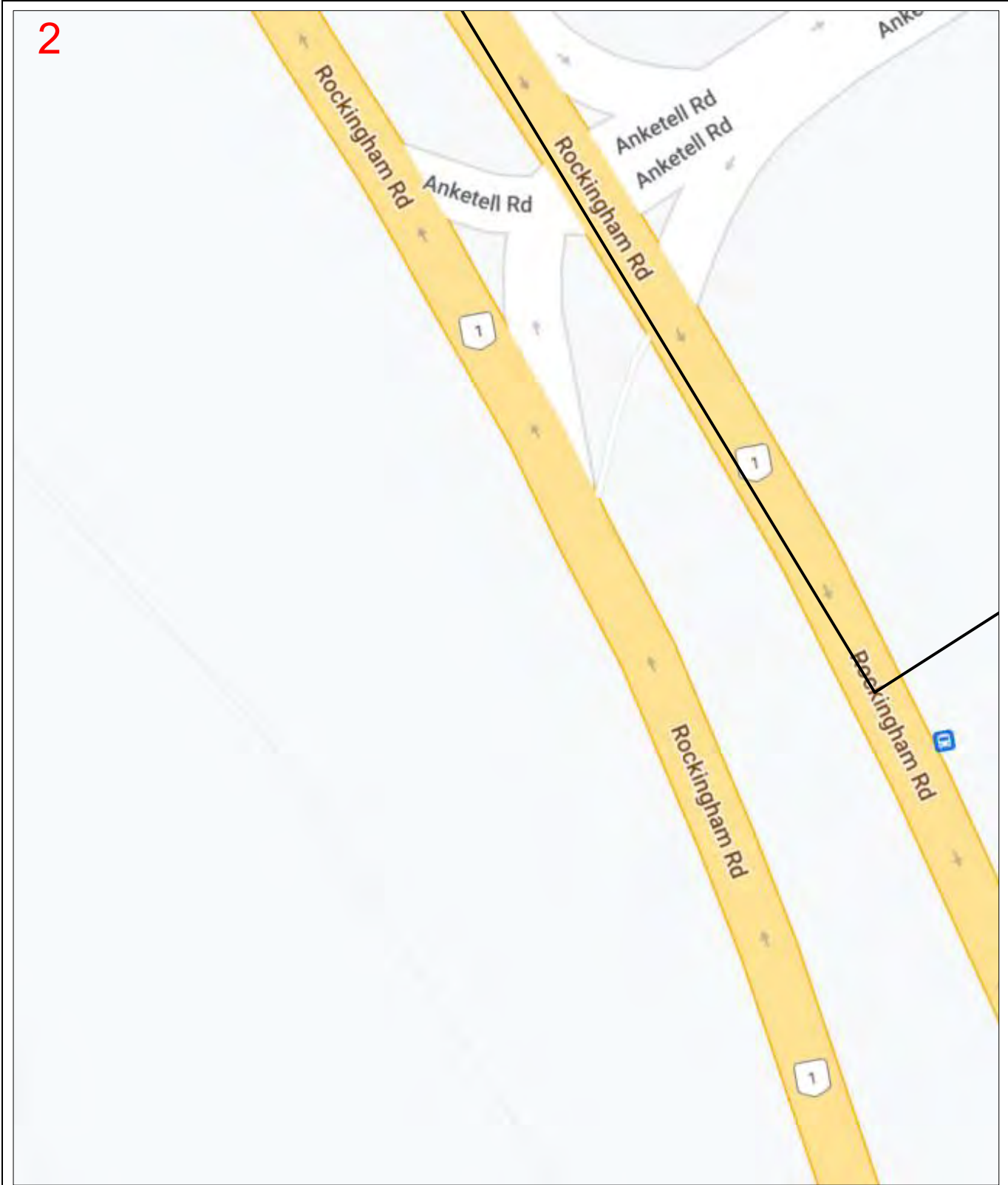
Scale: 1: 750



LEGEND

BYDA Work Area			
AAPT/PowerTel Pit		TransACT Pit	
AAPT/PowerTel Duct		TransACT Duct	
DDA Pit		SOUL Pattinson Telecoms Pit	
DDA Duct		SOUL Pattinson Telecoms Duct	
Agile/Adam Pit		PIPE Networks Pit	
Agile/Adam Duct		PIPE Networks Duct	

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Enquiry Number: 229946823

Map Sheet: 2

Scale: 1: 750

00.008km

N

LEGEND

BYDA Work Area

AAPT/PowerTel Pit

AAPT/PowerTel Duct

DDA Pit

DDA Duct

Agile/Adam Pit

Agile/Adam Duct

TransACT Pit

TransACT Duct

SOUL Pattinson Telecoms Pit

SOUL Pattinson Telecoms Duct

PIPE Networks Pit

PIPE Networks Duct

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Page 4



Enquiry Number: 229946823

Map Sheet: 3

Scale: 1: 750

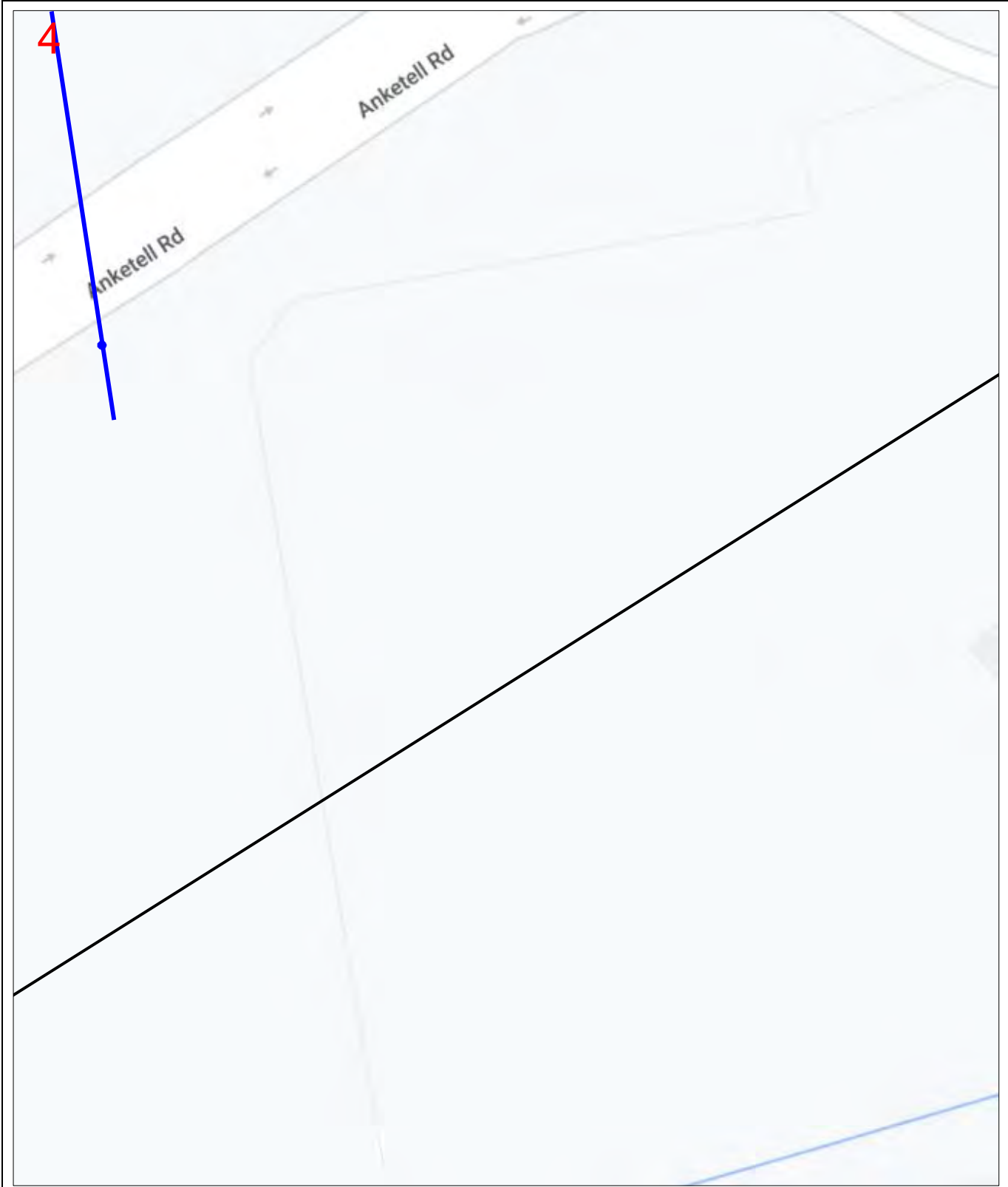
0 0.008km

LEGEND

BYDA Work Area

AAPT/PowerTel Pit		TransACT Pit	
AAPT/PowerTel Duct		TransACT Duct	
DDA Pit		SOUL Pattinson Telecoms Pit	
DDA Duct		SOUL Pattinson Telecoms Duct	
Agile/Adam Pit		PIPE Networks Pit	
Agile/Adam Duct		PIPE Networks Duct	

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Enquiry Number: 229946823

Map Sheet: 4

Scale: 1: 750

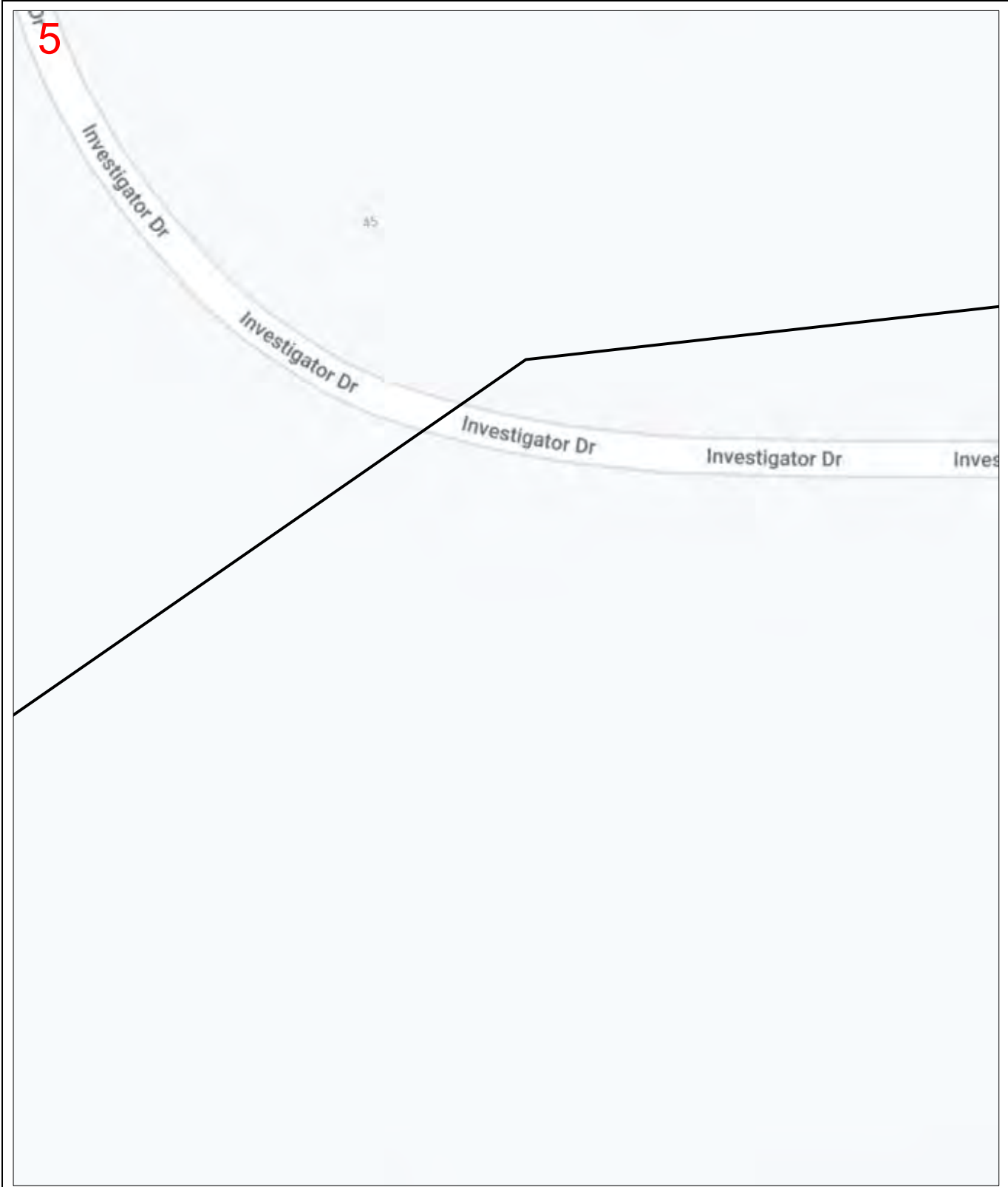
0 0.008km

LEGEND

BYDA Work Area

AAPT/PowerTel Pit		TransACT Pit	
AAPT/PowerTel Duct		TransACT Duct	
DDA Pit		SOUL Pattinson Telecoms Pit	
DDA Duct		SOUL Pattinson Telecoms Duct	
Agile/Adam Pit		PIPE Networks Pit	
Agile/Adam Duct		PIPE Networks Duct	

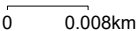

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Enquiry Number: 229946823













Map Sheet: 5

Scale: 1: 750



LEGEND

BYDA Work Area 

AAPT/PowerTel Pit		TransACT Pit	
AAPT/PowerTel Duct		TransACT Duct	
DDA Pit		SOUL Pattinson Telecoms Pit	
DDA Duct		SOUL Pattinson Telecoms Duct	
Agile/Adam Pit		PIPE Networks Pit	
Agile/Adam Duct		PIPE Networks Duct	

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6



Enquiry Number: 229946823

Map Sheet: 6

Scale: 1: 750

0 0.008km



LEGEND

BYDA Work Area



AAPT/PowerTel Pit



AAPT/PowerTel Duct



DDA Pit



DDA Duct



Agile/Adam Pit



Agile/Adam Duct



TransACT Pit



TransACT Duct



SOUL Pattinson Telecoms Pit



SOUL Pattinson Telecoms Duct



PIPE Networks Pit



PIPE Networks Duct



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Date: 21/09/2023

Enquirer Name: Brandon Henry
Enquirer Address: 190 Flinders Street
Email: brandon.henry@senversa.com.au
Phone: +61417822624

Dear Brandon Henry

The following is our response on behalf of each of the TPG carriers (listed below) to your Before You Dig Australia enquiry – Sequence **229946824**

It is provided to you on a confidential basis under the following conditions and must be shredded or securely disposed of after use.

Assets Affected:

Carriers (each a "TPG carrier") and assets affected:

Location: 761 Anketell Road Wandl

According to our records, the underground assets in the vicinity of the location stated in your enquiry are **NOT AFFECTED**. Please read the below information and disclaimers in addition to the any attached plans provided prior to any construction activities.

IMPORTANT INFORMATION

- The information provided is valid for 30 days from the date of this response. If your work site area changes or your construction activity is beyond 30 days please contact Before You Dig Australia on 1100 or www.1100.com.au to re-submit a new enquiry.
- Due to the nature of underground assets and the age of some assets and records, our plans are indicative of the general location only and may not show all assets in the location. You should not solely rely on these plans when undertaking construction works. It is also inaccurate to assume depth or that underground network conduit and cables follow straight lines, and careful on-site investigations are essential to locate an asset's exact position prior to excavation. It is your responsibility to locate and confirm the exact location of our infrastructure using non-destructive techniques. We make no warranty or guarantee that our plans are complete, current or error free, and to the maximum extent permitted by law we exclude all liability to you, your employees, agents and contractors for any loss, damage or claim arising out of or in connection with using our plans.
- Please note that some of our conduits carry electrical cables and gas pipes. Please exercise extreme care when working within the vicinity of these conduit and take into account the minimum clearance distances under Duty Of Care below.
- You (and your employee and contractors) must not open, move, interfere, alter or relocate any of our assets without our prior approval.
- **Note** It is a criminal offence under the *Criminal Code Act 1995 (Cth)* to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by us as a result of such unauthorised works may be claimed against you.

DAMAGE

- You must report immediately any damage to our network on **1800 786 306** (24hrs). We will hold you liable and seek compensation for any loss or damage to our network, our property and our customers that is caused by or arises out of your activities.

DUTY OF CARE

You have a duty of care to carefully locate, validate and protect our assets when carrying out works near our infrastructure. For construction activities that may impact on or interfere with our network, you will need to call us on **1800 786 306** to discuss a suitable engineering solution, lead time and cost involved. The below precautions must be taken when working in the vicinity of our network:

- Contact us on **1800 786 306** to discuss and obtain relevant information and plans on our infrastructure in a particular location if the information provided in this response is insufficient.
- Physically locate and mark on-site our network infrastructure using non-destructive techniques i.e. pot holing or hand digging every 5 metres prior to commencing any construction activities. Assets located must be marked to AS5488 standard. **NO CONSTRUCTION WORK IS ALLOWED UNTIL THIS STEP IS COMPLETED.** You must use an approved telecommunications accredited locator, or we can provide a locator for you at your expense. If we provide you with a locator, and this locator attended the site and is proven to be grossly negligent in physically locating and marking our infrastructure, then to the extent any TPG carrier is liable for this locator's negligence, acts and omissions, the total liability aggregated for all TPG carriers is limited, at our option, to attend the site and re-mark the infrastructure or to pay for a third party to re-mark the infrastructure.
- If you require us to locate or monitor our infrastructure, please allow five business days' notice for us to respond.
- Ensure all information, including our network requirements and any associated plans provided by us are kept confidential and remain on-site throughout your construction works.

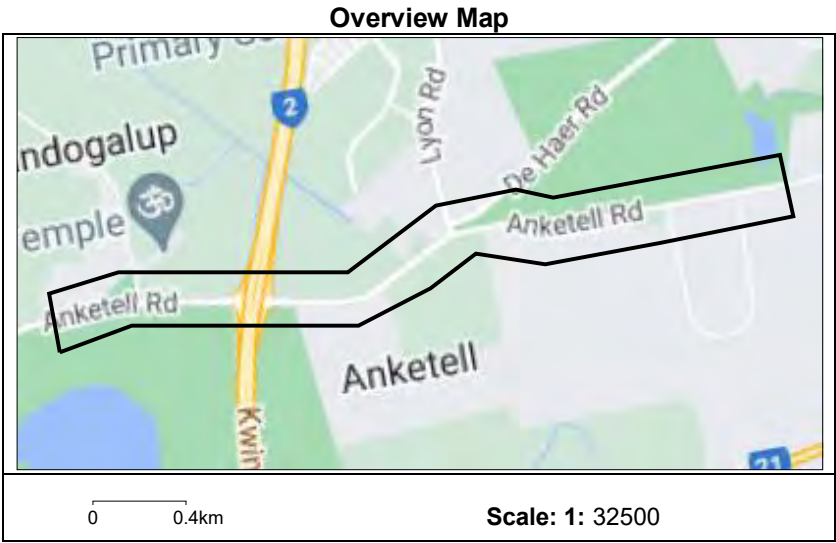
- Use suitably qualified and supervised professionals, particularly if you are working near assets that contain electricity cables or gas pipes.
- Ensure the below minimum clearance distances between the construction activities and the actual location of our assets are met. If you need clearance distances for our above ground assets, or if the below distances cannot be met, call **1800 786 306** to discuss.

Minimum assets clearance distances.

- 300mm when laying asset inline, horizontal or vertical.
 - 1000mm when operating vibrating equipment. Eg: vibrating plates. No vibrating equipment on top of asset.
 - 1000mm when operating mechanical excavators or jackhammers/pneumatic breakers.
 - 2000mm when performing directional bore in-line, horizontal and vertical.
 - No heavy vehicle over 3 tonnes to be driven over asset with less than 600mm of cover.
- Reinstate exposed TPG network infrastructure back to original state.

PRIVACY & CONFIDENTIALITY

- Privacy Notice – Your information has been provided to us by Before You Dig Australia to respond to your Before You Dig Australia enquiry. We will keep your personal information in accordance with TPG’s privacy policy, see www.tpg.com.au/about/privacy.
- Confidentiality – The information we have provided to you is confidential and is to be used only for planning and designing purposes in connection with your Before You Dig Australia enquiry. Please dispose of the information by shredding or other secure disposal method after use. We retain all intellectual property rights (including copyrights) in all our documents and plans.



TPG Telecom Limited

Date: 21/09/2023

Enquirer Name: Brandon Henry
Enquirer Address: 190 Flinders Street
Email: brandon.henry@senversa.com.au
Phone: +61417822624

Dear Brandon Henry

The following is our response on behalf of each of the TPG carriers (listed below) to your Before You Dig Australia enquiry – Sequence **229946825**

It is provided to you on a confidential basis under the following conditions and must be shredded or securely disposed of after use.

Assets Affected:

Carriers (each a "TPG carrier") and assets affected:

Location: 761 Anketell Road Wandí

According to our records, the underground assets in the vicinity of the location stated in your enquiry are **NOT AFFECTED**. Please read the below information and disclaimers in addition to the any attached plans provided prior to any construction activities.

IMPORTANT INFORMATION

- The information provided is valid for 30 days from the date of this response. If your work site area changes or your construction activity is beyond 30 days please contact Before You Dig Australia on 1100 or www.1100.com.au to re-submit a new enquiry.
- Due to the nature of underground assets and the age of some assets and records, our plans are indicative of the general location only and may not show all assets in the location. You should not solely rely on these plans when undertaking construction works. It is also inaccurate to assume depth or that underground network conduit and cables follow straight lines, and careful on-site investigations are essential to locate an asset's exact position prior to excavation. It is your responsibility to locate and confirm the exact location of our infrastructure using non-destructive techniques. We make no warranty or guarantee that our plans are complete, current or error free, and to the maximum extent permitted by law we exclude all liability to you, your employees, agents and contractors for any loss, damage or claim arising out of or in connection with using our plans.
- Please note that some of our conduits carry electrical cables and gas pipes. Please exercise extreme care when working within the vicinity of these conduit and take into account the minimum clearance distances under Duty Of Care below.
- You (and your employee and contractors) must not open, move, interfere, alter or relocate any of our assets without our prior approval.
- **Note** It is a criminal offence under the *Criminal Code Act 1995 (Cth)* to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by us as a result of such unauthorised works may be claimed against you.

DAMAGE

- You must report immediately any damage to our network on **1800 786 306** (24hrs). We will hold you liable and seek compensation for any loss or damage to our network, our property and our customers that is caused by or arises out of your activities.

DUTY OF CARE

You have a duty of care to carefully locate, validate and protect our assets when carrying out works near our infrastructure. For construction activities that may impact on or interfere with our network, you will need to call us on **1800 786 306** to discuss a suitable engineering solution, lead time and cost involved. The below precautions must be taken when working in the vicinity of our network:

- Contact us on **1800 786 306** to discuss and obtain relevant information and plans on our infrastructure in a particular location if the information provided in this response is insufficient.
- Physically locate and mark on-site our network infrastructure using non-destructive techniques i.e. pot holing or hand digging every 5 metres prior to commencing any construction activities. Assets located must be marked to AS5488 standard. **NO CONSTRUCTION WORK IS ALLOWED UNTIL THIS STEP IS COMPLETED.** You must use an approved telecommunications accredited locator, or we can provide a locator for you at your expense. If we provide you with a locator, and this locator attended the site and is proven to be grossly negligent in physically locating and marking our infrastructure, then to the extent any TPG carrier is liable for this locator's negligence, acts and omissions, the total liability aggregated for all TPG carriers is limited, at our option, to attend the site and re-mark the infrastructure or to pay for a third party to re-mark the infrastructure.
- If you require us to locate or monitor our infrastructure, please allow five business days' notice for us to respond.
- Ensure all information, including our network requirements and any associated plans provided by us are kept confidential and remain on-site throughout your construction works.

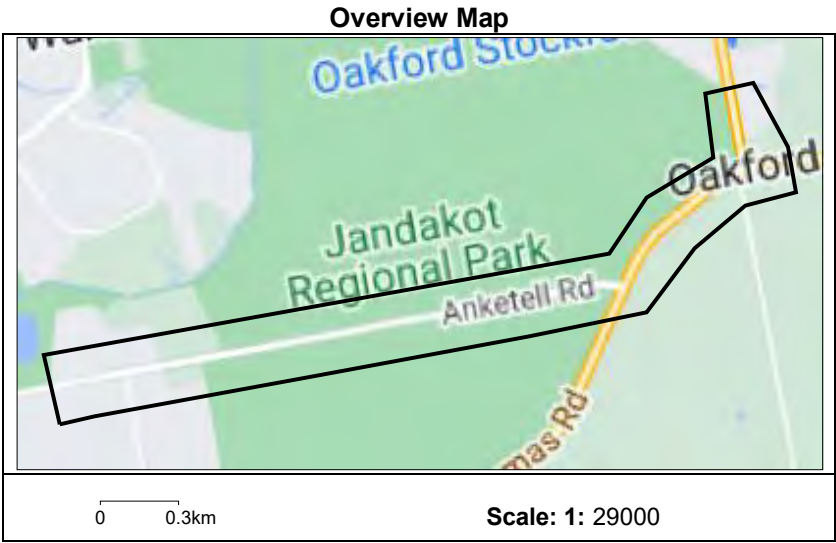
- Use suitably qualified and supervised professionals, particularly if you are working near assets that contain electricity cables or gas pipes.
- Ensure the below minimum clearance distances between the construction activities and the actual location of our assets are met. If you need clearance distances for our above ground assets, or if the below distances cannot be met, call **1800 786 306** to discuss.

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 - 1000mm when operating mechanical excavators or jackhammers/pneumatic breakers.
 - 2000mm when performing directional bore in-line, horizontal and vertical.
 - No heavy vehicle over 3 tonnes to be driven over asset with less than 600mm of cover.
- Reinstate exposed TPG network infrastructure back to original state.

PRIVACY & CONFIDENTIALITY

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- Confidentiality – The information we have provided to you is confidential and is to be used only for planning and designing purposes in connection with your Before You Dig Australia enquiry. Please dispose of the information by shredding or other secure disposal method after use. We retain all intellectual property rights (including copyrights) in all our documents and plans.



TPG Telecom Limited



DBNGP (WA) Nominees Pty Limited
ABN 78 081 609 289
Level 6, 12-14 The Esplanade
Perth WA 6000
Postal Address
PO Box Z5267
Perth St Georges Tce WA 6831
Telephone: +61 8 9223 4300
Facsimile: +61 8 9223 4301

DIAL BEFORE YOU DIG RESPONSE

Date	21/09/2023
Sequence Number	229946828
Address	761 Anketell Road Wandi

Dear Brandon Henry

This response refers only to the Dampier to Bunbury Natural Gas Pipeline (DBNGP) and does not relate to any other gas pipelines that may be in the vicinity of your enquiry.

The DBNGP is located within the vicinity of this enquiry - Tendering

As shown on the attached plan, the DBNGP Pipeline Corridor is marked in **ORANGE** and it must be noted that no work is permitted inside the Corridor without first gaining written approval from the Department of Lands Infrastructure Corridors.

The Department of Lands are contactable on infrastructure.corridors@lands.wa.gov.au

Land Management DBP

DBP

Level 7, 12-14 The Esplanade, Perth WA 6000
Telephone: (08) 9223 4928
land.management@dbp.net.au



D B P
DIAL BEFORE YOU DIG
UTILITY NOTIFICATION RESPONSE FORM

DBYD Sequence Number: 229946828 **DBYD Enquiry Date:** 21/09/2023

Location: 761 Anketell Road Wandi

Enquirer's Name: Senversa - Brandon Henry

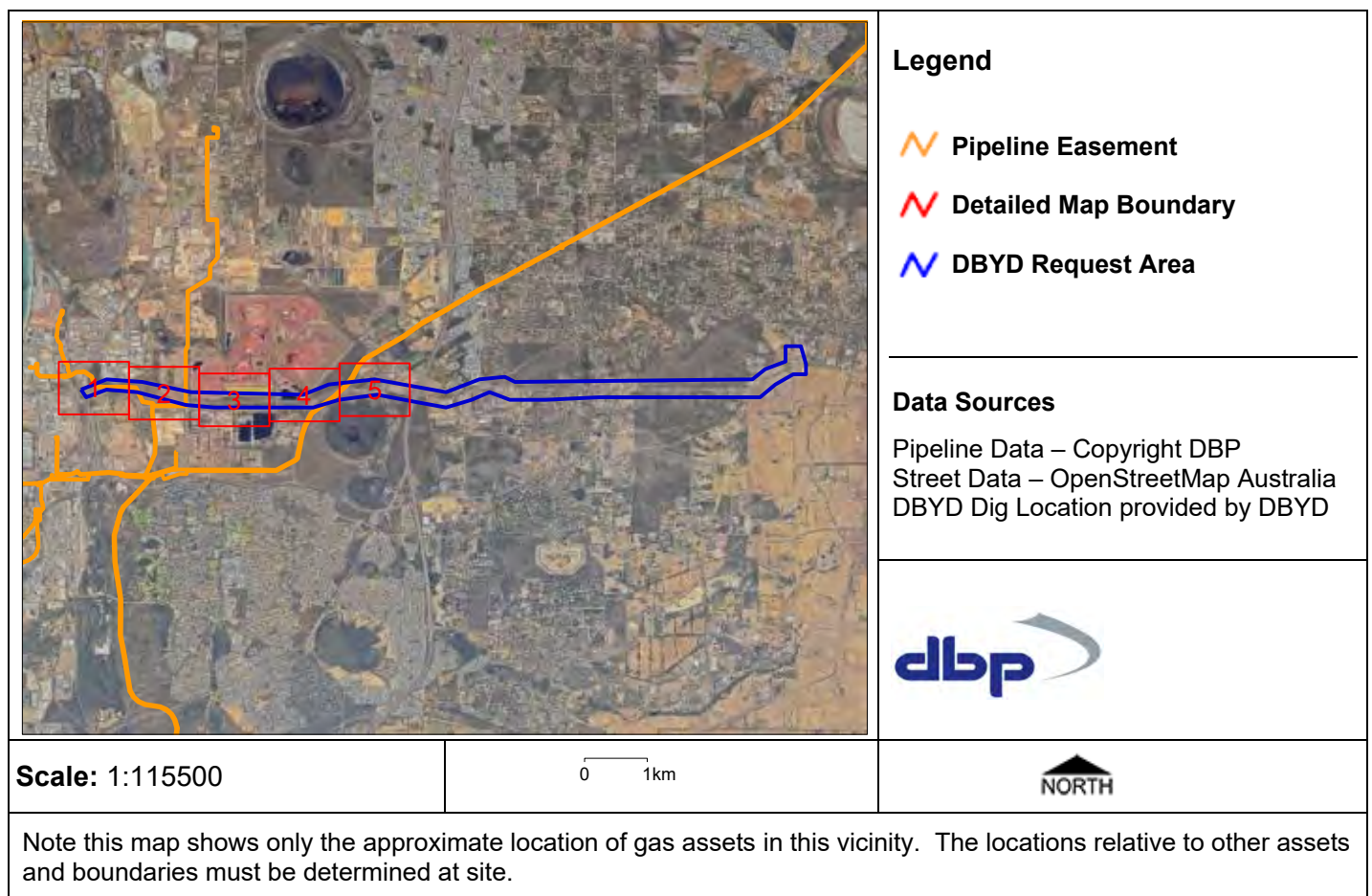
Enquirer's Address: 190 Flinders Street

Response email : brandon.henry@senversa.com.au

Thank you for the notification of your interest or proposed works near the underground services at the above location.
DBP operates and maintains this infrastructure in the area of your interest, which:

The DBNGP is located within the vicinity of your enquiry - Tendering

The location of the infrastructure operated by DBP in the area of your interest is indicated on the Map below:



Thank you for your interest in maintaining a safe and secure gas pipeline network.

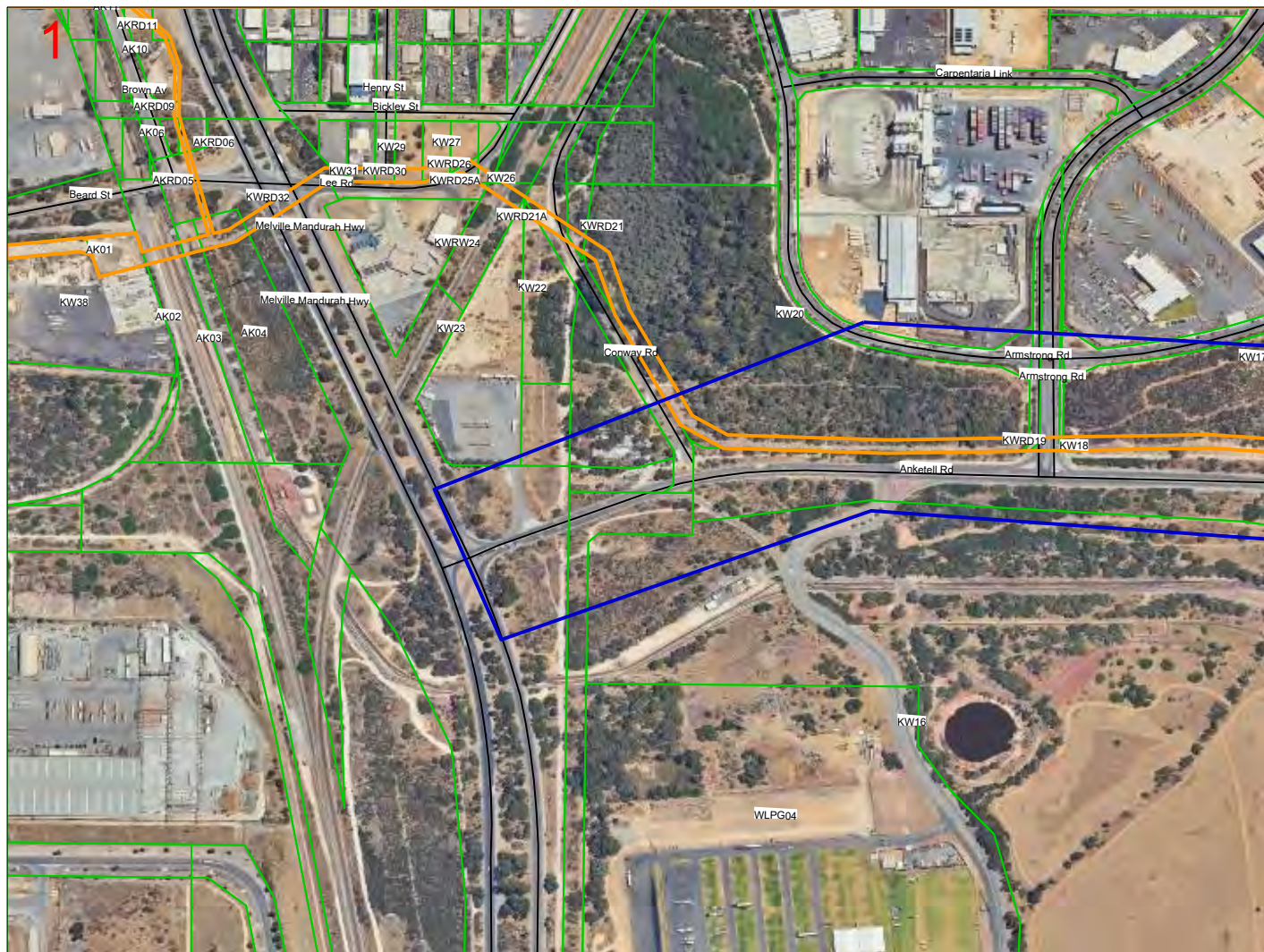
DBNGP (WA) Nominees Pty Limited
ABN 78 081 609 289
Level 6, 12-14 The Esplanade, Perth WA 6000

Postal Address

PO Box Z5267
Perth St Georges Tce WA 6831
Telephone: +61 8 9223 4300
Facsimile: +61 8 9223 4301



D B P
DIAL BEFORE YOU DIG
UTILITY NOTIFICATION RESPONSE FORM



229946828 Map Sheet: 1

Scale: 1: 6000



0 0.07km



Map Key:



Legend

-  Pipeline Easement
-  DBYD Request Area

Data Sources

Pipeline Data – Copyright DBP
Street Data – OpenStreetMap Australia
DBYD Dig Location provided by DBYD



Note this map shows only the approximate location of gas assets in this vicinity. The locations relative to other assets and boundaries must be determined at site.



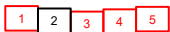
229946828 Map Sheet: 2

Scale: 1: 6000



0 0.07km



Map Key:



Legend

-  Pipeline Easement
-  DBYD Request Area

Data Sources

Pipeline Data – Copyright DBP
 Street Data – OpenStreetMap Australia
 DBYD Dig Location provided by DBYD



Note this map shows only the approximate location of gas assets in this vicinity. The locations relative to other assets and boundaries must be determined at site.



229946828 Map Sheet: 3

Scale: 1: 6000



0 0.07km



Map Key:



Legend

-  Pipeline Easement
-  DBYD Request Area

Data Sources

Pipeline Data – Copyright DBP
 Street Data – OpenStreetMap Australia
 DBYD Dig Location provided by DBYD



Note this map shows only the approximate location of gas assets in this vicinity. The locations relative to other assets and boundaries must be determined at site.



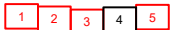
229946828 Map Sheet: 4

Scale: 1: 6000



0 0.07km



Map Key:



Legend

-  Pipeline Easement
-  DBYD Request Area

Data Sources

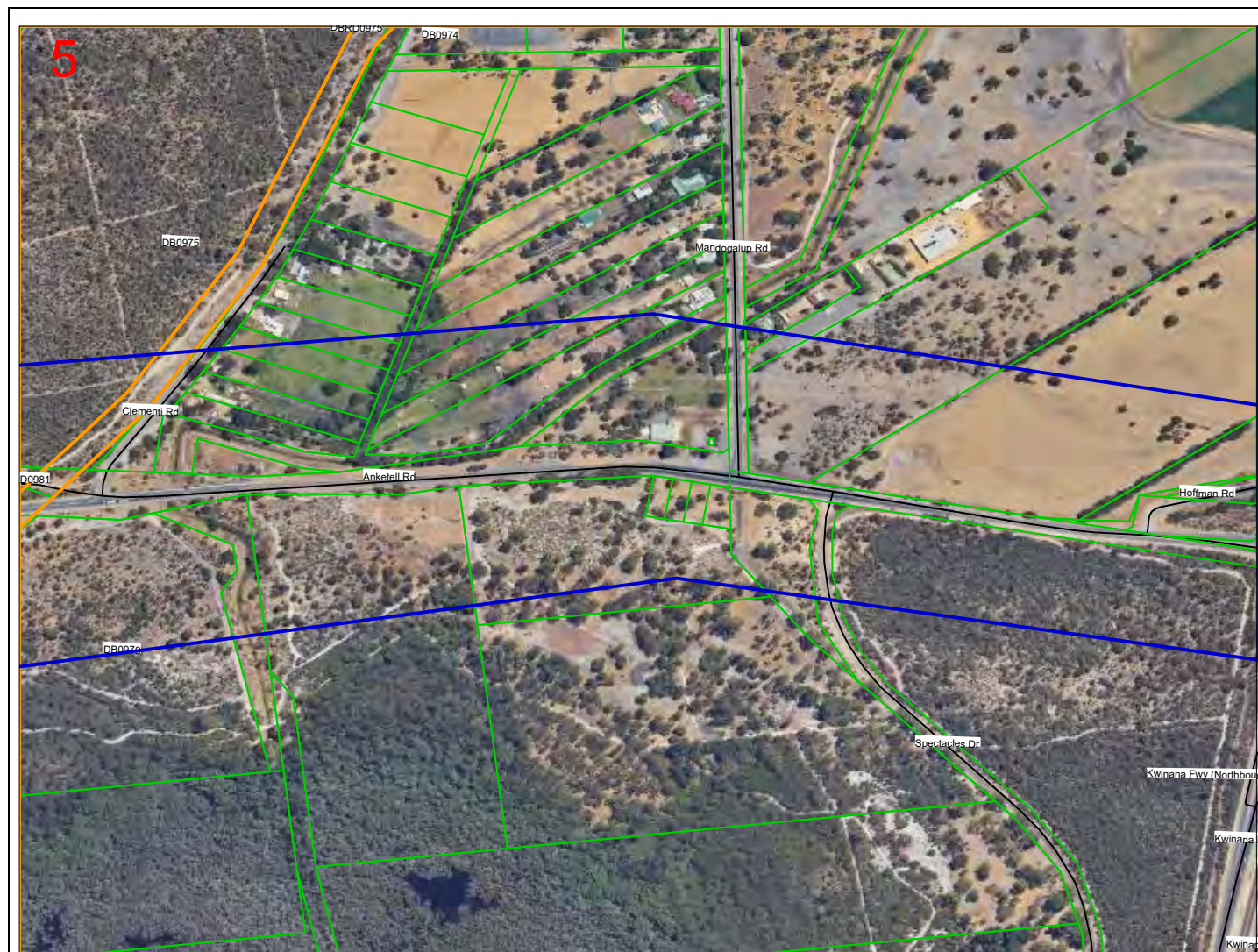
Pipeline Data – Copyright DBP
 Street Data – OpenStreetMap Australia
 DBYD Dig Location provided by DBYD



Note this map shows only the approximate location of gas assets in this vicinity. The locations relative to other assets and boundaries must be determined at site.



D B P
DIAL BEFORE YOU DIG
UTILITY NOTIFICATION RESPONSE FORM



229946828 Map Sheet: 5

Scale: 1: 6000



0 0.07km



Map Key:



Legend

-  Pipeline Easement
-  DBYD Request Area

Data Sources

Pipeline Data – Copyright DBP
Street Data – OpenStreetMap Australia
DBYD Dig Location provided by DBYD



Note this map shows only the approximate location of gas assets in this vicinity. The locations relative to other assets and boundaries must be determined at site.



To: Brandon Henry
Company: Senversa
Phone Details: +61417822624
Email Address: hvabco7n9xktrl.7xyavsk4774k@smarterwx-mail.1100.com.au

Western Power
363 Wellington Street
Perth WA 6000
T: 13 10 87 F: (08) 9326 6079
www.westernpower.com.au
Electricity Networks Corporation ABN 18 540 492 861

Sequence Number: 229946816
Job Number: 35101735
Dig Site Location: 761 Anketell Road
Wandi
WA, 6167

DIAL BEFORE YOU DIG 1100 INFORMATION SHEET

This information relates to both underground and overhead network assets and is valid for 30 days from date of issue – 21/09/2023 11:44 AM

ENQUIRY SUMMARY:

We have identified this as a **large area extended enquiry**. You may have specified multiple locations, or projects covering large areas.

This reply is only to the location requested and is valid for 30 days. Where additional works are planned, that are not specified within scope of this request, then Western Power requires that an additional Dial Before You Dig enquiry be lodged.

Your options are:

1. Resubmit a new enquiry or enquiries to Dial Before You Dig, a with smaller scope (an approximate maximum route length of 1km) for a reply within two working days and to receive plans with better clarity.
2. If you wish a large printout(s) for better clarity, please :
 - a. Visit data.wa.gov.au to access Western Power geospatial data
 - b. You will require a SLIP account to proceed. Information about how to create an account can be found [here](#).
 - c. Once registered search 'Western Power' for access to all relevant GIS data
 - d. Download and overlay data to your mapping software giving you accurate asset information for your work

IMPORTANT CONTEXT

Network data obtained from the data.wa.gov.au does not replace the requirement to submit a Dial Before You Dig enquiry with a smaller scope before undertaking any work onsite. It is intended to be used for planning work in conjunction with your smaller scope plans.

NOT depicted on Western Power Dial Before You Dig Plans are:

- Cables within a private property
- Private cables belonging to government authorities
- Private streetlight cables belonging

A danger zone, Western Power easement and restriction zone represents an area of high risk when working and developing around the Western Power network. Danger zones apply only to

work around the network, whilst easement and restriction zone areas apply only to development and land use.

It is a requirement to work and develop outside of these areas so as far as is reasonably practicable. If you propose to work and/or develop within these areas, refer to the Western Power website for available information, services and lead times at <http://www.westernpower.com.au/safety-working-near-electricity.html> or by contacting Western Power's **Customer Service Centre** on **13 10 87**.

**IN THE EVENT OF DAMAGE
TO A WESTERN POWER ASSET
CALL WESTERN POWER FAULTS AND EMERGENCIES ON 13 13 51**

DISCLAIMER

The provisions of this Disclaimer cannot and do not purport to limit or otherwise exclude the application of, or any warranties, rights, powers or remedies under, any Commonwealth or Western Australian legislation that does not permit or otherwise makes void any such exclusion or limitation provisions, including but not limited to, section 18 of the *Competition and Consumer Act 2010 (Cth)*

Whilst Electricity Networks Corporation (trading as Western Power) and its officers, employees, agents, contractors, or advisers (Associates) have used their reasonable commercial endeavours to ensure that all and any of the information, statements or representations (if any) express or implied (including by silence) in this Information Sheet and accompanying or related plans, diagrams, drawings and data (Information) is correct, the Information is to be used as a guide only.

By taking the Information Sheet and/or making any use of the Information, all persons using or seeking to use the Information (Users) represent and warrant to Western Power and its Associates and each of them that they will comply with the obligations referred to in this Information Sheet and in the Information.

Subject always to the provisions in the first paragraph of this Disclaimer:

Western Power and each of its Associates:

- (1) do not make or give any representation or warranty, express or implied, as to the accuracy, reliability, currency, timeliness or completeness of;
- (2) disclaim to the fullest extent the law permits and will not be liable or responsible for, any liability, loss or damage, whether direct or indirect (and whether or not arising out of negligence, breach of duty or statutory duty, or lack of care, of Western Power and its Associates or of any of them) Users may suffer or incur arising out of, or in connection with, any use or reliance on; and
- (3) are under no obligation to correct, update or revise, the Information.

WATER CORPORATION UNDERGROUND ASSET DETAILS



629 Newcastle Street
Leederville, WA, 6007

PO Box 100
Leederville, WA, 6902

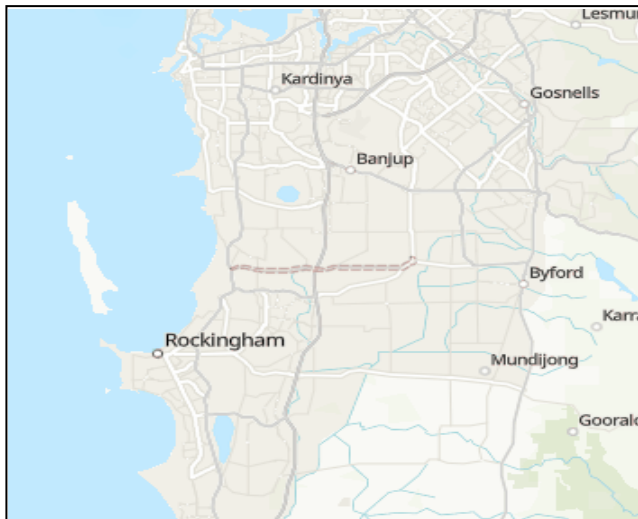
www.watercorporation.com.au
13 13 95

Requestor details

Brandon Henry
Senversa
190 Flinders Street
Adelaide SA 5000
Phone: +61417822624

Sequence No: **229946809**
BYDA Job No: 35101735
Enquiry Date: 21/09/2023
Issue Date: 21/09/2023

Requested location details



Address 761 Anketell Road
Wandi WA 6167

Note: The response for this enquiry has been interpreted from details in the picture location only.

EXCESSIVE ENQUIRY

The area you requested exceeds DBYD limits - please refer to the attached.

Overview

This BYD Response Form must be read in conjunction with the pipeline location information provided to you (the enquirer) by Mipela GeoSolutions on behalf of Australian Terminals Operations Management (ATOM).

When working in the vicinity of a pipeline you have certain legal obligations with which you must comply. The purpose of these obligations is to ensure the safety of people and prevent harm to the environment.

In commencing work in the vicinity of a pipeline following receipt of this BYD Response Form, you are deemed to have accepted the terms and conditions below.

Terms and Conditions

1. It is the responsibility of the BYD enquirer or any contractor engaged by the BYD enquirer to perform the construction or excavation to ensure that works in the vicinity of the pipeline are carried out in accordance with the relevant State Act and / or Regulation that deals with pipelines. These obligations include but are not limited to; not to obstruct the operation of a pipeline, not to tamper with a pipeline, not to dig near a pipeline and not to build near a pipeline.
2. Any construction or excavation work within **5 meters of any above - or below - ground ATOM Pipeline** requires ATOM approval. All requests for ATOM representation shall be made during normal business hours (9am-5pm AEST) by contacting the relevant Terminal or Facility as listed below. A minimum of 2 (two) business days' notice must be provided.
3. It is the responsibility of the BYD enquirer or any contractor engaged by the BYD enquirer performing the works to:
 - Request plans for the pipeline within a reasonable timeframe before construction is scheduled to commence,
 - Request ATOM personnel attend site to discuss work to be undertaken with a minimum of 2 (two) business days' notice,
 - Together with the ATOM representative, confirm the pipeline location on site,
4. The excavator or constructor engaged by the BYD enquirer shall ensure:
 - No mechanical equipment shall be used within 1m of the pipeline in any radial direction, even after the pipeline location has been proved, except when approved by, and under explicit "on-site" written direction from an ATOM representative,
 - Under no circumstances is mechanical equipment to be used closer than 0.3m to the pipeline. Exposure of a buried pipeline shall be performed by hand digging to minimise the risk of pipeline or coating damage,
 - The minimum clearance from a buried ATOM pipeline for any buried structure shall be no less than 0.3m,
 - The minimum clearance from a buried ATOM pipeline for parallel installations shall be no less than 0.5m,
 - Should the ATOM pipeline be exposed, all backfill within 150mm around the pipeline shall be clean sand in accordance with AS 2885.1,
 - Where boring is to take place under or over the ATOM pipeline, ATOM approved measures shall be employed to ensure that the ATOM pipeline and coating will not be damaged and a separation between the pipeline and bore is maintained,
 - Time allowance shall be made for ATOM to conduct Pipeline coating tests prior to backfilling to ensure that no coating damage has occurred due to the excavation works.

The enquirer who performs, or subcontracts the performance of, the work activity is responsible for any damage to ATOM owned or operated pipelines caused by the activity. ATOM reserves the right to recover compensation for damage and or loss caused by the damage and failure to follow the terms and conditions above.

Damage

Should any damage to the ATOM pipeline occur or be suspected to have occurred:

Immediately contact ATOM Emergency Hotline on 1800 293 292

1. Report Emergency as a Pipeline Incident
2. Give your name and your contact number
3. Give exact location of the incident
4. Describe the extent of the incident

In the event of pipeline damage or suspected damage, and if safe to do so:

- Remove all ignition sources from the area, including mobile phones and other portable electronic devices
- Switch off any motor vehicles or generators
- Establish an exclusion zone and control any entry into that zone until relieved by suitable emergency personnel

ATOM Contact Numbers				
Should you need to discuss your enquiry, or to organise works approvals, please contact the associated number below:				
TERMINAL	NAME	PHONE	MOBILE	EMAIL (@australianterminals.com)
Queensland				
Mackay	Daina Matthews		0404 967 330	Daina.matthews
	Michael Stephan		0467 888 019	Michael.Stephan
Gladstone	Terry Sawyer	(07) 4904 1143	0447 273 981	Terry.Sawyer
Bulwer Island	Ivana Kizur	(07) 3638 6754	0405 226 840	Ivana.Kizur
	Kelvin Pemberton	(07) 3638 6863	0448 555 035	Kelvin.Pemberton
New South Wales				
Newcastle	Roger Slee	(02) 4910 0474	0428 115 068	Roger.Slee
	Mick Powell	(02) 4910 0480	0404 452 713	Mick.Powell
Tasmania				
Burnie	Danny O'Mara	(03) 6431 4744	0428 570 455	Daniel.OMara
	Mark King		0439 424 514	Mark.King
Hobart	Matthew Heawood	(03) 6228 8615	0419 307 077	Matthew.Heawood
	Danny O'Mara	(03) 6431 4744	0428 570 455	Daniel.OMara
South Australia				
Largs North	Trevor Wigg	(08) 8242 8215	0438 005 424	Trevor.Wigg
	David Astbury	(08) 8242 8224	0407 059 666	David.Astbury
Western Australia				
Port Hedland	Brendon McCarthy		0499 501 511	Brendon.McCarthy
	Stephen Robinson	(08) 9148 1700	0419 995 860	Stephen.Robinson
Geraldton	John Hicks	(08) 9999 1700	0487 888 330	John.Hicks
	John Papadopoulos		0448 220 056	John.Papadopoulos
Kewdale	Trevor Cincotta		0404 817 226	Trevor.Cincotta
	Brett Hole		0436 316 762	Brett.Hole
Kwinana	Dean Mackenzie		0400 088 523	Dean.Mackenzie
North Fremantle	Craig Henson		0410 479 370	Craig.Henson
	Dean Mackenzie		0400 088 523	Dean.Mackenzie



Before You Dig Response Form

ATOM Contact Numbers				
Victoria				
Newport	Danny O'Mara Mark King	(03) 6431 4744	0428 570 455 0439 424 514	Daniel.OMara Mark.King

Dear Enquirer,

RE: EXTENDED ENQUIRIES

Your request has been identified as an Extended Enquiry.

Requests such as multiple locations, planning works and projects covering large areas, or long lengths are referred to as an Extended Enquiry.

Information on the Water Corporation services in an Extended Enquiry may be negotiated with either of the Water Corporation sections below. Please note that the information contained in your request through the Dial Before You Dig system **has not** been passed on.

Therefore –

For a response to your request by PDF files, please contact Technical Services on 13 13 95.

Alternatively, please contact Spatial Reporting on spatial.reporting@watercorporation.com.au with a copy of your Dial Before You Dig request.

Digital data files such as CAD or Shapefile are no longer available via this service. Digital datasets of Water Corporations data can be found on the Landgate data.wa.gov.au platform.

Through the link below you will find a list of downloadable asset data which are current and require only a free account with data.wa.gov.au to access.

<https://catalogue.data.wa.gov.au/dataset?organization=water-corporation>

Alternatively for **Land Developers only**, ESInet is an application which users can use to perform extractions of digital asset data in CAD format. This service also requires only a free account to use if one meets user criteria.

<https://esinet.watercorporation.com.au/>

With instructions here:

<https://www.watercorporation.com.au/-/media/files/builders-and-developers/esinet/help-on-how-to-use-esinet.pdf>

For urgent faults such as no water, overflows, security concerns about our assets and infrastructure, and any matter which may cause harm or danger, please call us on 13 13 75.



Appendix C: DMIRS FOI



Application for Access to Documents

Freedom of Information Application

Reference number: FOI-50186

Type of information

Type of information being requested

Non-Personal information

Your details

Applicant name

Miss Ruby Turnbull

Phone number

Mobile - 0484716766

Email address

ruby.turnbull@senversa.com.au

Australian postal address

Level 18, 140 St Georges Terrace Perth WA 6000

Organisation / business name

Senversa Pty Ltd

Your reference

P20806

Client details

Who are you applying on behalf of?

An organisation or business

Name of organisation or business you are representing

Main Roads Western Australia



Your request

Business area(s) your application relates to

Dangerous Goods

Environmental Compliance

Details of your request

Please refer attached image relating to FOI request items. This site comprises multiple land parcels, an image file has been provided. Shape files are not able to be uploaded - this has been emailed separately referencing this application.

Reason for your request

MainRoads is undertaking investigations along Anketell and Thomas Road for a widening transport corridor project. Senversa are the allocated consultant.

Supporting documents

Authority to act

MRWA Authority to act.pdf

Would you like to provide any other documents to support your application?

Yes

Other documents to support your application

Site_Boundary_Aerial.JPG

Consent

I consent to all 'personal information' of third parties being removed from the requested documents

Yes

I consent to my/my client's name being disclosed to any third party that is consulted as required by Sections 32 and 33 of the Freedom of Information Act 1992

Yes



Payment authority

Is the payment card that is being used to pay for this application in your name?

No

Card holder's name

Michael Charge

Card holder's email address

ruby.turnbull@sensversa.com.au

Declaration

I declare that all information in this application is true and correct.

I understand that obtaining access to personal information of another by deceit is an offence under section 109 of the *Freedom of Information Act 1992*.

I understand that any information provided will be classed as **OFFICIAL SENSITIVE** and be dealt with in accordance with the *Freedom of Information Act 1992* and the department's privacy policy.

I understand and accept the declaration on 25/08/2023 1:17:38 PM.

From: ERSKINE, Michelle <Michelle.ERSKINE@dmirs.wa.gov.au>
Sent: Friday, October 6, 2023 1:16 PM
To: Ruby Turnbull <Ruby.Turnbull@senversa.com.au>
Subject: *Response Required* Defining the Request for Documents and Request Extension of Time - DMS10880/2023 - Anketell and Thomas Road - due 13 October 2023

Good afternoon Ruby

We've identified one (1) open and ten (10) closed Dangerous Goods Site licence (DGS) along with fourteen (14) open and two (2) closed DG pipeline Registrations (DPL) for the site area requested. There are approximately 800 folios contained within the 27 files.

In order to assist you in the refining of the scope of your application, may I suggest that you define the request to the following:

- o Copy of the most recent Licence of each DGS and DPL;
- o Copy of the most recent Site plan of each DGS Licence showing locations of dangerous goods storage;
- o Documentation concerning spills or incidents for the DGS and DPL's.

In addition to the above, unfortunately, due to a significant fluctuation in staffing levels and influx of applications, the Department will be unable to provide you with a decision within the permitted period.

In light of this, we respectfully request an extension until **19 January 2024** to allow us to process the request to a decision.

We sincerely apologise for the delay and we are endeavouring to have your application processed as soon as possible.

Please advise me by **close of business 13 October 2023** if you agree with the above proposed scope and the extension of time.

If a response is not received by this date, and if our office is unable to finalise your application within the permitted period, this is considered a refusal in accordance with section 13(2) of the FOI Act. Review rights available to you can be found attached.

Please note that pursuant to s.20 of the FOI Act, the department may refuse to deal with an application if the request would divert substantial and reasonable amount of the departments resources away from its other operations.

If you have any queries or would like to discuss anything further please let me know.

Regards

Michelle Erskine | A/Coordinator Freedom of Information
Corporate Services Division

Department of Mines, Industry Regulation and Safety
100 Plain Street East Perth WA 6004
Tel: +61 8 9358 8145
michelle.erskine@dmirs.wa.gov.au | www.dmirs.wa.gov.au



We acknowledge Aboriginal and Torres Strait Islander people as the Traditional Custodians of this land on which we deliver our services. We pay our respects to elders and leaders past and present.



Appendix D: DWER FOI



Government of Western Australia
Department of Water and Environmental Regulation

Ruby Turnball
Senversa Pty Ltd
Level 18, 140 St Georges Tce
Perth WA 6000

Your ref: P20806 MRWA Anketell - Thomas Ro
Transport Corridor
Our ref: DMO 1858
Enquiries: Registrar
Phone: 1300 762 982
Fax: (08) 6364 7001
Email: info@dwer.wa.gov.au

Dear Sir/Madam

BASIC SUMMARY OF RECORDS REQUEST

Thank you for your Basic Summary of Records (BSR) request for the site consisting of the following parcel(s) of land:

- LOT 103 ON PLAN 3638 as shown on certificate of title 1781/803 known as 40 Bickley St, Naval Base WA 6165

which Department of Water and Environmental Regulation (the department) received on 02/10/2023

A search of the department's records of known and suspected contaminated sites was undertaken and the results of the search are attached for your information.

A guide on how to interpret the BSR response is also attached for your information.

General information on a Summary of Records and associated request forms is available from the department's website on [https://www.wa.gov.au/organisation/departments-of-water-and-environmental-regulation/contaminated-sites](https://www.wa.gov.au/organisation/departments/departments-of-water-and-environmental-regulation/contaminated-sites) or by contacting the Contaminated Sites Information Line on 1300 762 982.

Yours sincerely

Penny Woodberry, Manager

CONTAMINATED SITES REGULATION
Delegated Officer under section 91
of the *Contaminated Sites Act 2003*

10/10/2023

Enc. Basic Summary of Records
[How to interpret information on contaminated sites](#)
Receipt Number RR035819



Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 10:39:46AM, 10/10/2023

Receipt No: RR035819

ID No: 21215

Search Results

This response relates to a search request received for:

40 Bickley St
Naval Base, WA, 6165

This parcel belongs to a site that contains 35 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	40 Bickley St Naval Base, WA, 6165
Lot on Plan Address	Lot 103 On Plan 3638
Parcel Status	<p>Classification: 20/02/2009 - <i>Possibly contaminated - investigation required</i></p> <p>Nature and Extent of Contamination:</p> <p>Groundwater is contaminated with arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity.</p> <p>Restrictions on Use:</p> <p>Please refer to Reasons for Classification for further information on the contamination present at the Site.</p> <p>Reason for Classification:</p> <p>This Site was originally reported to the Department of Environment and Conservation (DEC) prior to the commencement of the 'Contaminated Sites Act 2003'. The Site was later reported in May 2007, as per reporting obligations under section 11 of the Act, following the completion of groundwater investigation and risk assessment works and again in September 2007.</p> <p>The Site classification is based on information submitted to DEC by December 2008.</p> <p>This Affected Site consisting of lands affected by groundwater contamination, is located to the north and east of an area used for the disposal of mineral processing waste from the adjacent bauxite/aluminium processing facility. The mineral processing waste disposal area is a source of groundwater contamination.</p> <p>The Affected Site was the subject of a Environmental and Health Qualitative Risk Assessment in May 2007 which referred extensively to earlier investigations and reports. DEC does not hold copies of the investigations and assessments referred to in this report and is therefore unable to comment on the completeness, effectiveness or accuracy of the investigation and/or remediation works undertaken or comment on the quality of soil and groundwater beneath the Affected Site.</p> <p>The May 2007 report includes a summary of the findings of a limited groundwater investigation</p>

Disclaimer

This Summary of Records has been prepared by Department of Water and Environmental Regulation (DWER) as a requirement of the Contaminated Sites Act 2003. DWER makes every effort to ensure the accuracy, currency and reliability of this information at the time it was prepared, however advises that due to the ability of contamination to potentially change in nature and extent over time, circumstances may have changed since the information was originally provided. Users must exercise their own skill and care when interpreting the information contained within this Summary of Records and, where applicable, obtain independent professional advice appropriate to their circumstances. In no event will DWER, its agents or employees be held responsible for any loss or damage arising from any use of or reliance on this information. Additionally, the Summary of Records must not be reproduced or supplied to third parties except in full and unabridged form.



Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 10:39:46AM, 10/10/2023

conducted in 2006. The groundwater investigations were not carried out in accordance with the standards set out in DEC's "Contaminated Sites Management Series" of guidelines and the extent of the groundwater contamination beneath the Affected Site has not been accurately delineated. The limited groundwater investigations did identified the presence of arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity at concentrations exceeding Australian Drinking Water criteria and Freshwater Ecosystem levels as set out in draft guideline "Assessment Levels for Soil, Sediment and Water" (DoE, 2003).

A screening risk assessment conducted in May 2007 commented on the estimated extent of groundwater contamination based on limited monitoring data and the findings from groundwater modelling and concluded that contamination was migrating from the Source Site beyond the Source Site boundary to the northwest. The nature and extent of the groundwater contamination has not been accurately defined.

As there are grounds to indicate possible contamination of the Affected Site and groundwater has not been fully investigated or subject to risk assessment, the Affected Site is classified as 'Possibly Contaminated - Investigation Required'.

DEC, in consultation with Department of Health, has classified this Site based on the information available to DEC at the time of classification. It is acknowledged that the contamination status of the Site may have changed since the information was collated and/or submitted to DEC, and as such, the usefulness of this information may be limited.

In accordance with Department of Health advice, if groundwater is being or is proposed to be abstracted, DEC recommends that analytical testing should be carried out to determine whether the groundwater is suitable for its intended use.

Certificate of Title Memorial

Under the Contaminated Sites Act 2003, this Site has been classified as "Possibly contaminated - investigation required". For further information on the contamination status of this Site, please contact the Contaminated Sites section of the Department of Environment & Conservation.

Current Regulatory Notice Issued

Type of Regulatory Notice: *Nil*

Date Issued: *Nil*

General

No other information relating to this parcel.

Disclaimer

This Summary of Records has been prepared by Department of Water and Environmental Regulation (DWER) as a requirement of the Contaminated Sites Act 2003. DWER makes every effort to ensure the accuracy, currency and reliability of this information at the time it was prepared, however advises that due to the ability of contamination to potentially change in nature and extent over time, circumstances may have changed since the information was originally provided. Users must exercise their own skill and care when interpreting the information contained within this Summary of Records and, where applicable, obtain independent professional advice appropriate to their circumstances. In no event will DWER, its agents or employees be held responsible for any loss or damage arising from any use of or reliance on this information. Additionally, the Summary of Records must not be reproduced or supplied to third parties except in full and unabridged form.



Government of Western Australia
Department of Water and Environmental Regulation

Ruby Turnball
Senversa Pty Ltd
Level 18, 140 St Georges Tce
Perth WA 6000

Your ref: P20806 MRWA Anketell - Thomas Ro
Transport Corridor
Our ref: DMO 3171
Enquiries: Registrar
Phone: 1300 762 982
Fax: (08) 6364 7001
Email: info@dwer.wa.gov.au

Dear Sir/Madam

BASIC SUMMARY OF RECORDS REQUEST

Thank you for your Basic Summary of Records (BSR) request for the site consisting of the following parcel(s) of land:

- LOT 2129 ON DEPOSITED PLAN 173137 as shown on certificate of title LR3121/701 known as 119 McLaughlan Rd, Postans WA 6167

which Department of Water and Environmental Regulation (the department) received on 02/10/2023

A search of the department's records of known and suspected contaminated sites was undertaken and the results of the search are attached for your information.

A guide on how to interpret the BSR response is also attached for your information.

General information on a Summary of Records and associated request forms is available from the department's website on [https://www.wa.gov.au/organisation/departments-of-water-and-environmental-regulation/contaminated-sites](https://www.wa.gov.au/organisation/departments/departments-of-water-and-environmental-regulation/contaminated-sites) or by contacting the Contaminated Sites Information Line on 1300 762 982.

Yours sincerely

Penny Woodberry, Manager

CONTAMINATED SITES REGULATION
Delegated Officer under section 91
of the *Contaminated Sites Act 2003*

10/10/2023

Enc. Basic Summary of Records
[How to interpret information on contaminated sites](#)
Receipt Number RR035819



Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 10:47:03AM, 10/10/2023

Receipt No: RR035819

ID No: 17713

Search Results

This response relates to a search request received for:

119 McLaughlan Rd
Postans, WA, 6167

This parcel belongs to a site that contains 2 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	119 McLaughlan Rd Postans, WA, 6167
Lot on Plan Address	Lot 2129 On Plan 173137
Parcel Status	<p>Classification: 01/07/2016 - <i>Possibly contaminated - investigation required</i></p> <p>Nature and Extent of Contamination:</p> <p>Elevated concentrations of nutrients are present in groundwater beneath the site.</p> <p>Restrictions on Use:</p> <p>Please refer to Reasons for Classification for further information on the contamination present at the site.</p> <p>Reason for Classification:</p> <p>This site was reported to the Department of Environment Regulation (DER) as per reporting obligations under section 11 of the 'Contaminated Sites Act 2003' (the Act), which commenced on 1 December 2006. The site classification is based on information submitted to DER by August 2014.</p> <p>This site is currently licensed under the Environmental Protection Act 1986 (licence number L6543/1991/10) to operate as a waste water treatment plant. A waste water treatment plant has operated at the site since the 1970s, and a composting facility has operated on the southern part of the site for approximately 10 years. These are land uses that have the potential to cause contamination, as specified in the guideline 'Assessment and management of contaminated sites' (DER, 2014).</p> <p>In April 2011, a spill of approximately 3000 litres of raw sewage was reported at the site, and a further 5000 litres was re-directed to an unlined bio-solids lagoon. DER understands that, following the spill, residual sludge and impacted soils in the area of the spill were excavated and removed from the site, and replaced with clean backfill soils. However, no documentation has been submitted to DER as evidence that the remedial works were successful. Hence, it is not certain whether impacted soils have been successfully remediated.</p> <p>Periodic groundwater monitoring is undertaken at the site under the conditions of Licence L6543/1991/10. The results of groundwater monitoring carried out from 2009 to 2013 show that</p>

Disclaimer

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 10:47:04AM, 10/10/2023

concentrations of nutrients (total nitrogen and total phosphorus) exceeded the South-west Australian aquatic ecosystems guidelines as published in Table 3.3.6 in the "Australian and New Zealand Guidelines for Fresh and Marine Water Quality" (Australian and New Zealand Environment and Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ), 2000). These are appropriate guidelines given the proximity of wetlands to the west and south-west of the site. Groundwater investigations carried out to date are limited and do not meet the standard required as outlined in DER's Contaminated Sites guidelines.

A report commissioned by the Australian Water Recycling Centre of Excellence was published in November 2015, providing a review of regional groundwater data, and including a hydrogeological model for groundwater flow in the vicinity of the wastewater treatment plant at this site. The report found that groundwater mounding beneath the infiltration ponds on the site causes surficial groundwater to flow in an easterly direction towards the Spectacles wetland. The report has demonstrated the presence of a pathway by which nutrient impacts may be transported to the nearby wetland, and further groundwater investigations and risk assessment is therefore required to assess the risk posed by nutrients and other potential contaminants to the wetland ecosystem..

A contamination assessment of the composting facility on the southern portion of the site was carried out in 2014. Soil analysis conducted as part of this investigation found that no potential contaminants were detected within the soils on the southern portion the site above Health or Ecological Investigation Levels as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment and Conservation, 2010), which were the relevant guidelines at that time. No groundwater investigations were included in this assessment and potential groundwater impacts resulting from operation of the composting facility remain uncharacterised.

Localised remediation works were carried out at the site in 2015 to remove minor amounts of asbestos containing materials (ACM) associated with the decommissioning of redundant infrastructure at the waste water treatment plant. Based on the information provided, all ACM-impacted soils associated with the decommissioning works have been successfully remediated.

As there are grounds to indicate possible contamination of the site and as soil and groundwater have not been fully investigated, and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, the site is classified as 'possibly contaminated - investigation required'.

DER, in consultation with the Department of Health, has classified this site based on the information available to DER at the time of classification. It is acknowledged that the contamination status of the site may have changed since the information was collated and/or submitted to DER, and as such, the usefulness of this information may be limited.

In accordance with Department of Health advice, if groundwater is being, or is proposed to be abstracted, DER recommends that analytical testing should be carried out to determine whether the groundwater is suitable for its intended use.

Action Required:

Further groundwater investigations are required to fully delineate and characterise the contamination status of groundwater beneath the site.

Ecological risk assessment is required to determine the risks posed by nutrient impacts in groundwater beneath the site to the adjacent 'Spectacles' conservation category wetland.

Disclaimer

This Summary of Records has been prepared by Department of Water and Environmental Regulation (DWER) as a requirement of the Contaminated Sites Act 2003. DWER makes every effort to ensure the accuracy, currency and reliability of this information at the time it was prepared, however advises that due to the ability of contamination to potentially change in nature and extent over time, circumstances may have changed since the information was originally provided. Users must exercise their own skill and care when interpreting the information contained within this Summary of Records and, where applicable, obtain independent professional advice appropriate to their circumstances. In no event will DWER, its agents or employees be held responsible for any loss or damage arising from any use of or reliance on this information. Additionally, the Summary of Records must not be reproduced or supplied to third parties except in full and unabridged form.



Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 10:47:04AM, 10/10/2023

Future investigations and risk assessments should include a full suite of potential contaminants associated with wastewater that has undergone secondary treatment.

Future investigations and risk assessments should be carried out and reported in accordance with the requirements of DER's Contaminated Sites Management Series of guidelines and the 'National Environment Protection (Assessment of Site Contamination) Measure 1999'.

Certificate of Title Memorial

Under the Contaminated Sites Act 2003, this site has been classified as "possibly contaminated - investigation required". For further information on the contamination status of this site, please contact Contaminated Sites at the Department of Environment Regulation.

Current Regulatory Notice Issued

Type of Regulatory Notice: *Nil*

Date Issued: *Nil*

General

No other information relating to this parcel.

Disclaimer

This Summary of Records has been prepared by Department of Water and Environmental Regulation (DWER) as a requirement of the Contaminated Sites Act 2003. DWER makes every effort to ensure the accuracy, currency and reliability of this information at the time it was prepared, however advises that due to the ability of contamination to potentially change in nature and extent over time, circumstances may have changed since the information was originally provided. Users must exercise their own skill and care when interpreting the information contained within this Summary of Records and, where applicable, obtain independent professional advice appropriate to their circumstances. In no event will DWER, its agents or employees be held responsible for any loss or damage arising from any use of or reliance on this information. Additionally, the Summary of Records must not be reproduced or supplied to third parties except in full and unabridged form.



Government of Western Australia
Department of Water and Environmental Regulation

Ruby Turnball
Senversa Pty Ltd
Level 18, 140 St Georges Tce
Perth WA 6000

Your ref: P20806 MRWA Anketell - Thomas Ro
Transport Corridor
Our ref: DMO 4003
Enquiries: Registrar
Phone: 1300 762 982
Fax: (08) 6364 7001
Email: info@dwer.wa.gov.au

Dear Sir/Madam

BASIC SUMMARY OF RECORDS REQUEST

Thank you for your Basic Summary of Records (BSR) request for the site consisting of the following parcel(s) of land:

- LOT 89 ON DEPOSITED PLAN 217732 as shown on certificate of title LR3120/388 known as 1No Site Address, Mandogalup WA 6167

which Department of Water and Environmental Regulation (the department) received on 02/10/2023

A search of the department's records of known and suspected contaminated sites was undertaken and the results of the search are attached for your information.

A guide on how to interpret the BSR response is also attached for your information.

General information on a Summary of Records and associated request forms is available from the department's website on [https://www.wa.gov.au/organisation/departments-of-water-and-environmental-regulation/contaminated-sites](https://www.wa.gov.au/organisation/departments/departments-of-water-and-environmental-regulation/contaminated-sites) or by contacting the Contaminated Sites Information Line on 1300 762 982.

Yours sincerely

Penny Woodberry, Manager

CONTAMINATED SITES REGULATION
Delegated Officer under section 91
of the *Contaminated Sites Act 2003*

10/10/2023

Enc. Basic Summary of Records
[How to interpret information on contaminated sites](#)
Receipt Number RR035819



Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 10:59:37AM, 10/10/2023

Receipt No: RR035819

ID No: 21651

Search Results

This response relates to a search request received for:

103 Mandogalup Rd
Mandogalup, WA, 6167

This parcel belongs to a site that contains 1 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	103 Mandogalup Rd Mandogalup, WA, 6167
Lot on Plan Address	Lot 89 On Plan 217732
Parcel Status	<p>Classification: 06/03/2009 - <i>Possibly contaminated - investigation required</i></p> <p>Nature and Extent of Contamination:</p> <p>Groundwater beneath the north west portion of the Affected Site is affected by an alkali groundwater contamination plume emanating from Lot 100 Anketell Road, Hope Valley (Source Site), to the west.</p> <p>Restrictions on Use:</p> <p>Please refer to Reasons for Classification for further information on the contamination present at the Affected Site.</p> <p>Reason for Classification:</p> <p>This Site was reported to the Department of Environment and Conservation (DEC) under section 11 of the 'Contaminated Sites Act 2003', which commenced on 1 December 2006. The Site classification is based on information submitted to DEC by January 2009.</p> <p>The Site is affected by a source of groundwater contamination extending eastward from the Source Site into the north western portion of the Affected Site.</p> <p>The Source Site operates as part of an alumina refinery operation and is located at Lot 100 Anketell Road, Hope Valley. The Affected Site is Lot 89 Mandogalup Road, Mandogalup.</p> <p>Groundwater investigations are undertaken periodically at the Source Site as per conditions set out within an Environmental Protection Act 1986 licence. Groundwater investigations conducted in 2007 identified that an alkali groundwater contamination plume may extend some 20 metres into the Affected Site from the alumina refinery residue area Source Site to the west. Groundwater contamination plumes from the Source Site are being actively managed by means of recovery bores and periodic monitoring.</p> <p>The investigations carried out were limited and do not meet the standard required as outlined in the DEC "Contaminated Sites Management Series" of guidelines. Further groundwater investigations are</p>

Disclaimer

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 10:59:38AM, 10/10/2023

required to delineate the lateral and vertical extent of the groundwater impact.

As the Affected Site has only been partially investigated, a comment cannot be made on the suitability of the Affected Site as a whole for any proposed land use.

As there are grounds to indicate possible contamination of the Affected Site and groundwater has not been fully investigated or subject to risk assessment, the Affected Site is classified as 'Possibly Contaminated - Investigation Required'.

DEC, in consultation with Department of Health, has classified this Affected Site based on the information available to DEC at the time of classification. It is acknowledged that the contamination status of the Affected Site may have changed since the information was collated and/or submitted to DEC, and as such, the usefulness of this information may be limited.

In accordance with Department of Health advice, if groundwater is being or is proposed to be abstracted, DEC recommends that analytical testing should be carried out to determine whether the groundwater is suitable for its intended use.

Certificate of Title Memorial

Under the Contaminated Sites Act 2003, this Site has been classified as "Possibly contaminated - investigation required". For further information on the contamination status of this Site, please contact the Contaminated Sites section of the Department of Environment & Conservation.

Current Regulatory Notice Issued

Type of Regulatory Notice: *Nil*

Date Issued: *Nil*

General

No other information relating to this parcel.

Disclaimer

This Summary of Records has been prepared by Department of Water and Environmental Regulation (DWER) as a requirement of the Contaminated Sites Act 2003. DWER makes every effort to ensure the accuracy, currency and reliability of this information at the time it was prepared, however advises that due to the ability of contamination to potentially change in nature and extent over time, circumstances may have changed since the information was originally provided. Users must exercise their own skill and care when interpreting the information contained within this Summary of Records and, where applicable, obtain independent professional advice appropriate to their circumstances. In no event will DWER, its agents or employees be held responsible for any loss or damage arising from any use of or reliance on this information. Additionally, the Summary of Records must not be reproduced or supplied to third parties except in full and unabridged form.



Government of Western Australia
Department of Water and Environmental Regulation

Ruby Turnball
Sensversa Pty Ltd
Level 18, 140 St Georges Tce
Perth WA 6000

Your ref: P20806 MRWA Anketell - Thomas Ro:
Transport Corridor
Our ref: DMO 5083
Enquiries: Registrar
Phone: 1300 762 982
Fax: (08) 6364 7001
Email: info@dwer.wa.gov.au

Dear Sir/Madam

BASIC SUMMARY OF RECORDS REQUEST

Thank you for your Basic Summary of Records (BSR) request for the site consisting of the following parcel(s) of land:

- LOT 52 ON DIAGRAM 18462 as shown on certificate of title 1227/60 known as No Site Address, Naval Base WA 6165

which Department of Water and Environmental Regulation (the department) received on 02/10/2023

A search of the department's records of known and suspected contaminated sites was undertaken and the results of the search are attached for your information.

A guide on how to interpret the BSR response is also attached for your information.

General information on a Summary of Records and associated request forms is available from the department's website on <https://www.wa.gov.au/organisation/departments/departments-of-water-and-environmental-regulation/contaminated-sites> or by contacting the Contaminated Sites Information Line on 1300 762 982.

Yours sincerely

Penny Woodberry, Manager

CONTAMINATED SITES REGULATION
Delegated Officer under section 91
of the *Contaminated Sites Act 2003*

10/10/2023

Enc. Basic Summary of Records
[How to interpret information on contaminated sites](#)
Receipt Number RR035819



Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 11:07:02AM, 10/10/2023

Receipt No: RR035819

ID No: 29825

Search Results

This response relates to a search request received for:

Lot 52 On Diagram 18462
Naval Base, WA, 6165

This parcel belongs to a site that contains 1 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	Lot 52 On Diagram 18462 Naval Base, WA, 6165
Lot on Plan Address	Lot 52 On Diagram 18462
Parcel Status	<p>Classification: 05/02/2010 - <i>Possibly contaminated - investigation required</i></p> <p>Nature and Extent of Contamination:</p> <p>No soil or groundwater investigations have been carried out and the quality of the soils and groundwater is unknown.</p> <p>Restrictions on Use:</p> <p>Please refer to Reasons for Classification for further information on the contamination present at the Site.</p> <p>Reason for Classification:</p> <p>This Site was reported to the Department of Environment and Conservation (DEC) as per reporting obligations under section 11 of the 'Contaminated Sites Act 2003', which commenced on 1 December 2006. The Site classification is based on information submitted to DEC by December 2009.</p> <p>The Site was reported following a leak from a cooling water pipeline in October 2009 that resulted in the loss of one million litres of saline cooling water to surrounding soils and underlying groundwater. The cooling water was alkaline and contained elevated levels of sodium hydroxide and sodium carbonate.</p> <p>No soil or groundwater investigations have been carried out, and the quality of soil and groundwater beneath the Site is unknown.</p> <p>The Site was subject to soil remediation works including the partial excavation of impacted soils. Due to safety reasons some impacted soils were retained beneath high voltage electrical infrastructure and pipeline supports within the Site. The resultant excavations were infilled with gypsum and clean fill material. DEC holds no information on the effectiveness or completeness of the remediation works undertaken.</p> <p>As the Site has not been adequately investigated, or subject to risk assessment, a comment cannot</p>

Disclaimer

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 11:07:02AM, 10/10/2023

be made on the suitability of the Site as a whole for the existing or future land use or whether the Site represents a risk to health, the environment or any environmental value.

As there are grounds to indicate possible contamination of the Site, and since a suitable investigation of soil or groundwater and a risk assessment to determine the risk to human health, the environment, or any environmental value, has not been carried out, further works are required to determine the contamination status of the Site. The Site is therefore been classified as "Possibly Contaminated - Investigation Required".

When the results of investigations are submitted to DEC, these will be reviewed and the Site may be re-classified.

DEC, in consultation with Department of Health, has classified this Site based on the information available at the time of classification. It is acknowledged that the contamination status may have changed since this time, and as such the usefulness of this information may be limited.

In accordance with Department of Health advice if groundwater is being, or is proposed to be, abstracted DEC recommends that analytical testing should be carried out to determine whether the groundwater is suitable for its intended use.

Certificate of Title Memorial

Under the Contaminated Sites Act 2003, this Site has been classified as "Possibly contaminated - investigation required". For further information on the contamination status of this Site, please contact the Contaminated Sites section of the Department of Environment & Conservation.

Current Regulatory Notice Issued

Type of Regulatory Notice: *Nil*

Date Issued: *Nil*

General

No other information relating to this parcel.

Disclaimer

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Government of Western Australia
Department of Water and Environmental Regulation

Ruby Turnball
Senversa Pty Ltd
Level 18, 140 St Georges Tce
Perth WA 6000

Your ref: P20806 MRWA Anketell - Thomas Ro:
Transport Corridor
Our ref: DMO 11140
Enquiries: Registrar
Phone: 1300 762 982
Fax: (08) 6364 7001
Email: info@dwer.wa.gov.au

Dear Sir/Madam

BASIC SUMMARY OF RECORDS REQUEST

Thank you for your Basic Summary of Records (BSR) request for the site consisting of the following parcel(s) of land:

- LOT 112 ON DIAGRAM 88143 as shown on certificate of title 2215/263 known as 205 Abercrombie Rd, Hope Valley WA 6165

which Department of Water and Environmental Regulation (the department) received on 02/10/2023

A search of the department's records of known and suspected contaminated sites was undertaken and the results of the search are attached for your information.

A guide on how to interpret the BSR response is also attached for your information.

General information on a Summary of Records and associated request forms is available from the department's website on <https://www.wa.gov.au/organisation/departments/departments-of-water-and-environmental-regulation/contaminated-sites> or by contacting the Contaminated Sites Information Line on 1300 762 982.

Yours sincerely

Penny Woodberry, Manager

CONTAMINATED SITES REGULATION
Delegated Officer under section 91
of the *Contaminated Sites Act 2003*

10/10/2023

Enc. Basic Summary of Records
[How to interpret information on contaminated sites](#)
Receipt Number RR035819



Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 11:15:01AM, 10/10/2023

Receipt No: RR035819

ID No: 74386

Search Results

This response relates to a search request received for:

205 Abercrombie Rd
Hope Valley, WA, 6165

This parcel belongs to a site that contains 3 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	205 Abercrombie Rd Hope Valley, WA, 6165
Lot on Plan Address	Lot 112 On Diagram 88143
Parcel Status	<p>Classification: 25/10/2018 - <i>Possibly contaminated - investigation required</i></p> <p>Nature and Extent of Contamination:</p> <p>Groundwater beneath the site is affected by an alkaline plume migrating from Lot 501 Anketell Road, Hope Valley.</p> <p>Restrictions on Use:</p> <p>Please refer to Reasons for Classification for further information on the potential contamination present at the site.</p> <p>Reason for Classification:</p> <p>This site was reported to the Department of Water and Environmental Regulation (DWER) under section 11 of the 'Contaminated Sites Act 2003' (the Act), which commenced on 1 December 2006.</p> <p>The site has been classified under section 13 of the Act based on information submitted to DWER by September 2018.</p> <p>The site is affected by groundwater contamination that extends westward from the source site crossing into adjacent Abercrombie Road reserve and under the eastern portions of adjoining free hold land.</p> <p>The source site operates as part of an alumina refinery operation and is located at Lot 501 Anketell Road, Hope Valley. Groundwater investigations are undertaken periodically at the source site as per conditions set out within an Environmental Protection Act 1986 licence.</p> <p>The source site has a 'residue storage area' (RSA) that contains process waste which is classified separately under the Contaminated Sites Act 2003.</p> <p>The contaminants of potential concern were found in groundwater at the western boundary of the RSA at concentrations exceeding the non-potable water use criteria as specified in the guideline</p>

Disclaimer

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 11:15:01AM, 10/10/2023

'Assessment and management of contaminated sites' (Department of Environment Regulation, 2014). The site was impacted by groundwater migrated from the RSA, located at the adjoining piece of land. This criteria is relevant because groundwater within the area may be abstracted for stock-water, potable and non-potable use.

There are grounds to indicate possible contamination of the site and since soil and groundwater have not been investigated, the site is classified as 'possibly contaminated - investigation required'.

A memorial stating the site's classification has been placed on the certificate of title, and will notify any prospective owners of the contamination status of the site.

When the results of further soil and groundwater investigations are submitted to DWER, these will be reviewed, and the site may be reclassified.

DWER, in consultation with the Department of Health, has classified this site based on the information available to DWER at the time of classification. It is acknowledged that the contamination status of the site may have changed since the information was collated and/or submitted to DWER, and as such, the usefulness of this information may be limited.

In accordance with Department of Health advice, if groundwater is being, or is proposed to be abstracted, DWER recommends that analytical testing should be carried out to determine whether the groundwater is suitable for its intended use.

Other Relevant Information:

Additional information included herein is relevant to the contamination status of the site and includes DWER's expectations for action that should be taken to address potential or actual contamination described in the Reasons for Classification.

Based on the available information, contamination present on this site has originated from the adjacent land at Lot 501 on plan 72707, which has been classified separately under the CS Act. Therefore this site is consistent with the definition of an "affected site" as specified in Part 1, Section 3 of the Act. Under the Act, the person responsible for the remediation of a source site is also responsible for remediation of any related affected sites.

Action Required:

A risk assessment is required to determine potential risk to human health, the environment or any environmental value, both on-site and/or off-site, and should include an assessment of all potential receptors, including site users, residents, down-gradient groundwater users.

Further groundwater investigations are required to adequately delineate and characterise the nature and extent of contamination across the site. Investigations are to meet the standards set out in Department of Water and Environmental Regulation's contaminated sites guidelines and the 'National Environment Protection (Assessment of Site Contamination) Measure 1999'.

Under the Act, the person responsible for the remediation of a source site is also responsible for remediation of any related affected sites.

Disclaimer

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 11:15:01AM, 10/10/2023

Certificate of Title Memorial

Under the Contaminated Sites Act 2003, this site has been classified as "possibly contaminated - investigation required". For further information on the contamination status of this site, please contact Contaminated Sites at the Department of Water and Environmental Regulation.

Current Regulatory Notice Issued

Type of Regulatory Notice: *Nil*

Date Issued: *Nil*

General

No other information relating to this parcel.

Disclaimer

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Government of Western Australia
Department of Water and Environmental Regulation

Ruby Turnball
Senversa Pty Ltd
Level 18, 140 St Georges Tce
Perth WA 6000

Your ref: P20806 MRWA Anketell - Thomas Ro:
Transport Corridor
Our ref: DMO 11158
Enquiries: Registrar
Phone: 1300 762 982
Fax: (08) 6364 7001
Email: info@dwer.wa.gov.au

Dear Sir/Madam

BASIC SUMMARY OF RECORDS REQUEST

Thank you for your Basic Summary of Records (BSR) request for the site consisting of the following parcel(s) of land:

- LOT 102 ON PLAN 3638 as shown on certificate of title 1781/802 known as 38 Bickley St, Naval Base WA 6165

which Department of Water and Environmental Regulation (the department) received on 02/10/2023

A search of the department's records of known and suspected contaminated sites was undertaken and the results of the search are attached for your information.

A guide on how to interpret the BSR response is also attached for your information.

General information on a Summary of Records and associated request forms is available from the department's website on [https://www.wa.gov.au/organisation/departments-of-water-and-environmental-regulation/contaminated-sites](https://www.wa.gov.au/organisation/departments/departments-of-water-and-environmental-regulation/contaminated-sites) or by contacting the Contaminated Sites Information Line on 1300 762 982.

Yours sincerely

Penny Woodberry, Manager

CONTAMINATED SITES REGULATION
Delegated Officer under section 91
of the *Contaminated Sites Act 2003*

10/10/2023

Enc. Basic Summary of Records
[How to interpret information on contaminated sites](#)
Receipt Number RR035819



Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 11:21:25AM, 10/10/2023

Receipt No: RR035819

ID No: 74521

Search Results

This response relates to a search request received for:

38 Bickley St
Naval Base, WA, 6165

This parcel belongs to a site that contains 5 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	38 Bickley St Naval Base, WA, 6165
Lot on Plan Address	Lot 102 On Plan 3638
Parcel Status	<p>Classification: 17/04/2019 - <i>Possibly contaminated - investigation required</i></p> <p>Nature and Extent of Contamination:</p> <p>Elevated concentrations of aluminium and arsenic are potentially present in groundwater beneath the site.</p> <p>Restrictions on Use:</p> <p>Please refer to Reasons for Classification for further information on the potential contamination present at the site.</p> <p>Reason for Classification:</p> <p>This site was reported to the Department of Water and Environmental Regulation (DWER) as per reporting obligations under section 11 of the 'Contaminated Sites Act 2003' (the Act), which commenced on 1 December 2006. The site has been classified under section 13 of the Act based on information submitted to DWER by January 2019.</p> <p>This site, which comprises 38 Bickley Street, Naval Base and portions of Henry Street and Bickley Street road reserves, was reported to DWER as it is suspected to be impacted by an aluminium and arsenic groundwater plume extending from nearby retired alumina Residue Storage Areas ABC located to the south of the site.</p> <p>Groundwater investigations have detected aluminium and arsenic in groundwater (at a depth of approximately 44 metres below ground level) originating from Residue Storage Areas ABC, at concentrations exceeding assessment levels non-potable use of groundwater, as published in the guideline 'Assessment and management of contaminated sites' (Department of Environment Regulation, 2014). This criteria is relevant because groundwater may potentially be abstracted for non-potable uses.</p> <p>The report is based on an inference that similar concentrations of aluminium and arsenic may be present in groundwater beneath Bickley Street road reserve and 38 Bickley Street, Naval Base.</p>

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 11:21:26AM, 10/10/2023

The report indicates that substances in groundwater pose a potentially unacceptable risk to the environmental value of groundwater and a potential risk to human health if bore water is used for non-potable purposes such as garden irrigation. However, the available information does not indicate that the site is not suitable for ongoing industrial, commercial and road reserve related land uses.

Soil quality at the site has not been investigated. However, the available information provides no indication to suspect contamination within shallow soils at the site.

As there are grounds to indicate possible contamination within groundwater beneath the site, and a contamination assessment to determine the risk to human health, the environment and environmental values has not been carried out, the site is classified 'possibly contaminated - investigation required'.

A memorial stating the site's classification has been placed on the certificate of title, and will notify any prospective owners of the contamination status of the site.

When the results of further groundwater investigations are submitted to DWER, these will be reviewed, and the site may be reclassified.

DWER, in consultation with the Department of Health, has classified this site based on the information available to DWER at the time of classification. It is acknowledged that the contamination status of the site may have changed since the information was collated and/or submitted to DWER, and as such, the usefulness of this information may be limited.

In accordance with Department of Health advice, if groundwater is being, or is proposed to be abstracted, DWER recommends that analytical testing should be carried out to determine whether the groundwater is suitable for its intended use.

Other Relevant Information:

Additional information included herein is relevant to the contamination status of the site and includes DWER's expectations for action that should be taken to address potential or actual contamination described in the Reasons for Classification.

Based on the available information, contamination if present beneath this site has originated from a source site to the south, which has been classified separately under the Act. Therefore this site is consistent with the definition of an "affected site" as specified in Part 1, Section 3 of the Act. Under the Act, the person responsible for the remediation of a source site is also responsible for remediation of any related affected sites.

In accordance with Regulation 31(1)(b) of the 'Contaminated Sites Regulations 2006', reports or information submitted to DWER that are relevant to the investigation, assessment, monitoring or remediation of a source site (which includes affected sites) are required to be accompanied by a mandatory auditor's report (MAR) prepared by an accredited contaminated sites auditor.

Please refer to Reasons for Classification and Other Relevant Information for further information on the contamination present at the site.

Action Required:

Further groundwater investigations are required to fully characterise and delineate the lateral and

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 11:21:26AM, 10/10/2023

	<p>vertical extent of groundwater contamination beneath the site (associated with the source). A preliminary site investigation, hydrogeological conceptual site model and sampling, analysis and quality plan for the source site (retired Residue Storage Areas ABC) and any affected sites should be completed by 30 June 2019 and provided to the appointed Contaminated Sites Auditor.</p> <p>Investigations are to be carried out in accordance with DWER's Contaminated Sites Guidelines and the 'National Environment Protection (Assessment of Site Contamination) Measure 1999' (the NEPM).</p> <p>A Mandatory Auditor's Report, documenting review of the above reports and any additional contamination related information, should be submitted to DWER by December 2019.</p>
Certificate of Title Memorial	<p>Under the Contaminated Sites Act 2003, this site has been classified as "possibly contaminated - investigation required". For further information on the contamination status of this site, please contact Contaminated Sites at the Department of Water and Environmental Regulation.</p>
Current Regulatory Notice Issued	<p>Type of Regulatory Notice: <i>Nil</i></p> <p>Date Issued: <i>Nil</i></p>
General	<p>No other information relating to this parcel.</p>

Disclaimer

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Appendix E: Contaminated Sites Database



Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 02:42:42PM, 12/09/2023

Receipt No:

ID No: 15657

Search Results

This response relates to a search request received for:

4 Anketell Rd
Kwinana Beach, WA, 6167

This parcel belongs to a site that contains 7 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	4 Anketell Rd Kwinana Beach, WA, 6167
Lot on Plan Address	Lot 51 On Plan 20582
Parcel Status	<p>Classification: 20/02/2009 - Contaminated - remediation required</p> <p>Nature and Extent of Contamination:</p> <p>No soil investigations have been carried out and the quality of the soils are unknown.</p> <p>Groundwater is contaminated with arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity.</p> <p>Restrictions on Use:</p> <p>The land use of the Site is restricted to commercial/industrial use which excludes childcare centres, kindergartens, pre-schools and primary schools.</p> <p>Groundwater is not suitable for use (including garden or public open space irrigation) without treatment for the presence of arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity contamination.</p> <p>Groundwater abstraction, as part of an on-going groundwater remediation program, is permitted provided all groundwater is sent to an appropriate disposal facility.</p> <p>No soils may be excavated or disturbed without the implementation of a health, safety and environmental management plan.</p> <p>Reason for Classification:</p> <p>This Site was originally reported to the Department of Environment and Conservation (DEC) prior to the commencement of the 'Contaminated Sites Act 2003'. The Site was later reported in May and June 2007, as per reporting obligations under section 11 of the Act, following the completion of groundwater investigation and risk assessment works and again in September 2007.</p>

Disclaimer

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 02:42:43PM, 12/09/2023

The Site classification is based on information submitted to DEC by December 2008.

The Source Site has been used for the disposal of mineral processing waste from the adjacent buaxite/aluminium processing facility, and for a pipeline for the transportation of mineral processing waste and operating landfill, land uses that has the potential to cause contamination, as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004).

The Source Site comprised three slurry lagoons, each lined with a minimum of 0.39m of compacted sand and clay, used for the dewatering and disposal of liquid mineral processing waste between 1960 and 1973. In 1973 the operator found that effluent in the lagoons was entering the underlying groundwater and migrating off Site.

The Source Site is currently used as a motor vehicle race track and ancillary buildings, workshops, carparking, open space and inert landfill. A mineral waste pipeline traverses the Source Site, extending to the east along Anketell Road.

The Source Site was the subject of a Environmental and Health Qualitative Risk Assessment in May 2007 which referred extensively to earlier investigations and reports. DEC does not hold copies of the investigations and assessments referred to in this report and is therefore unable to comment on the completeness, effectiveness or accuracy of the investigation and/or remediation works undertaken or comment on the quality of soil and groundwater beneath the Source Site.

The May 2007 report includes a summary of the findings of a limited groundwater investigation conducted in 2006. The groundwater investigations were not carried out in accordance with the standards set out in DEC's "Contaminated Sites Management Series" of guidelines and the extent of the groundwater contamination beneath the Source Site has not been accurately delineated. The limited groundwater investigations identified the presence of arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity at concentrations exceeding Australian Drinking Water criteria and Freshwater Ecosystem levels as set out in draft guideline "Assessment Levels for Soil, Sediment and Water" (DoE, 2003).

A screening risk assessment conducted in May 2007 commented on the estimated extent of groundwater contamination based on limited monitoring data and the findings from groundwater modelling and concluded that contamination was migrating from the Source Site beyond the Site boundary to the northwest.

The Source Site was the subject of an on-going groundwater remediation program comprising deliquoring and lowering groundwater levels by abstraction and the capping and drainage of parts of the Source Site to reduce rainwater infiltration. A further remedial program is planned comprising a network of deliquoring bores to lower the water table and reduce rates of liquor leakage from the residue pond areas; capping of the current carparking area to reduce rainfall and irrigation infiltration; and installation of an additional groundwater recovery bore to improve groundwater contaminant plume recovery. Additional works including the installation of a low permeability cap over the remaining surfaces of the retired residue areas to further reduce infiltration and maximise deliquoring and contaminated groundwater recovery efforts are also planned.

As the Source Site is known to be contaminated, is subject to remediation activities and requires risk management measures to reduce the risks to human health, the environment or any environmental value to acceptable levels, the Source Site is classified as "Contaminated - Remediation Required".

Disclaimer

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 02:42:43PM, 12/09/2023

	<p>As the former aluminium residue area is a Source Site, future reports on investigation, assessment, monitoring or remediation of the Site which are submitted to DEC will need to be accompanied by a Mandatory Auditor's Report, in accordance with regulation 31(1)(b) of the Contaminated Sites Regulations 2006.</p> <p>DEC, in consultation with Department of Health, has classified this Site based on the information available to DEC at the time of classification. It is acknowledged that the contamination status of the Site may have changed since the information was collated and/or submitted to DEC, and as such, the usefulness of this information may be limited.</p>
Certificate of Title Memorial	<p>Under the Contaminated Sites Act 2003, this Site has been classified as "Contaminated - remediation required". An instrument affecting land which comprises all or part of, this Site will not be registered or accepted for registration, unless the CEO of the Department of Environment & Conservation consents to the registration in writing. For further information on the contamination status of this Site, or this restriction, please contact the Contaminated Sites section of the Department of Environment & Conservation.</p>
Current Regulatory Notice Issued	<p>Type of Regulatory Notice: <i>Nil</i></p> <p>Date Issued: <i>Nil</i></p>
General	<p>No other information relating to this parcel.</p>

Disclaimer

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Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 02:33:07PM, 12/09/2023

Search Results

Receipt No:

ID No: 15659

This response relates to a search request received for:

Lot 114 On Plan 48295
Postans, WA, 6167

This parcel belongs to a site that contains 7 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	Lot 114 On Plan 48295 Postans, WA, 6167
Lot on Plan Address	Lot 114 On Plan 48295
Parcel Status	<p>Classification: 20/02/2009 - Contaminated - remediation required</p> <p>Nature and Extent of Contamination:</p> <p>No soil investigations have been carried out and the quality of the soils are unknown.</p> <p>Groundwater is contaminated with arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity.</p> <p>Restrictions on Use:</p> <p>The land use of the Site is restricted to commercial/industrial use which excludes childcare centres, kindergartens, pre-schools and primary schools.</p> <p>Groundwater is not suitable for use (including garden or public open space irrigation) without treatment for the presence of arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity contamination.</p> <p>Groundwater abstraction, as part of an on-going groundwater remediation program, is permitted provided all groundwater is sent to an appropriate disposal facility.</p> <p>No soils may be excavated or disturbed without the implementation of a health, safety and environmental management plan.</p> <p>Reason for Classification:</p> <p>This Site was originally reported to the Department of Environment and Conservation (DEC) prior to the commencement of the 'Contaminated Sites Act 2003'. The Site was later reported in May and June 2007, as per reporting obligations under section 11 of the Act, following the completion of groundwater investigation and risk assessment works and again in September 2007.</p>

Disclaimer

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 02:33:08PM, 12/09/2023

The Site classification is based on information submitted to DEC by December 2008.

The Source Site has been used for the disposal of mineral processing waste from the adjacent buaxite/aluminium processing facility, and for a pipeline for the transportation of mineral processing waste and operating landfill, land uses that has the potential to cause contamination, as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004).

The Source Site comprised three slurry lagoons, each lined with a minimum of 0.39m of compacted sand and clay, used for the dewatering and disposal of liquid mineral processing waste between 1960 and 1973. In 1973 the operator found that effluent in the lagoons was entering the underlying groundwater and migrating off Site.

The Source Site is currently used as a motor vehicle race track and ancillary buildings, workshops, carparking, open space and inert landfill. A mineral waste pipeline traverses the Source Site, extending to the east along Anketell Road.

The Source Site was the subject of a Environmental and Health Qualitative Risk Assessment in May 2007 which referred extensively to earlier investigations and reports. DEC does not hold copies of the investigations and assessments referred to in this report and is therefore unable to comment on the completeness, effectiveness or accuracy of the investigation and/or remediation works undertaken or comment on the quality of soil and groundwater beneath the Source Site.

The May 2007 report includes a summary of the findings of a limited groundwater investigation conducted in 2006. The groundwater investigations were not carried out in accordance with the standards set out in DEC's "Contaminated Sites Management Series" of guidelines and the extent of the groundwater contamination beneath the Source Site has not been accurately delineated. The limited groundwater investigations identified the presence of arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity at concentrations exceeding Australian Drinking Water criteria and Freshwater Ecosystem levels as set out in draft guideline "Assessment Levels for Soil, Sediment and Water" (DoE, 2003).

A screening risk assessment conducted in May 2007 commented on the estimated extent of groundwater contamination based on limited monitoring data and the findings from groundwater modelling and concluded that contamination was migrating from the Source Site beyond the Site boundary to the northwest.

The Source Site was the subject of an on-going groundwater remediation program comprising deliquoring and lowering groundwater levels by abstraction and the capping and drainage of parts of the Source Site to reduce rainwater infiltration. A further remedial program is planned comprising a network of deliquoring bores to lower the water table and reduce rates of liquor leakage from the residue pond areas; capping of the current carparking area to reduce rainfall and irrigation infiltration; and installation of an additional groundwater recovery bore to improve groundwater contaminant plume recovery. Additional works including the installation of a low permeability cap over the remaining surfaces of the retired residue areas to further reduce infiltration and maximise deliquoring and contaminated groundwater recovery efforts are also planned.

As the Source Site is known to be contaminated, is subject to remediation activities and requires risk management measures to reduce the risks to human health, the environment or any environmental value to acceptable levels, the Source Site is classified as "Contaminated - Remediation Required".

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 02:33:08PM, 12/09/2023

	<p>As the former aluminium residue area is a Source Site, future reports on investigation, assessment, monitoring or remediation of the Site which are submitted to DEC will need to be accompanied by a Mandatory Auditor's Report, in accordance with regulation 31(1)(b) of the Contaminated Sites Regulations 2006.</p> <p>DEC, in consultation with Department of Health, has classified this Site based on the information available to DEC at the time of classification. It is acknowledged that the contamination status of the Site may have changed since the information was collated and/or submitted to DEC, and as such, the usefulness of this information may be limited.</p>
Certificate of Title Memorial	<p>Under the Contaminated Sites Act 2003, this Site has been classified as "Contaminated - remediation required". An instrument affecting land which comprises all or part of, this Site will not be registered or accepted for registration, unless the CEO of the Department of Environment & Conservation consents to the registration in writing. For further information on the contamination status of this Site, or this restriction, please contact the Contaminated Sites section of the Department of Environment & Conservation.</p>
Current Regulatory Notice Issued	<p>Type of Regulatory Notice: <i>Nil</i></p> <p>Date Issued: <i>Nil</i></p>
General	<p>No other information relating to this parcel.</p>

Disclaimer

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Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 02:41:13PM, 12/09/2023

Search Results

Receipt No:

ID No: 15660

This response relates to a search request received for:

Lot 114 On Plan 48295
Postans, WA, 6167

This parcel belongs to a site that contains 7 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	Lot 114 On Plan 48295 Postans, WA, 6167
Lot on Plan Address	Lot 114 On Plan 48295
Parcel Status	<p>Classification: 20/02/2009 - <i>Contaminated - remediation required</i></p> <p>Nature and Extent of Contamination:</p> <p>No soil investigations have been carried out and the quality of the soils are unknown.</p> <p>Groundwater is contaminated with arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity.</p> <p>Restrictions on Use:</p> <p>The land use of the Site is restricted to commercial/industrial use which excludes childcare centres, kindergartens, pre-schools and primary schools.</p> <p>Groundwater is not suitable for use (including garden or public open space irrigation) without treatment for the presence of arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity contamination.</p> <p>Groundwater abstraction, as part of an on-going groundwater remediation program, is permitted provided all groundwater is sent to an appropriate disposal facility.</p> <p>No soils may be excavated or disturbed without the implementation of a health, safety and environmental management plan.</p> <p>Reason for Classification:</p> <p>This Site was originally reported to the Department of Environment and Conservation (DEC) prior to the commencement of the 'Contaminated Sites Act 2003'. The Site was later reported in May and June 2007, as per reporting obligations under section 11 of the Act, following the completion of groundwater investigation and risk assessment works and again in September 2007.</p>

Disclaimer

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 02:41:14PM, 12/09/2023

The Site classification is based on information submitted to DEC by December 2008.

The Source Site has been used for the disposal of mineral processing waste from the adjacent buaxite/aluminium processing facility, and for a pipeline for the transportation of mineral processing waste and operating landfill, land uses that has the potential to cause contamination, as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004).

The Source Site comprised three slurry lagoons, each lined with a minimum of 0.39m of compacted sand and clay, used for the dewatering and disposal of liquid mineral processing waste between 1960 and 1973. In 1973 the operator found that effluent in the lagoons was entering the underlying groundwater and migrating off Site.

The Source Site is currently used as a motor vehicle race track and ancillary buildings, workshops, carparking, open space and inert landfill. A mineral waste pipeline traverses the Source Site, extending to the east along Anketell Road.

The Source Site was the subject of a Environmental and Health Qualitative Risk Assessment in May 2007 which referred extensively to earlier investigations and reports. DEC does not hold copies of the investigations and assessments referred to in this report and is therefore unable to comment on the completeness, effectiveness or accuracy of the investigation and/or remediation works undertaken or comment on the quality of soil and groundwater beneath the Source Site.

The May 2007 report includes a summary of the findings of a limited groundwater investigation conducted in 2006. The groundwater investigations were not carried out in accordance with the standards set out in DEC's "Contaminated Sites Management Series" of guidelines and the extent of the groundwater contamination beneath the Source Site has not been accurately delineated. The limited groundwater investigations identified the presence of arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity at concentrations exceeding Australian Drinking Water criteria and Freshwater Ecosystem levels as set out in draft guideline "Assessment Levels for Soil, Sediment and Water" (DoE, 2003).

A screening risk assessment conducted in May 2007 commented on the estimated extent of groundwater contamination based on limited monitoring data and the findings from groundwater modelling and concluded that contamination was migrating from the Source Site beyond the Site boundary to the northwest.

The Source Site was the subject of an on-going groundwater remediation program comprising deliquoring and lowering groundwater levels by abstraction and the capping and drainage of parts of the Source Site to reduce rainwater infiltration. A further remedial program is planned comprising a network of deliquoring bores to lower the water table and reduce rates of liquor leakage from the residue pond areas; capping of the current carparking area to reduce rainfall and irrigation infiltration; and installation of an additional groundwater recovery bore to improve groundwater contaminant plume recovery. Additional works including the installation of a low permeability cap over the remaining surfaces of the retired residue areas to further reduce infiltration and maximise deliquoring and contaminated groundwater recovery efforts are also planned.

As the Source Site is known to be contaminated, is subject to remediation activities and requires risk management measures to reduce the risks to human health, the environment or any environmental value to acceptable levels, the Source Site is classified as "Contaminated - Remediation Required".

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 02:41:14PM, 12/09/2023

	<p>As the former aluminium residue area is a Source Site, future reports on investigation, assessment, monitoring or remediation of the Site which are submitted to DEC will need to be accompanied by a Mandatory Auditor's Report, in accordance with regulation 31(1)(b) of the Contaminated Sites Regulations 2006.</p> <p>DEC, in consultation with Department of Health, has classified this Site based on the information available to DEC at the time of classification. It is acknowledged that the contamination status of the Site may have changed since the information was collated and/or submitted to DEC, and as such, the usefulness of this information may be limited.</p>
Certificate of Title Memorial	<p>Under the Contaminated Sites Act 2003, this Site has been classified as "Contaminated - remediation required". An instrument affecting land which comprises all or part of, this Site will not be registered or accepted for registration, unless the CEO of the Department of Environment & Conservation consents to the registration in writing. For further information on the contamination status of this Site, or this restriction, please contact the Contaminated Sites section of the Department of Environment & Conservation.</p>
Current Regulatory Notice Issued	<p>Type of Regulatory Notice: <i>Nil</i></p> <p>Date Issued: <i>Nil</i></p>
General	<p>No other information relating to this parcel.</p>

Disclaimer

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Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 02:53:48PM, 12/09/2023

Receipt No:

ID No: 22596

Search Results

This response relates to a search request received for:

27 Weston St
Naval Base, WA, 6165

This parcel belongs to a site that contains 2 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	27 Weston St Naval Base, WA, 6165
Lot on Plan Address	Lot 2 On Diagram 42807
Parcel Status	<p>Classification: 06/07/2017 - <i>Remediated for restricted use</i></p> <p>Nature and Extent of Contamination:</p> <p>Hydrocarbons (such as from petrol or diesel) are present in groundwater beneath the site.</p> <p>Restrictions on Use:</p> <p>Groundwater beneath this site is not suitable for use without treatment for the presence of hydrocarbon contamination.</p> <p>The land use of the site is restricted to commercial/industrial use, or use as a road reserve. The site should not be developed for a more sensitive use such as recreational open space, residential use or childcare centres without further contamination assessment and/or remediation.</p> <p>A basement should not be constructed at the site without further contamination assessment and/or remediation.</p> <p>Reason for Classification:</p> <p>This site was reported to the former Department of Environment Regulation (DER) as per reporting obligations under section 11 of the 'Contaminated Sites Act 2003' (the Act), which commenced on 1 December 2006. The site was first classified under section 13 of the Act based on information submitted to DER by July 2010. The site has been classified again under section 13 of the Act to reflect additional technical information submitted to DER by May 2017.</p> <p>This site was used as a service station for approximately 38 years, from 1971 to 2009. The service station was located at 27 Weston Street, Naval Base, but part of the underground fuel storage infrastructure was located in the Weston Street road reserve until it was removed in 2009. Fuel storage and service stations are land uses that have the potential to cause contamination, as specified in the guideline 'Assessment and management of contaminated sites' (DER 2014).</p>

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 02:53:49PM, 12/09/2023

The site was reported because a contamination assessment undertaken in 2009 found hydrocarbons (such as from petrol or diesel) in soils beneath the site. A series of contamination assessments were subsequently carried out, followed by remedial works, including the excavation and off-site disposal of contaminated soils.

At the conclusion of remedial works in 2009, some contaminated soil remained at the site, and hydrocarbons (such as from petrol or diesel) were present in groundwater.

A review of soil data was carried out in 2015, and published in an environmental site assessment report dated February 2017. The review found that the hydrocarbons (such as from petrol or diesel) were present in soil at three metres below ground level, in the north-eastern section of the former forecourt, at concentrations exceeding health screening levels for vapour intrusion on commercial and industrial land, as published in the 'National Environment Protection (Assessment of Site Contamination) Measure 1999' (the NEPM).

No contaminants were detected within surface soils, or soils less than three metres below ground level, at concentrations exceeding other relevant health-based assessment levels for commercial and industrial land, as published in the NEPM.

Following the soil data review, soil vapour investigations were carried out in October 2015 and April 2016. Hydrocarbon vapours (such as from petrol or diesel) were not detected in soil vapour, indicating that soil conditions at the site are not likely to pose a vapour intrusion risk to commercial or industrial site users.

The results of soil and soil vapour assessments indicate that conditions at the site are not likely to pose a risk to the health of commercial or industrial site users, or workers carrying out excavations beneath the site.

Groundwater investigations carried out in 2009 found dissolved hydrocarbons (such as from petrol or diesel) in groundwater at concentrations suggesting that light non-aqueous phase liquid (petrol or diesel) was likely to be present at the site. Light non-aqueous phase liquid was observed in groundwater beneath the site in April 2016, when groundwater elevations were at a historical low, but was not observed again in subsequent monitoring.

Based on groundwater monitoring carried out between 2015 and 2017, hydrocarbons (such as from petrol or diesel) were present in groundwater beneath the site at concentrations exceeding assessment levels for drinking water multiplied by a factor of ten, as published in 'Petroleum Products in Drinking Water' (World Health Organisation, 2008). Groundwater investigation reports provided to DER used these criteria for the assessment of non-potable groundwater use, such as garden irrigation, in the absence of a relevant Western Australian guideline for the substances detected.

An assessment of hydrocarbon plume degradation behaviour was carried out based on groundwater monitoring data collected between September 2015 and March 2017. The assessment found that natural attenuation had likely resulted in a reduction in groundwater contamination since 2009.

A risk assessment has indicated that contamination present on the site does not currently pose an unacceptable risk to human health, the environment or environmental values under the current commercial/industrial land use. However, the contamination may present an unacceptable risk to human health under a more sensitive land use.

Based on the information provided, the site appears suitable for continued commercial/industrial use,

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 02:53:49PM, 12/09/2023

but may not be suitable for more sensitive land uses, such as residential housing or child care centres. Groundwater is not suitable for use without testing and treatment for the presence of hydrocarbon contamination.

The site is contaminated and has been remediated such that it is suitable for continued commercial/industrial use, but may not be suitable for a more sensitive land use. Therefore, the site is classified as 'remediated for restricted use'.

A memorial stating the site's classification has been placed on the certificate of title, and will trigger the need for further investigations and risk assessment should the site be proposed for a more sensitive land use.

DER, in consultation with the Department of Health, has classified this site based on the information available to DER at the time of classification. It is acknowledged that the contamination status of the site may have changed since the information was collated and/submitted to DER, and as such, the usefulness of this information may be limited.

Action Required:

Please refer to the restrictions on use.

Certificate of Title Memorial

Under the Contaminated Sites Act 2003, this site has been classified as "remediated for restricted use". For further information on the contamination status of this site, please contact Contaminated Sites at the Department of Water and Environmental Regulation.

Current Regulatory Notice Issued

Type of Regulatory Notice: *Nil*

Date Issued: *Nil*

General

No other information relating to this parcel.

Disclaimer

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Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 02:13:57PM, 12/09/2023

Search Results

Receipt No:

ID No: 74385

This response relates to a search request received for:

Lot 501 On Plan 72707
Hope Valley, WA, 6165

This parcel belongs to a site that contains 1 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	Lot 501 On Plan 72707 Hope Valley, WA, 6165
Lot on Plan Address	Lot 501 On Plan 72707
Parcel Status	<p>Classification: 06/03/2009 - <i>Contaminated - remediation required</i></p> <p>Nature and Extent of Contamination:</p> <p>Alkali groundwater plumes are present beneath the Source Site.</p> <p>Restrictions on Use:</p> <p>Abstraction of groundwater at the Source Site is restricted to remediation of contamination and industrial refinery purposes.</p> <p>The land use of the Source Site is restricted to non-sensitive commercial/industrial use.</p> <p>Reason for Classification:</p> <p>This Site was reported to the Department of Environment and Conservation (DEC) prior to the commencement of the 'Contaminated Sites Act 2003'. The Site classification is based on information submitted to DEC by 31 May 2007.</p> <p>The Site operates as part of an alumina refining operation. The Site infrastructure includes alumina refinery residue storage and disposal areas, cooling ponds, pipelines and a network of groundwater recovery and monitoring bores. These are land uses that have the potential to cause contamination, as specified in the guideline 'Potentially Contaminating Activities, Industries and Land uses' (Department of Environment, 2004).</p> <p>This Site comprises a source of alkali groundwater contamination that has migrated to affect a parcel of land to the east. The Affected Site has been classified separately.</p> <p>The Source Site is Lot 100 Anketell Road, Hope Valley. The Affected Site is Lot 89 Mandogalup Road, Mandogalup.</p> <p>Periodic groundwater investigations are undertaken at the Source Site as a condition of the licence for the Source Site under the Environmental Protection Act 1986. Groundwater investigations</p>

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 02:13:57PM, 12/09/2023

conducted in 2006 identified the presence of elevated pH, alkalinity, electrical conductivity and salinity. The investigations found that this poor groundwater quality was caused by leaking of sodium carbonate and sodium hydroxide from refinery residue storage ponds. The groundwater investigations were limited in nature and did not meet the standards set out in DEC's "Contaminated Sites Management Series" of guidelines and the extent of the groundwater contamination beneath the Source Site has not been accurately delineated.

Groundwater contamination plumes at the Source Site are being actively managed by means of recovery bores, natural attenuation and periodic monitoring.

The Source Site has only been partially investigated and reported to Contaminated Sites Branch of DEC; as such a comment cannot be made on the suitability of the Source Site as a whole for a land use.

As remedial works are in progress but not yet completed, the Source Site is classified as 'contaminated - remediation required'.

As the alumina refinery residue area site is a Source Site, future reports on investigation, assessment, monitoring or remediation of the Source and Affected Sites which are submitted to DEC will need to be accompanied by a Mandatory Auditor's Report, in accordance with regulation 31(1)(b) of the Contaminated Sites Regulations 2006.

DEC, in consultation with Department of Health, has classified this Source Site based on the information available to DEC at the time of classification. It is acknowledged that the contamination status of the Source Site may have changed since the information was collated and/or submitted to DEC, and as such, the usefulness of this information may be limited.

Certificate of Title Memorial

Under the Contaminated Sites Act 2003, this Site has been classified as "Contaminated - remediation required". An instrument affecting land which comprises all, or part of, this Site will not be registered or accepted for registration, unless the CEO of the Department of Environment & Conservation consents to the registration in writing. For further information on the contamination status of this Site, or this restriction, please contact the Contaminated Sites section of the Department of Environment & Conservation.

Current Regulatory Notice Issued

Type of Regulatory Notice: *Nil*

Date Issued: *Nil*

General

No other information relating to this parcel.

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Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 02:46:56PM, 12/09/2023

Receipt No:

ID No: 81975

Search Results

This response relates to a search request received for:

12 Leath Rd
Kwinana Beach, WA, 6167

This parcel belongs to a site that contains 10 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	12 Leath Rd Kwinana Beach, WA, 6167
Lot on Plan Address	Lot 2 On Deposited Plan 419343
Parcel Status	<p>Classification: 07/11/2008 - <i>Contaminated - restricted use</i></p> <p>Nature and Extent of Contamination:</p> <p>Groundwater monitoring carried out in 2001 shows the presence of nitrate contamination in groundwater underlying the Site.</p> <p>Soils contain widespread industrial slag and cinders that contain heavy metals.</p> <p>Restrictions on Use:</p> <p>The Site is restricted to use for industrial and commercial land uses, excluding primary schools, childcare facilities and other sensitive commercial landuses.</p> <p>Reason for Classification:</p> <p>This Site was originally reported to the Department of Environment and Conservation (DEC) prior to commencement of the 'Contaminated Sites Act 2003', and was reported again as per reporting obligations under section 11 of the Act, which commenced on 1 December 2006. The Site classification is based on information submitted to the Department by May 2007 including groundwater monitoring information obtained from investigations carried out in 2002.</p> <p>The Site forms part of a larger industrial complex area that was subject to a variety of industrial uses since 1954 including blast furnace power house, steel merchant, raw material and product storage, production waste deposal, including the disposal of slag, dusts and demolition waste, mixed and putrescible wastes. These are land uses that have the potential to cause contamination as per the guideline "Potentially Contaminating Activities, Industries and Land Uses" (Department of Environment, October 2004).</p> <p>Soil investigations were carried out between 2000 and 2003. The investigations were carried out in accordance with the standards set out in DEC's "Contaminated Sites Management Series" of guidelines. The soil investigations identified widespread industrial slag and cinders within the Site that were found to contain slightly elevated concentrations of heavy metals exceeding ecological</p>

Disclaimer

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 02:46:56PM, 12/09/2023

investigation but below health investigation levels (for industrial and commercial uses) as published in the guideline "Assessment Levels for Soil, Sediment and Water" (Department of Environment, draft November 2003). A leachability study conducted on the impacted soils found no evidence of risk to the underlying groundwater from the leaching of soil contamination.

DEC is aware that the Site is connected to scheme water for drinking supply purposes but groundwater from the Site may be available to be used for public open space irrigation or other industrial purposes. The groundwater investigation identified the widespread presence of nitrate contamination at concentrations exceeding Marine Water Ecosystems criteria as published in guideline "Assessment Levels for Soil, Sediment and Water" (Department of Environment, draft November 2003), although no potential contaminants were detected above ten times the 'Australian Drinking Water Guidelines' (2004) as per the 'Contaminated Sites Reporting Guideline for Chemicals in Groundwater' (Department of Health, 2006).

The soil investigations carried out included a preliminary assessment of human health risk (i.e. a Tier 1 Risk Assessment) to determine the Site's suitability for the continuation of the current industrial land use. Based on the information provided, the Site appears suitable for the continuation of industrial land use.

As the Site is known to be contaminated but has been subject to a health risk assessment that has shown that the Site is suitable for industrial and commercial land uses, except primary schools, childcare facilities and other sensitive commercial landuses, the Site is classified as 'Contaminated - restricted use'.

In the event that the Site is to be used for any other, more sensitive land use, further investigations and risk assessment will be required to demonstrate the Sites suitability for the proposed land use.

DEC in consultation with the Department of Health, has classified this Site based on the information available at the time of classification. It is acknowledged that the contamination status may have changed since this time, and as such the usefulness of this information may be limited.

In accordance with Department of Health advice if groundwater is being, or is proposed to be, abstracted DEC recommends that analytical testing should be carried out to determine whether the groundwater is suitable for its intended use.

Certificate of Title Memorial

Under the Contaminated Sites Act 2003, this Site has been classified as "Contaminated - restricted use". For further information on the contamination status of this Site, please contact the Contaminated Sites section of the Department of Environment & Conservation.

Current Regulatory Notice Issued

Type of Regulatory Notice: Nil

Date Issued: Nil

General

No other information relating to this parcel.

Disclaimer

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Contaminated Sites Act 2003 Basic Summary of Records Search Response

Report generated at 01:25:07PM, 20/12/2023

Receipt No:

ID No: 81972

Search Results

This response relates to a search request received for:

12 Leath Rd
Kwinana Beach, WA, 6167

This parcel belongs to a site that contains 11 parcel(s).

According to Department of Water and Environmental Regulation records, this land has been reported as a known or suspected contaminated site.

Address	12 Leath Rd Kwinana Beach, WA, 6167
Lot on Plan Address	Lot 2 On Deposited Plan 419343
Parcel Status	<p>Classification: 20/10/2008 - <i>Contaminated - restricted use</i></p> <p>Nature and Extent of Contamination:</p> <p>Soil investigations have been carried out that has identified hydrocarbon residues within the surface soils within a drainage sump on-Site.</p> <p>Groundwater monitoring carried out in 2001 shows the presence of nitrate contamination in groundwater underlying the Site.</p> <p>Restrictions on Use:</p> <p>No groundwater may be abstracted from the Site without carrying out analysis in accordance with Department of Health guidelines to determine its suitability for use.</p> <p>Reason for Classification:</p> <p>This Site was reported to the Department of Environment and Conservation (DEC) as per reporting obligations under section 11 of the 'Contaminated Sites Act 2003', which commenced on 1 December 2006. The Site classification is based on information submitted to the Department by May 2007 supplemented by groundwater monitoring information obtained from investigations carried out in 2002 on properties adjacent to the north and east of the Site.</p> <p>The Site forms part of a larger industrial complex area that was subject to a variety of industrial uses since 1954 including blast furnace power house, steel merchant, raw material and product storage, production waste deposal, including the disposal of slag, dusts and demolition waste, mixed and putrescible wastes. These are landuses that have the potential to cause contamination as per the guideline "Potentially Contaminating Activities, Industries and Land Uses" (Department of Environment, October 2004).</p> <p>Soil investigations were carried out between 2000 and 2007 as part of the completion of the extension of the existing liquid petroleum gas plant operated on the Site.</p>

Disclaimer

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Contaminated Sites Act 2003

Basic Summary of Records Search Response

Report generated at 01:25:07PM, 20/12/2023

The investigations were carried out in accordance with the standards set out in DEC's "Contaminated Sites Management Series" of guidelines. The soil investigations identified widespread industrial slag and cinders within the Site that were found to contain slightly elevated concentrations of heavy metals exceeding ecological investigation but below health investigation levels (for industrial and commercial uses) as published in the guideline "Assessment Levels for Soil, Sediment and Water" (Department of Environment, draft November 2003). A further soil investigation identified petroleum hydrocarbon contamination (i.e. fuel oils) in the surface soils within a drainage sump on-Site. A leachability study conducted on the impacted soils found no evidence of risk to the underlying groundwater from the leaching of soil contamination.

The groundwater investigation identified the widespread presence of nitrate contamination at concentrations exceeding Marine Water Ecosystems criteria as published in guideline "Assessment Levels for Soil, Sediment and Water" (Department of Environment, draft November 2003).

In 2007 an investigation of stockpiled soils excavated from the Site was conducted. The soils were analysed and found to be of a standard suitable for off-Site disposal to a Class 1 landfill site in accordance with DoE "Landfill Waste Classification and Waste Definitions" (1996).

The soil investigations carried out included a preliminary assessment of health risk (i.e. a Tier 1 Risk Assessment) to determine the Site's suitability for the continuation of the current industrial land use. Based on the information provided, the Site appears suitable for the continuation of industrial land use, subject to restrictions on the abstraction and use of groundwater.

As the Site is known to be contaminated but has been subject to a health risk assessment that has shown that the Site is suitable for certain restricted land uses, the Site is classified as 'Contaminated - restricted use' with restrictions on the abstraction and use of groundwater.

In the event that the Site is to be used for any other, more sensitive land use, further investigations and risk assessment may be required to demonstrate the Sites suitability for the proposed land use.

DEC, in consultation with the Department on Health, has classified this Site based on the information available at the time of classification. It is acknowledged that the contamination status may have changed since this time, and as such the usefulness of this information may be limited.

Certificate of Title Memorial

Under the Contaminated Sites Act 2003, this Site has been classified as "Contaminated - restricted use". For further information on the contamination status of this Site, please contact the Contaminated Sites section of the Department of Environment & Conservation.

Current Regulatory Notice Issued

Type of Regulatory Notice: *Nil*

Date Issued: *Nil*

General

No other information relating to this parcel.

Disclaimer

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Appendix F: Site Photographs



Photo 1, Point ID 6 [14/08/23] Spectacles Dr



Photo 1, Point ID 6 [14/08/23] Gate to the Spectacles wetland



Photo 3, Point ID 7 [14/08/23] Underground utility indicator, McLaughlan Rd south off Anketell Rd



Photo 4, Point ID 8[14/08/23] Cleared area, McLaughlan Rd south off Anketell Rd



Photo 5, Point ID 9 [14/08/23] Powerline, south of Anketell Rd



Photo 6, Point ID 10 [14/08/23] Cleared area, south of Anketell Rd





Photo 7, Point ID 11 [14/08/23] Corner of Anketell Rd/McLaughlan Rd.



Photo 8, Point ID 12 [14/08/23] Tracks, corner of Anketell Rd/McLaughlan Rd.



Photo 9, Point ID 13 [14/08/23] Tracks, adjacent Anketell Rd/McLaughlan Rd intersection



Photo 10, Point ID 14 [14/08/23] Fly tipping - Tyres, Anketell Rd/McLaughlan Rd intersection



Photo 11, Point ID 15 [14/08/23] Tracks, south of Anketell Rd



Photo 12, Point ID 16 [14/08/23] Tracks, south of Anketell Rd





Photo 13, Point ID 17 [14/08/23] Underground utility (communication), south of Anketell Rd



Photo 14, Point ID 18 [14/08/23] Debris, south of Anketell Rd



Photo 15, Point ID 19 [14/08/23] Fly Tipping - Mattress, on Anketell Rd/McLaughlan Rd intersection



Photo 16, Point ID 20 [14/08/23] Dirt tracks, adjacent Anketell Rd/McLaughlan Rd intersection



Photo 17, Point ID 21[14/08/23] Laydown area, corner pf Anketell Rd, and Abercrombie Rd intersection.



Photo 18, Point 22 [14/08/23] Odorous bitumen waste, Anketell Rd, and Abercrombie Rd intersection.





Photo 18, Point ID 23 [14/08/23] Sump, corner of Anketell Rd, and Abercrombie Rd intersection



Photo 19, Point ID 24 [14/08/23] Stockpile incl. bitumen, Anketell Rd, and Abercrombie Rd intersection



Photo 20, Point 25 [14/08/23] Unsealed track, east of Abercrombie Rd.



Photo 21, Point 26 [14/08/23] Sodium Hydroxide Pipeline, east side of Abercrombie Rd.

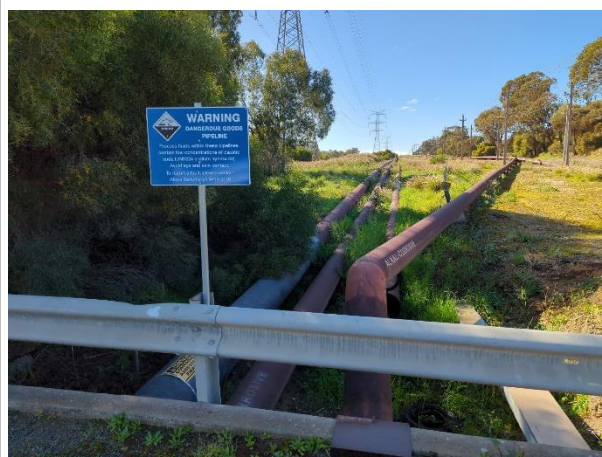


Photo 22, Point 26 [14/08/23] Sodium Hydroxide pipeline underpass, east of Abercrombie Rd.



Photo 23, Point 26 [14/08/23] Sodium Hydroxide pipeline, Asbestos signage, east of Abercrombie Rd





Photo 24. Point ID 27 [14/08/23] Sodium Hydroxide Pipeline & power lines east of Abercrombie Rd.



Photo 25, Point ID 28 [14/08/23] Sodium Hydroxide Pipeline east of Abercrombie Rd.



Photo 26, Point ID 29 [14/08/23] Gate, eclipse resources western boundary.



Photo 27, Point ID 30 [14/08/23] Grassed area, Eclipse Resources western boundary.



Photo 28, Point ID 31 [14/08/23] WA limestone quarry operations, east of Abercrombie Rd.



Photo 29, Point ID 32 [14/08/23] Terrain not suitable for heavy vehicles – gaps bridge, east of Abercrombie Rd/





Photo 30, Point ID 33 [14/08/23] Fly tipped material - furniture, dirt track perpendicular (east) of Abercrombie road.



Photo 31, Point ID 34 [14/08/23] Fly tipped material - tyres, dirt track perpendicular (east) of Abercrombie road



Photo 32, Pint ID 35 [14/08/23] Fly tipped material - Mattress, dirt track perpendicular (east) of Abercrombie road



Photo 33, Point ID 36 [14/08/23] Fly tipped material - miscellaneous, dirt track perpendicular (east) of Abercrombie road.



Photo 34, Point ID 37 [14/08/23] Fly tipped material – tyres, dirt track perpendicular (east) of Abercrombie road.



Photo 35, Point ID 37 [14/08/23] Fly tipped material on dirt track perpendicular (east) of Abercrombie road.





Photo 36, Point ID 38 [14/08/23] Fly tipped material – Gyprock, dirt track perpendicular (east) of Abercrombie road.



Photo 37, Point ID 39 [14/08/23] Fly tipped material, dirt track perpendicular (east) of Abercrombie road.



Photo 38, Point ID 40[14/08/23] Fly tipped material – white goods, dirt track perpendicular (east) of Abercrombie road.



Photo 39, Point ID 41 [14/08/23] Fly tipped material - tyres, dirt track perpendicular (east) of Abercrombie road.



Photo 40, Point ID 42 [14/08/23] Fly tipped material, dirt track perpendicular (east) of Abercrombie road.



Photo 41, Point ID 43 [14/08/23] Fly tipping on dirt track, (east) of Abercrombie road.





Photo 42, Point ID 43 [14/08/23] Oil with Spill



Photo 43, Point ID 44 [14/08/23] Fly tipped material, dirt track east of Abercrombie road.



Photo 44, Point ID 45 [14/08/23] Track and powerlines, east of Abercrombie rd.

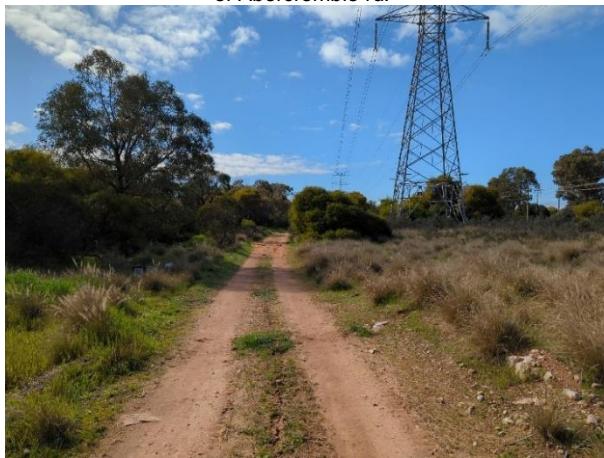


Photo 45, Point ID 46 [14/08/23] Cement sheet fencing on dirt track east of Abercrombie rd.



Photo 46, Point ID 47 [14/08/23] Tracks, south of Anketell Rd north of Kwinana Motorplex.



Photo 47, Point ID 48 [14/08/23] MW, south of Anketell Rd, north of Kwinana Motorplex.





Photo 48, Point ID 49 [14/08/23] Tracks, south of Anketell Rd, east of Rockingham Rd.



Photo 49, Point ID 50 [14/08/23] Monitoring bore, south of Anketell Rd, east of Rockingham Rd.



Photo 50, Point ID 51 [14/08/23] Track, south of Anketell Rd, east of Rockingham Rd.



Photo 51, Point ID 52 [14/08/23] Underground gas pipeline signage, south of Anketell Rd, East of Rockingham Rd.

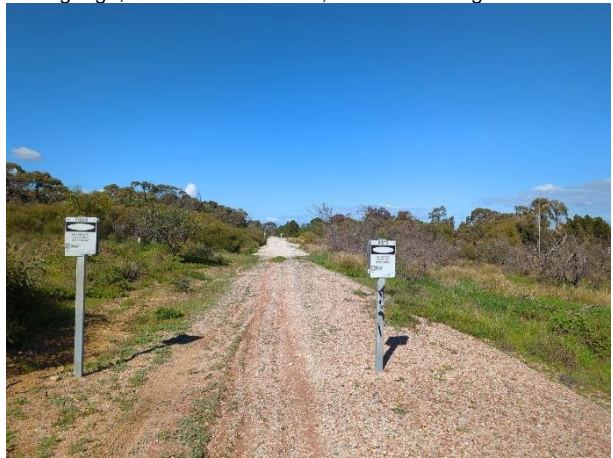


Photo 52, Point ID 53 [14/08/23] Vegetation and powerlines, south of Anketell Rd, east of Rockingham Rd.



Photo 53, Point ID 54 [14/08/23] Slip Road, south of Anketell Rd, north of Kwinana Motorplex.





Photo 54, Point ID 56 [14/08/23] Leath Rd west of Anketell/Rockingham Rd intersection.



Photo 55, Point ID 57 [14/08/23] Liberty depot, northeast of Rockingham Rd, Anketell Rd intersection.



Photo 56, Point ID 58 [14/08/23] Northern Project Boundary, Investigation Dr, north of Anketell Rd.



Photo 57, Pay ID 59 [14/08/23] Footpath, north of Anketell Rd



Photo 58, Point ID 60 [14/08/23] Fenced off road, underground gas pipeline signage, Conway Rd, north of Anketell Rd.



Photo 59, Point ID 61 [14/08/23] Lot boundary, Conway Rd cul de sac, north of Anketell Rd east of Rockingham Rd.





Photo 60, Point ID 61 [14/08/23] Signage – road works warning of McLaren Avenue and Armstrong Rd.



Photo 61, Point ID 62 [14/08/23] Buried gas pipeline, north of Anketell Rd, south of industrial area.



Photo 62, Point ID 63 [14/08/23] Fenced paddock, powerlines, north of Anketell Rd/Abercrombie Rd roundabout to the east of Alumina Refinery.

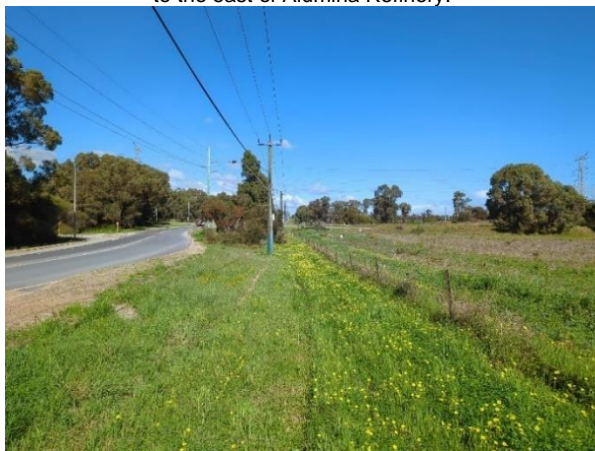


Photo 63, Point ID 64 [14/08/23] Fenced boundary of Alumina Refinery, north of Anketell Rd/Abercrombie Rd roundabout.

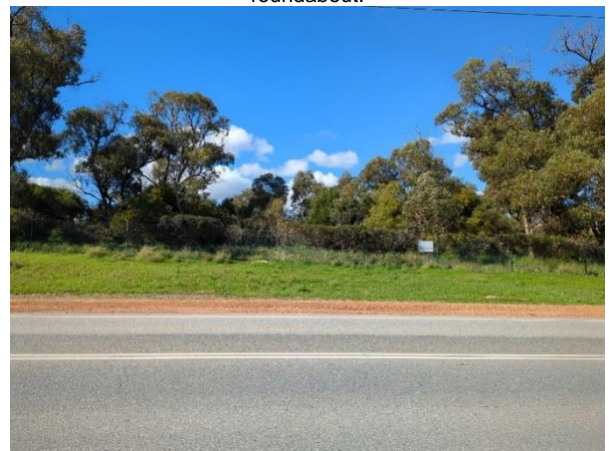


Photo 64, Point ID 65 [14/08/23] Blocked track and gates on Alumina Refinery Eastern Boundary.



Photo 65, Point ID 66 [14/08/23] Track, south eastern corner of Alumina Refinery.

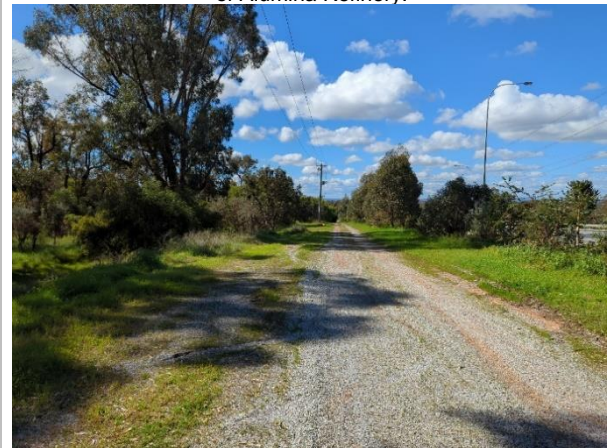




Photo 66, Point ID 67 [14/08/23] Fly tipped material – tyres wooden furniture, dirt track north of Anketell Rd opposite to McLaughlan Rd.



Photo 67, Point ID 68 [14/08/23] Fly tipped material, dirt track north of Anketell Rd opposite to McLaughlan Rd



Photo 68, Point ID 69 [14/08/23] Fly tipped material, dirt track east of Clementi Rd.



Photo 69, Point ID 70 [14/08/23] Dirt track east of Clementi Rd.



Photo 70, Point ID 71 [14/08/23] Fly tipped material - tyres, dirt track west of Clementi Rd.



Photo 71, Point ID 72 [14/08/23] Wildlife conservation area, northern boundary of site, south of Mandogalup Pioneer Reserve boundary.

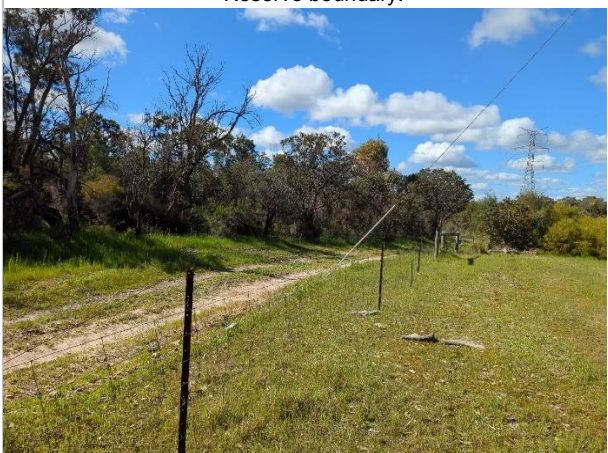




Photo 72, Point ID 73 [14/08/23] Corner of Clementi Rd and Anketell Rd.



Photo 73, Point ID 74 [14/08/23] Water Corporation monitoring well, northwest of Clementi Rd and Anketell Rd intersection.



Photo 74, Point ID 75 [14/08/23] Open drain, east of Clementi Rd, north of Anketell Rd



Photo 75, Point ID 76 [14/08/23] Truck temporary laydown, north of Anketell Rd, east of Mandogalup Rd.



Photo 76, Point ID 77 [14/08/23] Agricultural drain, north of Anketell Rd, east of Mandogalup Rd.



Photo 77, Point ID 78 [14/08/23] Stockpile and fly tipped material - tyres, north of Anketell Rd, east of Mandogalup Rd.





Photo 78, Point 79 [14/08/23] Track with Agricultural drain adjacent, north of Anketell Rd, east of Mandogalup Rd.



Photo 79, Point ID 80 [14/08/23] Unsealed tracks, north of Anketell Rd, east of Mandogalup Rd.



Photo 80, Point ID 81 [14/08/23] Mandogalup Fire Station, northwest of Mandogalup Rd/Anketell Rd intersection.



Photo 81 [14/08/23] Temple entry, northwest of Mandogalup Rd/Anketell Rd intersection.



Photo 82, Point ID 83 [14/08/23] DWER MW, northwest of Mandogalup Rd/Anketell Rd intersection.



Photo 83, Point ID 84 [14/08/23] Residential, west of Mandogalup Rd, north of Anketell Rd.





Photo 84, Point ID 85 [14/08/23] Gate, Hoffman Rd, north of Anketell Rd



Photo 85, Point ID 86 [14/08/23] Sodium Hydroxide Pipeline, southeast of Anketell Rd, east of Rockingham Rd.



Photo 86, Point ID 87 [14/08/23] Sand track, south of Rockingham Rd, Anketell Rd intersection.



Photo 87, Point ID 88 [14/08/23] Car Wash, southeast of Rockingham Rd, Lee Rd intersection.



Photo 88, Point ID 89 [14/08/23] Cleared area, northwest of Rockingham Rd, Beard St intersection on Brown Ave



Photo 89, Point ID 89 [14/08/23] Billboard and vacant area, northwest of Rockingham Rd, Beard St intersection on Brown Ave.





Photo 90, Point ID 90 [14/08/23] PACM, northwest of Rockingham Rd, Beard St intersection on Brown Ave.



Photo 91, Point ID 91 [14/08/23] Sand Stockpile, northwest of Rockingham Rd, Beard St intersection on Brown Ave



Photo 92, Point ID 92 [15/08/23] Sump. Vacant land, between truck wash and Better Choice Rockingham Rd, Lee Rd intersection.



Photo 92 [15/08/23] Truck wash, Vacant land, southeast of Rockingham Rd, Lee Rd intersection.





Appendix G: Laboratory Certificates



Ph: 07 7471 5600 E: cladstone@global.com

□MUDGEE 1/29 Sydney Road Mudgee NSW 2850
Ph: 02 6372 6725 E: mudgee@mail@airglobal.com

SPERTH to Rod Way Malaga WA 6095
Ph: 08 9209 7655 E: samples.perth@aleglobal.com

Ph: 02 4225 3175 E: wollongong@balsglobal.com



Telephone : ++61-8-9406 1301

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = Vial Aqueal HCl Preserved; VB = VQA Vial Sodium Bisulfate Preserved; VS = VQA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass
Z = Zinc Acetate Preserved Bottle; C = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solts; B = Unpreserved Bag; L = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.



WOLLONGONG 99 Kenny Street Wollongong NSW 250
Ph: 02 4225 3125 E: wollongong@alsglobal.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:
--

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulfate Solids; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thioisulfate Preserved Bottles.



CERTIFICATE OF ANALYSIS

Work Order : EP2312568
Client : SENVERSA PTY LTD
Contact : RUBY TURNBULL
Address : LEVEL 18, 140 ST GEORGES TERRACE
PERTH 6000
Telephone : ----
Project : P20806 MRWA Transport Corridor Project
Order number : ----
C-O-C number : ----
Sampler : RUBY TURNBULL
Site : ----
Quote number : EN/103/21
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 3
Laboratory : Environmental Division Perth
Contact : Natalie Duncan
Address : 26 Rigali Way Wangara WA Australia 6065
Telephone : +61-8-9406 1301
Date Samples Received : 12-Sep-2023 12:00
Date Analysis Commenced : 13-Sep-2023
Issue Date : 19-Sep-2023 14:35



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Position

Accreditation Category

MINNIE TRAN

Approved Asbestos Identifier

Melbourne Asbestos, Springvale, VIC



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend**
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Analysis of asbestos from swabs and tapes is not covered under the current scope of NATA accreditation.
- EA200: N/A - Not Applicable

Analytical Results

Sub-Matrix: **SOLID**
 (Matrix: **SOLID**)

Sample ID

				PACM01	----	----	----	----
Sampling date / time				14-Aug-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312568-001	-----	-----	-----	-----
				Result	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-	No	----	----	----	----
Sample weight (dry)	----	0.01	g	9.80	----	----	----	----
Synthetic Mineral Fibre	----	-	-	No	----	----	----	----
Organic Fibre	----	-	-	Yes	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	M. TRAN	----	----	----	----

Page : 3 of 3
Work Order : EP2312568
Client : SENVERSA PTY LTD
Project : P20806 MRWA Transport Corridor Project



Analytical Results

Descriptive Results

Sub-Matrix: **SOLID**

<i>Method: Compound</i>	<i>Sample ID - Sampling date / time</i>	<i>Analytical Results</i>
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	PACM01 - 14-Aug-2023 00:00	Grey fragment with organic fibres approx 40 x 30 x 5mm.

Inter-Laboratory Testing

Analysis conducted by ALS Melbourne, NATA accreditation no. 825, site no. 13778 (Chemistry).

(SOLID) EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples



QUALITY CONTROL REPORT

Work Order	: EP2312568	Page	: 1 of 3
Client	: SENVERSA PTY LTD	Laboratory	: Environmental Division Perth
Contact	: RUBY TURNBULL	Contact	: Natalie Duncan
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P20806 MRWA Transport Corridor Project	Date Samples Received	: 12-Sep-2023
Order number	: ----	Date Analysis Commenced	: 13-Sep-2023
C-O-C number	: ----	Issue Date	: 19-Sep-2023
Sampler	: RUBY TURNBULL		
Site	: ----		
Quote number	: EN/103/21		
No. of samples received	: 1		
No. of samples analysed	: 1		



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**



Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**
-



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EP2312568	Page	: 1 of 4
Client	: SENVERSA PTY LTD	Laboratory	: Environmental Division Perth
Contact	: RUBY TURNBULL	Telephone	: +61-8-9406 1301
Project	: P20806 MRWA Transport Corridor Project	Date Samples Received	: 12-Sep-2023
Site	: ----	Issue Date	: 19-Sep-2023
Sampler	: RUBY TURNBULL	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOLID**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) PACM01	14-Aug-2023	----	----	----	13-Sep-2023	10-Feb-2024	✔



Quality Control Parameter Frequency Compliance

- No Quality Control data available for this section.



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Asbestos Identification in Bulk Solids	EA200	SOLID	In house: Referenced to AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining

Senversa Pty Ltd

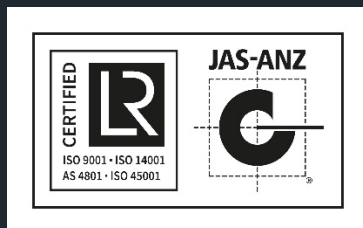
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