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DETAILED SITE INVESTIGATION (DSI)

PROPOSED INDUSTRIAL DEVELOPMENT

295 CORMORANT DRIVE KOORAGANG, NSW

For: Brown Commercial Building P/L

15/05/2024

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EXECUTIVE SUMMARY

We are pleased to provide this Detailed (Stage II) Environmental Site Investigation (DSI) at the above-mentioned site to assess the possible extent of contamination on the site.

This assessment has been completed to provide a comprehensive environmental assessment that characterises the potential for contamination of the site from previous site uses while drawing conclusions on the suitability of the site for its current proposed site use.

Data obtained in this assessment indicates that the site is suitable for the proposed industrial site use as per the recommendations outlined in this report.

DSI OBJECTIVES

The project objectives of a Detailed (Environmental) Site Investigation (DSI) are to satisfy the general requirements of State Environmental Planning Policy No.55 (SEPP 55) in accordance with the NSW EPA Guidelines for Consultants Reporting on Contaminated Land – Contaminated Land Guidelines (2020).

Specifically, this DSI will consider the potential for historical activities to have caused contamination at the Site and determine the suitability of the land for future land use consistent with Commercial / Industrial 'D' in the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1) ('NEPM', NEPC, 2013).

As extracted from the NSW EPA Guidelines for Consultants Reporting on Contaminated Land – Contaminated Land Guidelines (2020), the following assessment is required for a Preliminary Site Investigation:

As extracted from the NSW EPA Contaminated Land Guidelines a DSI should encompass the following:

1.3. Detailed site investigation

The objective of a detailed site investigation report is to provide more complete and definitive information on issues raised in the preliminary site investigation.

The detailed site investigation report must be designed to provide information on the type, extent and level of contamination for the site and (as relevant) assessment of:

- primary sources of contamination, for example potentially contaminating activities, infrastructure (such as underground storage tanks, fuel line, sumps or sewer lines) or site practices
- contaminant dispersal in air, hazardous ground gases, surface water, groundwater, soil vapour, separate phase contaminants, sediments, infrastructure (e.g. concrete), biota, soil and dust
- contaminant characterisation and behaviour (volatility, leachability, speciation, degradation products and physical and chemical conditions on-site which may affect how contaminants behave)
- potential effects of contaminants on human health, including the health of occupants of built structures (for example arising from risks to service lines from hydrocarbons in groundwater, or risks to concrete from acid sulphate soils) and the environment
- potential and actual contaminant migration routes including potential preferential pathways
- the adequacy and completeness of all information available for use in the assessment of risk and for making decisions on management requirements, including an assessment of uncertainty
- the review and update of the conceptual site model from the preliminary and detailed site investigations.

If the results of the detailed site investigation indicate that the contamination at the site has the potential to pose unacceptable risk to human health or the environment (on- or off-site), under either the current or the proposed land use, then further assessment needs to be carried out and/or a remedial action/management plan needs to be prepared and implemented. Consultants should refer to the ASC NEPM during the preparation of a detailed site investigation including:

- Schedule B2 - Guideline on Site Characterisation
- Schedule B3 - Laboratory Analysis of Potentially Contaminated Soils.

Supplementary site investigations can be undertaken to fill data gaps identified by the detailed site investigation. Investigative efforts should be focused on addressing the critical data gaps in a manner that is proportional to the uncertainties identified. The purpose of the supplementary investigation must be well defined. For example; are the original data quality objectives still appropriate, or do new targeted objectives need to be developed? The sampling and analysis quality plan must then be developed or updated as necessary. When reporting on this stage include a summary of both the relevant components of previous site investigations and the historical results.

As new information becomes available, data quality must be reassessed, and the conceptual site model iteratively updated to reflect changes in how the site is understood. Any new findings or remaining uncertainties must be discussed. If the conclusions of the previous site investigation have changed, this should be made clear to the reader.

Scope of Works:

The following assessment has been undertaken on the site:

- Identification of potentially contaminating activities and Contaminants of Concern (CoC's) that are currently being performed on the site and that may have been performed on the site in the past;

- Completion of a Site Walkover Inspection

- A desktop study including the following:

    - a review of published information and information held in file related to soils, geology and hydrogeology;

    - review of previous assessments undertaken on the site;

    - a review of historical aerial photography;

    - interviews with the people familiar with the history and operations of the site (if available);

    - a review of NSW Office of Environment and Heritage (OEH) notices under the Contaminated Land Management Act (1997);

    - a search of the NSW EPA database;

    - a review and collation of the above information and identification of potential Areas of Environmental Concern (AECs) and potential Chemicals of Concern (CoCs);

- Development and implementation of a Preliminary Sampling and Analysis Program as per the NSW EPA Contaminated Land Guidelines (2020) and the Desktop Study data;

- Completion of a field investigation in to collect soil samples to be tested for CoC's identified by known information and the data collected from the desktop study;

- Data has been reviewed and reported against the relevant NEPM Health Investigation Levels (HIL's) and determination has been made to if further assessment, management and/or a Remedial Action Plan (RAP) or Environmental Management Plan (EMP) is required, in accordance with the relevant sections of the *National Environmental Protection Measures 1999 (Contaminated Sites) (Amended 2013),* the *NSW EPA Guidelines for Consultants Reporting on Contaminated Land – Contaminated Land Guidelines 2020* and the *NSW EPA Contaminated Sites – Sample Design Guidelines 1995.*

- Reporting assessment is based on historical information, the proposed field investigation data and the National Environmental Protection Measure 1999 (NEPM) (Amended 2013).

- A Detailed Site Investigation report has been prepared describing the work undertaken on the site and making an assessment on the following:

    - If the site is suitable for proposed use;

    - Or if further investigation, a Remedial Action Plan (RAP) or Environmental Management Plan (EMP) is required is required.

The DSI was conducted in accordance with:

• ASC NEPM 2013.

• Australian Standard ('AS') 4482.1-2005: Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds.

• AS 4482.2-1999: Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances.

• Australia New Zealand Environmental and Conservation Council ('ANZECC') and Agriculture and Resource Management Council of Australia and New Zealand ('ARMCANZ') (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 1, The Guidelines ('ANZECC 2000').

• ANZECC and ARMCANZ (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality ('ANZECC 2018').

• Department of Urban Affairs and Planning and Environment Protection Authority ('EPA') (1998) Managing Land Contamination, Planning Guidelines, SEPP 55 – Remediation of Land.

• Friebel, E & Nadebaum, P 2011, Health Screening Levels for Petroleum Hydrocarbons in soil and Groundwater. Part 1: Technical development document, CRC CARE Technical Report no. 10, CRC for Contamination Assessment and Remediation of the Environment ('CRC CARE'), Adelaide, Australia.

• National Health and Medical Research Council ('NHMRC') (2008) Guidelines for Managing Risk in Recreational Waters.

• NHMRC and National Resource Management Ministerial Council ('NRMMC') (2011) National Water Quality Management Strategy, Australian Drinking Water Guidelines 6, 2011 (version 3.5 updated August 2018) ('ADWG 2011').

• NSW Department of Environment and Conservation ('DEC') Guidelines for the Assessment and Management of Groundwater Contamination ('NSW DEC Groundwater Guidelines').

• NSW EPA) (2022) Sampling Design Part 1 – Application and Part 2 - Interpretation.

• NSW EPA (2014) Technical Note: Investigation of Service Station Sites.

• NSW EPA (2017) Guidelines for the NSW Auditor Scheme (3rd Edition) ('NSW Auditor Guidelines').

• NSW EPA Guidelines for Consultants Reporting on Contaminated Land – Contaminated Land Guidelines (2020).

• United State Environment Protection Agency ('USEPA') (2006) Guidance on Systematic Planning Using the Data Quality Objectives Process, ref: EPA QA/G-4.

• NSW EPA Excavated Natural Material Order (2014).

• Acid Sulfate Soil Manual (1998), NSW Acid Sulfate Soils Management Advisory Committee ('NSW ASS Manual').

• National Acid Sulfate Soils Guidance (2018) National Acid Sulfate Soils Sampling and Identification Methods Manual), Water Quality Australia ('National ASS Guidance').

TABLE OF CONTENTS

1 INTRODUCTION

The purpose of this Detailed (Environmental) Site Investigation (DSI) is to obtain past and current information about possible contamination levels and distribution on the site, to review all data on the site and to complete an intrusive soil investigation including laboratory analysis of collected representative samples.

The site primarily been vacant from development and was historically used for grazing until around the 1960's when the area was filled and the land to the north was used by BHP. After BHP left the area in the 1990's commercial, industrial development and coal loaders are now present in the general area.

A Baseline Environmental Site Assessment has been previously carried out on the site as referenced and discussed further in Section 4.1 below.

2 SITE DETAILS

2.1 Site Identification

The site is located on the north western corner of the intersection of Cormorant Drive and Egret Street to the immediate north of the Hunter River Coal Loading Facility and south east of the Kooragang Island Coal Stockpile area.as shown on the attached Figure 1.

The following table, Table 1 contains a summary of the site details assessed in this DSI.

TABLE 1 – SUMMARY OF SITE DETAILS

SITE ADDRESS:	2695 Cormorant Drive, Kooragang, NSW, 2340
APPROXIMATE TOTAL SITE AREA:	TOTAL of 3,500 m^2
LGA:	City of Newcastle
SITE IDENTIFICATION	Lot 1 DP 1195449 **32º53"00' S 151º45"41' E**
CURRENT AND PREVIOUS LANDUSE:	Currently the site is vacant and has been previously used for agricultural purposes.
PROPOSED LANDUSE:	The proposed land use involves the construction of light industrial units.
ADJOINING SITE USES:	The site is surrounded by commercial development in all directions

2.2 Existing and Proposed Development Details

At the time of the assessment the site was vacant.

The proposed development is categorised in the NEPM as Health Investigation Level 'D' – Commercial / Industrial. Proposed design details are shown on the attached development design drawings.

3 SITE TOPOGRAPHY, GEOLOGY AND HYDROLOGY

3.1 Site Topography

The site is relatively flat alluvial deposits adjacent to the hunter river with the surface being filled at some stage as indicated in the aerial photographs. The majority of stormwater exited the site either by surface infiltration or surface runoff to the spoon drains on the northern and southern boundaries of the site.

3.2 Site Soils and Geology

Reference to the 1:250K Newcastle Regional Geology Map SI 56-2 indicates that the site is underlain by Quaternary Alluvium deposits comprising sand, silt, gravel and clay as shown on the attached Figure 4.

Boreholes indicate the profile comprises a layer of fill approximately 0.4 – 0.6m deep overlying alluvial sands to the borehole termination depth of up to 3.5m bgl.

Reference to eSpade indicates that the site is located in Disturbed Terrain as described below:

Landscape—level plain to hummocky terrain, extensively disturbed by human activity, including complete disturbance, removal or burial of soil. Local relief and slopes are highly variable. Landfill includes soil, rock, building and waste materials. Original vegetation completely cleared, replaced with turf or grassland.

Soils—highly variable.

Limitations—highly variable depending on the site. Limitations may include mass movement hazard, steep slopes, foundation hazard, unconsolidated low wet bearing strength materials, potential acid sulphate soils, impermeable soils, poor drainage, erosion hazard, very low fertility and toxic materials.

LOCATION

Extensively disturbed terrain on a variety of geologies scattered mainly throughout the Lower Hunter Plain, Awaba Hills and the East Maitland Hills.

Geology

Includes Quaternary, Tertiary and Permian sediments.

Topography

Terrain disturbed by human activity including areas of landfill, heavy industrial complexes, gravel pits, sandmining, coal mining and municipal rubbish tips. The land surfaces are varied, most areas of landfill being level, whilst many quarries and excavation pits have irregular, steep sides.

Vegetation

Due to disturbance, very little natural vegetation remains.

Land Use

Includes all land uses which have extensively disturbed the soil and landscape over large areas. Predominantly heavy industrial areas, reclaimed estuarine flats, coal mines, coarse aggregate quarries and sandmining areas. Sand extraction has occurred on marine sediments along the coast. Coarse aggregate quarries and fine aggregate (river sand) quarries occur at various locations throughout the area. Other areas of major disturbance include rubbish tips, sewerage schemes and various landfill areas.

Existing Erosion

Erosion varies greatly according to site characteristics. Usually, sheet and rill erosion occur on exposed batters in quarries. Severe wind erosion may occur in sandmining areas. Landfill areas are usually flat, topsoiled and stabilised by a good ground cover and consequently have few erosion problems.

SOILS

Disturbed

In these areas most of the original soil has either been removed, buried, or greatly disturbed. In gravel pits, mines and quarries, bedrock is often exposed, whilst in landfill areas transported earths, sediments and industrial and household wastes are found. These areas may be artificially topsoiled or covered by concrete and bitumen.

3.3 Groundwater

Groundwater was not encountered above termination depths of up to 3.5m as noted on the attached engineering logs. Minor seepage was detected at arounf 3.2 – 3.5m bgl.

It should be noted that groundwater levels can fluctuate due to environmental conditions such as rainfall, temperature and tidal effects for example.

3.4 Acid Sulfate Soils

Reference to eSpade Acid Sulphate Soil Maps indicate that the site is located in disturbed terrain with an elevation of 2-4m AHD as shown on the attached Figure 5.

4 SUMMARY OF HISTORICAL INFORMATION AND CONTAMINANTS / AREAS OF CONCERN

4.1 Summary of Previous Site Assessments

The referenced Baseline Environmental Assessment was carried out in 2014 on the portion of the site now containing an operational service station. The following conclusions were made:

> A baseline environmental site assessment was undertaken by RCA at the site located on the corner of Egret Street and Cormorant Road, Lot 1 DP 1195449, Kooragang Island at the request of Port of Newcastle Operations.
>
> The purpose of the assessment was to develop a comprehensive baseline soil and groundwater contaminant profile of the site prior to the development of a service station.
>
> The scope of work at the site consisted of thirty two (32) test pit locations systematically distributed on a 20x20m grid and the installation of three (3) groundwater bores, however one (1) existing groundwater bore was observed during fieldwork and incorporated into the sampling programme. Soil and groundwater sampling locations were positioned so as
>
> to effectively assess the site contaminant profile and the extent and distribution of potential contaminants.
>
> A total of seventy eight (78) soil samples were selected from samples collected from the thirty two (32) locations and sent for laboratory analysis. Soil samples sent for laboratory analysis were selected based upon visual and/or olfactory evidence of contamination and to effectively assess the overall site soil contaminant profile.
>
> A total of four (4) groundwater samples were collected from across the site and sent from laboratory analysis.
>
> The results show no detectable or minor concentrations of TRH, BTEX, PAH, OCP, OPP and PCB in all soil samples. Low levels of metals were identified below the human health and ecological criteria with the exception of two (2) locations where zinc concentrations were identified above the EIL.
>
> The results show no detectable or minor concentrations of BTEX, PAH, TRH and metals in all groundwater samples.
>
> The site is considered suitable for the proposed use of a service station and convenience store.

4.2 Previous Site Uses

The site comprised vacant land likely used for grazing until the early 1960's when the site was disturbed, likely by filling activities as described below in Section 4.2. The site was delineated in the mid 1970's and has remained vacant since then with development expanding around the site in the years since.

4.3 Review of Aerial Photographs:

1954

The site has not yet been delineated and is within an area which appears to be unused or agricultural land, close to (or perhaps partially within) an unnamed channel flowing from north to south. Cormorant Road and Egret Street are not yet formed, although there does appear to be an informal roadways which may have formed the basis of the roads.

Limited development had been undertaken on Kooragang Island at the time and appears restricted to isolated structures which may be farmhouses. The northern shoreline of the Hunter River looks primarily undisturbed. There is industrial/commercial development evident on the other side of the Hunter River at Mayfield, which is within the vicinity of the BHP steel processing facility. The southern River bank looks to have undergone some modification, however Platts Channel is still present.

1966

The site has not yet been delineated, however there appears to have been disturbance at the site. The resolution and absence of colour on the photographs makes it difficult to determine whether the disturbance is the placement of fill or removal of vegetation, however due to the blocking of the north-south running channel it appears that the material is likely fill. Substantial development has been undertaken on the northern shoreline of the Hunter River. Development has commenced on the far eastern portion of Kooragang Island and Cormorant Road has been constructed. The southern shoreline of the Hunter River has been formalised, Platts Channel has been filled and the BHP facility has been constructed.

1975

The site has been delineated and is vacant and unused. The surface appears to be either grass or sand; it is difficult to determine which with the provided photograph. Cormorant Road and Egret Street are both constructed, as is the Blue Circle cement site and associated driveway. There are some buildings on the site now occupied by Sims Metals. Additional development has occurred on the northern shoreline of the Hunter River, however the portion in front of the site looks unchanged from 1966. Additional development has occurred on Kooragang Island, especially to the far east where the Orica plant is now situated. Stockton Bridge has been constructed and the north of the site has completely filled in the north-south running channel. No changes to the southern shoreline of the Hunter River are apparent.

1983

The site does not appear to have been altered from the 1975 photograph. The surface appears to be grass, patchy in some areas. There are a number of trees/shrubs situated on the site in clumps. The Blue Circle and Sims Metals sites appear to have furthered developed and development on the Port Waratah Coal's facility is also apparent to the north of the site. The northern shoreline of the Hunter River has undergone some further changes, however not in front of the site. No substantial changes are apparent on the southern shore of the Hunter River. Development in the eastern portion of Kooragang Island has increased.

1993

The site is vacant and unused, however there are a number of trees/shrubs situated on the site in clumps. The other neighbouring sites and the northern shoreline near the site do not appear to be changed from the 1983 photograph. No substantial changes are apparent on the southern shore of the Hunter River or on Kooragang Island from the 1983 photograph.

2004

The site appears to be unchanged from that in 1993. Additional development has been undertaken in the immediate vicinity of the site and the northern shoreline of the Hunter River has undergone additional development to construct coal loading facilities

The demolition of the BHP facility has been substantially completed, however there are still signs of remnant infrastructure.

2007

The site appears to be unchanged from that is 2004. Additional development has been undertaken in the immediate vicinity of the site. No significant changes on the southern side of the Hunter River are apparent.

2010

The site appears to be unchanged from that is 2004. Significant development has occurred to the west of the site with the construction of Port Waratah Coal Services' facility and additional construction on the northern shoreline of the Hunter River.

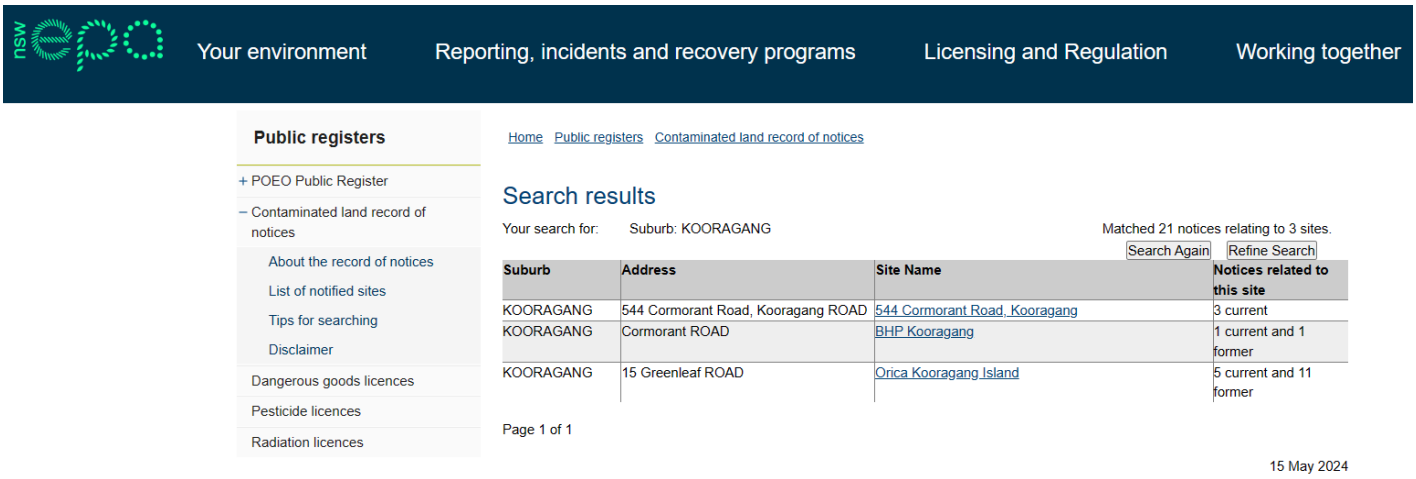
2013

The site and immediate surrounds look unchanged from 2010. Significant development has occurred on the northern shoreline of the Hunter River, including the construction of a docking and coal loading facility in front of the site.

2022

The site appears to be unchanged from that is 2013. The areas to the immediate north and east now comprise a service centre including a service station and commercial buildings.

4.4 A search of the NSW EPA Contaminated Sites Register indicates the following site has Contaminated Land Record Notices in the suburb of Koorgang:



Your environment | Reporting, incidents and recovery programs | Licensing and Regulation | Working together

Public registers

+ POEO Public Register
− Contaminated land record of notices
  - About the record of notices
  - List of notified sites
  - Tips for searching
  - Disclaimer
- Dangerous goods licences
- Pesticide licences
- Radiation licences

Home Public registers Contaminated land record of notices

Search results

Your search for: Suburb: KOORAGANG

Matched 21 notices relating to 3 sites.

Search Again Refine Search

Suburb	Address	Site Name	Notices related to this site
KOORAGANG	544 Cormorant Road, Kooragang ROAD	544 Cormorant Road, Kooragang	3 current
KOORAGANG	Cormorant ROAD	BHP Kooragang	1 current and 1 former
KOORAGANG	15 Greenleaf ROAD	Orica Kooragang Island	5 current and 11 former

Page 1 of 1

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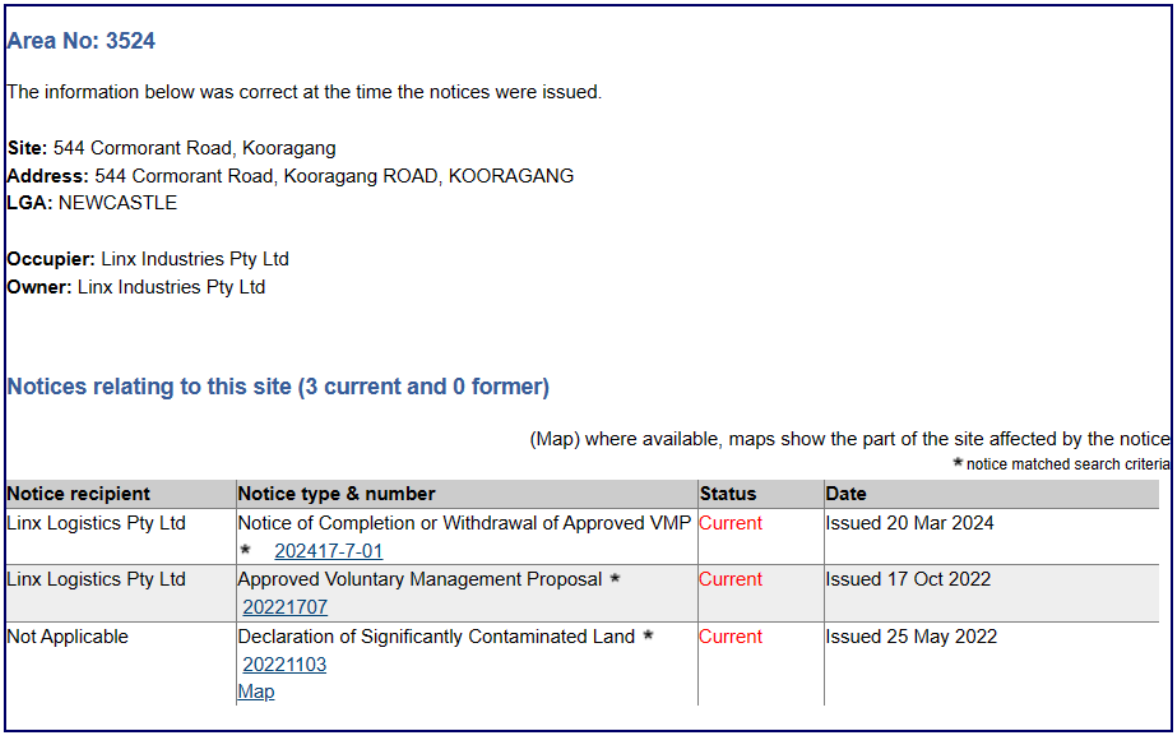
This first site is approximately 1.7km north east from the subject site and was declared as Significantly Contaminated Land in May 2022. Volintary Management was undertaken in October 2022 and the Contaminated Land Order was lifted in 2024 as per below:



Area No: 3524

The information below was correct at the time the notices were issued.

Site: 544 Cormorant Road, Kooragang
Address: 544 Cormorant Road, Kooragang ROAD, KOORAGANG
LGA: NEWCASTLE

Occupier: Linx Industries Pty Ltd
Owner: Linx Industries Pty Ltd

Notices relating to this site (3 current and 0 former)

(Map) where available, maps show the part of the site affected by the notice
* notice matched search criteria

Notice recipient	Notice type & number	Status	Date
Linx Logistics Pty Ltd	Notice of Completion or Withdrawal of Approved VMP * 202417-7-01	Current	Issued 20 Mar 2024
Linx Logistics Pty Ltd	Approved Voluntary Management Proposal * 20221707	Current	Issued 17 Oct 2022
Not Applicable	Declaration of Significantly Contaminated Land * 20221103 Map	Current	Issued 25 May 2022

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The second site relates to former BHP opperations as per the following order and map:

Area No: 3061

The information below was correct at the time the notices were issued.

Site: BHP Kooragang
Address: Cormorant ROAD, KOORAGANG
LGA: NEWCASTLE

Notices relating to this site (1 current and 1 former)

(Map) where available, maps show the part of the site affected by the notice
* notice matched search criteria

Notice recipient	Notice type & number	Status	Date
Broken Hill Proprietory Company Ltd	Section 35 EHC Act Order * 357 Map	Current	Issued 18 Oct 1993
Broken Hill Proprietory Company Ltd	Section 35 EHC Act Order * 295	Former	Issued 23 Aug 1991 Revoked 18 Oct 1993

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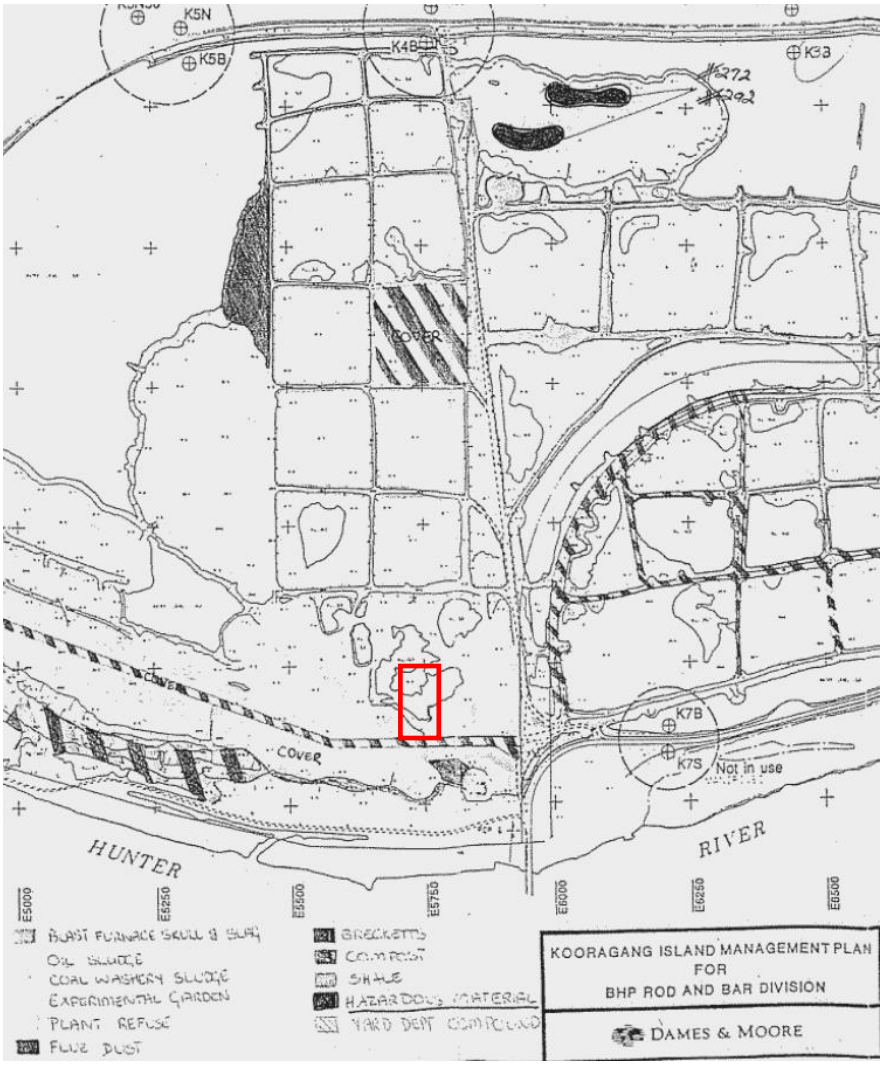

The third site is the Orica Plant site that is located 2000m to the south east, with various orders as per below:

Site and notice details

Your search for: Suburb: KOORAGANG 21 notices on 3 sites were matched.

Return to list of search results Search Again Refine Search

Area No: 3183

The information below was correct at the time the notices were issued.

Site: Orica Kooragang Island
Address: 15 Greenleaf ROAD, KOORAGANG
LGA: NEWCASTLE

Occupier: Orica Australia Pty Ltd
Owner: Orica
Lot 2/ DP 234288 Lot 3/ DP 234288

Notices relating to this site (5 current and 11 former)

(Map) where available, maps show the part of the site affected by the notice

* notice matched search criteria

Notice recipient	Notice type & number	Status	Date
Orica Australia Pty Ltd	Amendment or Repeal of Order or Notice * 20204440	Current	Issued 04 Jul 2020
Orica Australia Pty Ltd	Amendment or Repeal of Order or Notice * 20194429	Current	Issued 06 Aug 2019
Orica Australia Pty Ltd	Management Order * 20181401	Current	Issued 03 Aug 2018 Amended 04 Jul 2020
Not Applicable	Amendment or Repeal of Order or Notice * 20184410 Map	Current	Issued 23 Jun 2018
Not Applicable	Declaration of Remediation Site * 21089	Current	Issued 16 Nov 2005 Amended 23 Jun 2018
Orica IC Assets Pty Ltd	Management Order * 20131407	Former	Issued 28 Jul 2014 Repealed 03 Aug 2018
Orica Australia Pty Ltd	Management Order * 20131406	Former	Issued 29 Apr 2014 Repealed 04 Jul 2020
Orica Australia Pty Ltd	Approved Voluntary Management Proposal * 20101723	Former	Issued 13 Dec 2010 Ended 20 May 2016
Orica Australia Pty Limited	Agreed Voluntary Remediation Proposal * 26109	Former	Issued 19 Nov 2008 Completed 13 Dec 2010
Orica Australia Pty Limited	Agreed Voluntary Remediation Proposal * 26093	Former	Issued 06 Dec 2006 Completed 13 Dec 2010
Orica Australia Pty Limited	Agreed Voluntary Remediation Proposal * 26061	Former	Issued 05 Dec 2005 Completed 06 Dec 2006
Orica Australia Pty Ltd	Amendment or Repeal of Order or Notice * 20204434	Issued	Issued 04 Jul 2020
Orica Australia Pty Ltd	Amendment or Repeal of Order or Notice * 20184402	Issued	Issued 03 Aug 2018
Orica IC Assets Pty Ltd	Amendment or Repeal of Order or Notice * 20174430	Issued	Issued 29 Dec 2017 Repealed 03 Aug 2018
Orica Australia Pty Ltd	Notice of Completion or Withdrawal of Approved VMP * 201617-7-03	Issued	Issued 20 May 2016
Orica Australia Pty Limited	Amendment or Repeal of Order or Notice * 20124410	Issued	Issued 15 Aug 2012

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4.5 Review of Registered Groundwater Wells

A Department of Planning and Infrastructure bore search was undertaken for a 2 km radius around the site excluding the area across the Hunter River. Eight groundwater bores were found to be located within the search area. Two of these bores were licensed for groundwater monitoring with six bores licensed for stock and domestic usage. These bores were located around the site in unconsolidated sediments as water bearing zones are generally located within unconsolidated sediments related to the Hunter River.

Bore yields and static water levels (SWLs) are unknown from the registered bores. The monitoring bores ranged in depth from 7 to 14 metres in depth. Soil permeability in this region is reported to be relatively high with low available water holding capacity.

Hydraulic gradient is expected to be towards the Hunter River to the north. The vertical component of hydraulic conductivity is expected to be enhanced due to the massive (porous) nature of medium to coarse sediments through the soil profile to depth, however limited by confining layers of finer sediments such as peat, silt and clay.

4.6 Summary of Areas of Concern (AoC's) and Chemicals of Concern (CoC's)

A summary of the AEC's and COC's is contained in Table 2 below:

TABLE 2 – POTENTIAL AECS AND COCS

AEC	POTENTIAL CONTAMINATING ACTIVITY	POTENTIAL COCS	LIKELIHOOD OF CONTAMINATION*	COMMENT
1 Fill Material	Activities that have resulted in the current site finished levels from uncontrolled fill material	Metals, TRH, PAH, OCP, OPP, PCB, Asbestos, Foreign Material	Low - Med	Contaminated material may be present onsite if fill has been used historically to achieve existing site levels Chemical testing of fill and natural material indicated that concentrations of CoC's above threshold guidelines were NOT detected in samples tested.

AEC	POTENTIAL CONTAMINATING ACTIVITY	POTENTIAL COCS	LIKELIHOOD OF CONTAMINATION*	COMMENT
2 Adjacent UPSS Infrastructure	Re-fuelling of machinery and vehicles onsite.	Metals, TRH, PAH, PCB	Low	Chemical testing of fill and natural material indicated that concentrations of CoC's above threshold guidelines were NOT detected in samples tested.
3 Areas of historical site use	Pesticides / Herbicides use from previous agricultural activities	OCP, OPP, PCB	Low	The site has not been used for agricultural purposes for at least 50 years and site has been vacant since then. Chemical testing of fill and natural material indicated that concentrations of CoC's above threshold guidelines were NOT detected in samples tested.

NOTES:
** = It is important to note that this is not an assessment of the financial risk associated with the AEC in the event contamination is detected, but a qualitative assessment of the probability of contamination being detected at the potential AEC. Metals – Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc; TPH – Total Petroleum Hydrocarbons; PAH – Polycyclic Aromatic Hydrocarbons; OCP – Organochlorine Pesticides; OPP – Organophosphorus Pesticides*

4.7 Assessment of Information Integrity

It is assessed that the integrity of the assessment of information is correct as supplied by the relevant regulatory sources, attached documents and QA/QC information.

5 VISUAL ASSESSMENT

Visual assessment of the site indicated the following possible visual signs of contamination;

1 Historical Fill Material

2 Adjacent Commercial and Industrial Site Uses

4 Former historical site uses

Vegetation on the site appeared very healthy with no die back or dead areas as can be seen on the attached site photographs.

Drums and other signs of chemical waste material were not noted on the site at the time of assessment apart from being appropriately stored in the maintenance area.

Visual assessment of the borehole spoil indicates that all boreholes (with locations as shown on Figure 3) contained localised shallow Gravelly Sandy CLAY fill (500mm to 600mm) overlying alluvial (Silty) SAND material to a depth of at least 3.5m.

Groundwater was not encountered above a depth of 3.5m depth.

6 SOIL ASSESSMENT

Based on Table 2 of the NSW EPA Contaminated Land Guidelines – Sampling Design Part 1 – Application (2022) it is recommended that for a site of 3,000m^2 (approx. site area) 9 sampling points are required to have a 95% Confidence Limit of detecting a hotspot with a 21.5m diameter.

Based on this information and the data obtained in the desktop assessment, excavation of 6 boreholes to a depth of up to 3.5m was completed during the field assessment.

A grid sampling pattern was used resulting in the collection of 15 soil jar samples including 1 QA/QC sample. Samples were taken at near surface and between the surface to 3.5m depth mark (depending on changes and soil characteristics) making sure samples are obtained of both any encountered fill and natural material.

6.1 Sampling Methodology

An intrusive investigation was undertaken on 22/03/2024. Borehole locations were selected prior to commencement of excavation based on an equally spaced grid pattern. All borehole locations are shown on the attached Figure 3.

All boreholes were excavated using a trailer mounted drilling rig equipped with 100mm spiral augers as shown in the attached site photographs. Soil samples were taken from various depths from BH1 to BH6. The depth at which the soil samples were taken and tested was dictated by changes in soil characteristics and other such factors as odour and colour.

Out of these collected samples, eighteen (15) jar soil samples were forwarded to Envirolabs NATA Laboratory for analytical testing.

All sampling was undertaken in accordance with all relevant Australian Standards, including *AS 1726 – 1993 – Geotechnical Site Investigations*, *NSW EPA Sample Design Guidelines* with reference to the CLM Act, NEPM (2013) Schedules and associated guidelines as detailed in the reference list. All laboratories used were NATA Certified.

6.2 QA/QC

New neoprene gloves were worn during sampling and replaced prior to collection of each sample directly from the auger. All collected samples were placed in laboratory supplied glass with Teflon coated lids. Decontamination of sampling equipment was carried out with Decon 90 and clean water. Samples were then placed on ice and transported to a fridge at our premises prior to dispatch to the laboratory.

Field screening involved visual observation to determine if the material was uncontrolled fill or natural topsoils or residual material. A Chain of Custody form was prepared and accompanied samples to the laboratory. Laboratory QA/QC procedures are detailed in the attached laboratory testing results.

All QA/QC documentation supplied by the laboratory is contained in Envirolabs document referenced in this report and a duplicate sample was collected, with results detailed in the attached Results table with Duplicate and Triplicate samples described there.

6.3 Soil Test Results

The attached Soil Test Results Table in the Appendix detail the laboratory testing results of the collected soil samples compared to the relevant NEPM Health Based Investigation Levels (HBIL's) for Commercial / Industrial "D" and Ecological Screening Level (ESL) – Commercial / Industrial Guideline Thresholds.

6.3.1 Soil Test Results Summary

Hydrocarbons

Laboratory testing results for soil samples tested indicate that **TRH, BTEX, PAH and PCB levels detected are below** laboratory detection limits or relevant guideline threshold concentrations at ALL test locations.

Pesticides

Laboratory testing results for soil samples tested indicate that **OC/OP levels detected are below** laboratory detection limits or threshold guideline concentrations at ALL test locations.

Metals

Laboratory testing results for soil samples tested indicate that **metal levels detected are below** the relevant guideline threshold concentrations at ALL test locations.

6.4 Laboratory Test Results Summary

6.4.1 Threshold Guideline Exceedances

In summary, all laboratory test results for Contaminants of Concern of collected soil samples were below guideline thresholds in fill and natural material.

It is assessed that further intrusive soil investigation of the site is **NOT** required as discussed further below.

7 RECOMMENDATIONS

Based on the data obtained in this DSI it is recommended that the site is suitable for the proposed commercial development and use and does not pose a significant risk of harm to human occupiers or nearby environmental receptors.

The following is recommended:

- Any material to be removed offsite, including but not limited to soil and demolition waste during construction activities requires Classification as per the referenced NSW EPA Guidelines;

8 CONTAMINATION SOURCES

The following sources of possible contaminated areas and possible contamination were identified;

Possible Onsite Contamination Sources

1 Imported Onsite Fill Material

2 Adjacent UPSS Infrastructure

4 Areas of historical site use

Possible Offsite Contamination Sources

- Adjacent existing commercial business to the north and east of the site;

- Former BHP Operations to the north and the Orica plant to the south east

Contaminants of Concern (CoC's)

The following contaminants of concern were tested for in soil samples:

- TRH (Total Recoverable Hydrocarbons)
- Total PAH's (Polycyclic Aromatic Hydrocarbons)
- BTEX (Benzene, Toluene, Ethyl Benzene and Xylene)
- Naphthalene
- Organochlorine Pesticides / Organophosphorous Pesticides (OC/OP)
- Lead and select heavy metals including cadmium, chromium, zinc, copper, mercury, arsenic and nickel

9 CONCEPTUAL SITE MODEL

This Conceptual Site Model (CSM) is specific to this site and is based on a review of all available information, including site inspections / investigations, available data and historical searches.

The following sensitive receptors have been identified on the site;

- Nearby residents and businesses in both the short and long term;
- Site personnel working on any future excavations on the site;
- Long term residents and businesses after construction of the development;
- Any nearby waterways;
- Groundwater.

All potential contamination sources are noted in Section 8 – Contamination Sources.

At the time of assessment the site was vacant and covered grass cover that has been recently mown as shown on the attached site photographs.

The majority of the surface water exited the site by either surface infiltration with some overland flow in a south and easterly direction during high intensity storm events. At the time of assessment, groundwater seepage was NOT detected in any of the boreholes above a termination depth of 3.5m bgl.

See Section 3 – Site Geology and Hydrology above for detailed site geology and groundwater information. In summary, soil material encountered comprised of fill material overlying alluvial SAND and standing groundwater was **NOT** detected after drilling to the termination depth as shown on the attached logs.

It is assessed that the following potential contamination migration pathways are present on the site;

- Contaminated material being removed offsite during proposed development of the site;

- Migration of contaminants into and through the groundwater during rain events.

The nature and extent of contamination considered likely to be found on the site is summarised above, with Environmental Management of the site **NOT** recommended.

The site layout and possible contamination sources can be seen on the attached Figures.

10 DATA QUALITY OBJECTIVITIES (DQO's)

The objective of this investigation is to determine the extent of possible onsite contamination and the process of re-development of the site. Further soil and groundwater assessment may be required during development if unexpected contamination is discovered.

The first stage of the process is to provide data to indicate that the site is suitable for the proposed land use activity.

A conceptual Site Model has been prepared for the site as per Section 9 above.

Site boundaries are indicated on the attached Figure 2. Excavation is required for the proposed development to install services and construct foundation systems.

Decisions to be made and the criteria to be used is listed as follows;

- Assessment of the contamination type and distribution on the site will be made using all previous investigations carried out onsite with reference to the NSW EPA Guidelines for the NSW Site Auditor Scheme (3rd ed) and the NEPM (2013);

- Assessment of the groundwater contamination using criteria described in the NEPM (2013);

- Assessment of excavated contamination material for offsite disposal as per the NSW EPA Waste Classification Guidelines;

- Validation of contaminated areas to ensure all onsite contamination is removed.

To minimise the potential of decisions errors all data will be assessed against the NSW EPA Guidelines for the NSW Site Auditor Scheme – Appendix V – Quality Assurance and Quality Control.

It is assumed that some errors may be contained within the assembled data and information. If it is found during material excavation that conditions encountered onsite differ significantly from those suggested by the collected data, an environmental consultant should be contacted and made aware of the situation.

11 SAMPLING ANALYSIS PLAN

Based on Table 2 of the NSW EPA Contaminated Land Guidelines – Sampling Design Part 1 – Application (2022) it is recommended that for a site of 3,000m^2 (approx. site area) 9 sampling points are required to have a 95% Confidence Limit of detecting a hotspot with a 21.5m diameter.

Based on this information and the data obtained in the desktop assessment, excavation of 6 boreholes to a depth of up to 3.5m was completed during the field assessment.

A grid sampling pattern was used resulting in the collection of 15 soil jar samples including 1 QA/QC sample. Samples were taken at near surface and between the surface to 3.5m depth mark (depending on changes and soil characteristics) making sure samples are obtained of both any encountered fill and natural material.

12 GUIDELINES TO BE USED

The following guidelines from the NEPM (2013) were followed during the assessment process;

Schedule B—General guidelines for the assessment of site contamination

The following general guidelines provide guidance on the possible ways of achieving the desired environmental outcome (PART 3 of the Measure) for the assessment of site contamination and should only be considered in relation to the assessment of site contamination.

Index of guidelines

Schedule B1—Guideline on Investigation Levels for Soil and Groundwater

Schedule B2—Guideline on Site Characterisation

Appendix A Possible analytes for soil contamination

Appendix B Data quality objective (DQO) process

Appendix C Assessment of data quality

Appendix D Example data presentation on scale drawings and borehole logs

Appendix E Dioxins and dioxin-like compounds

Schedule B3—Guideline on Laboratory Analysis of Potentially Contaminated Soils

Appendix A Determination of total recoverable hydrocarbons (TRH) in soil

Schedule B4—Guideline on Site-Specific Health Risk Assessment Methodology

Appendix A Structure of a risk assessment report

Schedule B5a—Guideline on Ecological Risk Assessment

Appendix A Summary of the EILs for fresh and aged contaminants in soil with various land uses

Appendix B Mixtures of chemicals

Schedule B5b—Guideline on Methodology to Derive Ecological Investigation Levels in Contaminated Soils

Appendix A Review and comparison of frameworks for deriving soil quality guidelines in other countries

Appendix B Method for deriving EILs that protect aquatic ecosystems

Schedule B5c—Guideline on Ecological Investigation Levels for Arsenic, Chromium (III), Copper, DDT, Lead, Naphthalene, Nickel and Zinc

Appendix A Raw toxicity for arsenic

Appendix B Raw toxicity for chromium (III)

Appendix C Raw toxicity for copper

Appendix D Explanation of the selection of the soil properties that control the added contaminant limits for copper

Appendix E Raw toxicity for DDT

Appendix F Raw toxicity for lead

Appendix G Raw toxicity for naphthalene

Appendix H Raw toxicity for nickel

Appendix I Raw toxicity for zinc

Schedule B6—Guideline on the Framework for Risk-Based Assessment of Groundwater Contamination

Schedule B7—Guideline on derivation of health-based investigation levels

Appendix A1 Derivation of HILs for Metals and Inorganics

Appendix A2 Derivation of HILs for PAHs and Phenols

Appendix A3 Derivation of HILs for Organochlorine Pesticides

Appendix A4 Derivation of HILs for Herbicides and Other Pesticides

Appendix A5 Derivation of HILs for PCBs and PBDEs

Appendix A6 Derivation of HILs for Volatile Organic Carbon Compounds

Appendix B Equations for derivation of HILs and Interim HILs

Appendix C Derivation of HILs for Generic Land Uses

Appendix D Blood lead model assumptions

Schedule B8—Guideline on Community Engagement and Risk Communication

Schedule B9—Guideline on Competencies and Acceptance of Environmental Auditors and Related Professionals

13 REMEDIAL ACTION PLAN (RAP) / CONTAMINATION MANAGEMENT PLAN (CMP)

It is assessed that Remediation or a Contamination Management Plan is **NOT** required for the proposed site use.

14 LICENCES AND APPROVALS

Ensure that all earthworks contractors employed on the site are familiar with all the relevant standards and guidelines, including but not limited to Waste Classification Regulations, NEPM (2013), appropriate landfill centres and any other relevant regulations and guidelines.

15 WASTE DISPOSAL TRACKING:

ALL material leaving the site MUST be tracked and documented. Waste disposal dockets should be obtained and included in the validation report. These include waste dockets for ALL material disposed offsite including contaminated soil, ENM, underground infrastructure and services, existing buildings and any collected groundwater. Assessment and classification of this material will be made as per the relevant guidelines.

Material should only be imported / removed offsite with approval from the environmental consultant. All documentation should include the following;

- Source area of site and date excavated and a detailed description of material;
- Reference to Waste Classification Report;
- Any interim movements e.g. to stockpiles including depths and all on and offsite movements and associated sample numbers;
- Details of transport including date, time truck, registration, driver and destination and receipt dockets from destination.

16 LONG TERM SITE MANAGEMENT

Present data indicates that there is no need for long term site management.

17 CONCLUSIONS

17.1 Site Characterisation

The following sources of possible types of environmental contamination were identified onsite:

- Historically imported Fill Material associated with the initial development of the of the area and historical use of surrounding area by BHP;
- The adjacent UPSS Infrastructure located on the neighbouring site to the east;
- Areas of historical use over the entire site.

It is assessed that significant soil contamination above the relevant threshold guidelines was not encountered in any of the soil samples collected, including samples obtained from fill and natural material and that the site is deemed suitable for the proposed industrial / commercial site use.

17.2 Summary of Findings and Conclusion

The sampling regime and subsequent assessment and reporting of the site are considered to be adequate for assessment purposes to determine the future land use sustainability of the site in accordance with Local Council, and the general requirements of the State Environmental Planning Policy No. 55 (SEP55). All reporting has been undertaken in accordance with the *Contaminated Land Guidelines - Consultants Reporting on Contaminated Land (NSW EPA 2020)* and the *Guidelines for the NSW State Auditor Scheme (NSW EPA 3nd Ed).*

Soil samples tested for CoC's indicate that there is no chemical contamination above Health Investigation Levels Threshold Guidelines or Ecological Screening Levels Threshold Guidelines by potential CoC's at the time of assessment was detected as indicated in the attached Soil Test Results Summary.

This Detailed Site Investigation concludes that the site is suitable for the proposed industrial / commercial site use and is consistent with the *National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) – Schedule B1, Table 1A(1), Column D – Commercial / Industrial* and that the site assessment objectives of this report have been achieved.

18 DSI ASSUMPTIONS AND LIMITATIONS

It is the nature of contaminated site investigations that the degree of variability in site conditions cannot be known completely and no sampling and analysis program can eliminate all uncertainty concerning the condition of the site. Professional judgement must be exercised in the collection and interpretation of the data.

In preparing this assessment, current guidelines for assessment and management of contaminated land were followed. This work has been conducted in good faith in accordance with Sanko's understanding of the client's brief and general accepted practice for environmental consulting.

This assessment was prepared with the objective of providing guidance on the remediation and validation activities to be undertaken. No warranty, expressed or implied, is made as to the information and professional advice included in this report. Anyone using this document does so at their own risk and should satisfy themselves concerning the applicability of its application and where necessary should seek expert advice in relation to the particular situation.

If you have any further questions about this report, please contact the undersigned.

For and on behalf of
Sanko Excavation Environmental and Civil Services P/L

Damien Sankowsky *BE(Env)*
Principal Environmental Engineer
Australian Geomechanics Society (AGS) Member – EA ID 5879317

Attachments:

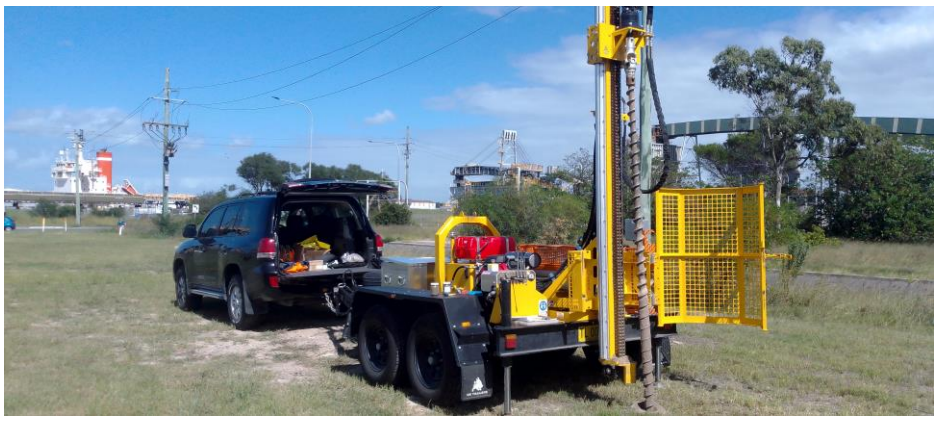
- *Report Limitations*
- *Site Photographs*
- *Historical Photographs*
- *Figure 1 – Site Location*
- *Figure 2 – Site Boundary*
- *Figure 3 – Test Locations*
- *Figure 4 – Geology Map*
- *Figure 5 – Acid Sulfate Soil Map*
- *Log Explanation Sheets*
- *Engineering Borehole Logs*
- *Summary of Soil Test Results Table*
- *Laboratory Testing Results for Soil incl QA/QC*
- *Development Application Drawings*

References:

- *RCA Report No.10556-40 1/1 "Baseline Environmental Site Assessment" 2014*
- *NEPC National Environmental Protection Measures NEPM (2013)*
- *Consultants Reporting on Contaminated Land (NSW EPA 2020)*
- *NSW EPA Contaminated Land Guidelines – Sampling Design Part 1 – Application (2022)*
- *NSW EPA Waste Classification Guideline, Part 1: Classifying Waste*
- *NSW EPA Excavated Natural Material Regulations (2012)*
- *NSW EPA Resource Recovery Order*
- *NSW EPA Guidelines for the NSW Site Auditor Scheme (3nd edition)*
- *NSW EPA Guidelines for implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*
- *Guidelines for the Assessment and Management of Groundwater Contamination (DECC 2007)*
- *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (DECC 2009)*
- *Site Validation Reporting (DECCW 2010b)*
- *The Requirements of the Guidelines for the NSW Site Auditor Scheme (DEC 2006)*
- *AS4629;2004 "Method for the Qualitative Identification of Asbestos in Bulk Samples"*
- *Protection of the Environment Operations Act 1997- Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*

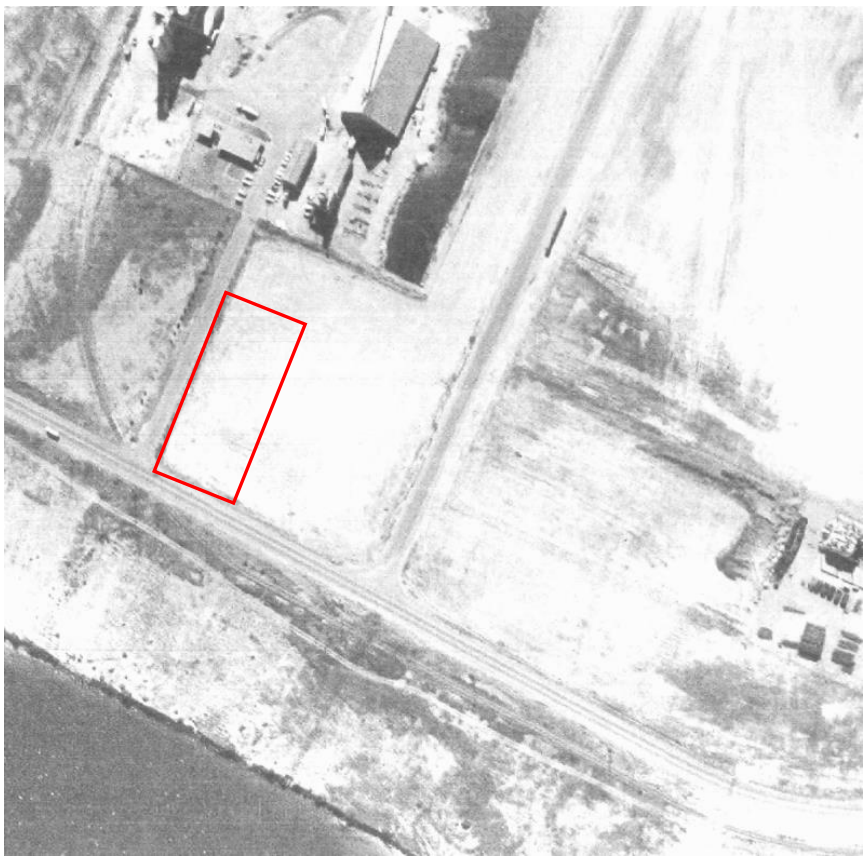
REPORT LIMITATIONS

Sanko Excavation Environmental and Civil Service Pty Ltd have undertaken a site assessment in accordance with current industry and professional standards. The scope of works were limited to that as set out in the proposal as refered to in this investigation. This report is based upon limited site investigation and subsurface sampling and laboratory testing of samples as set out in the forementioned proposal. Report findings are based upon site conditions at the time of investigation and as such can not be relied upon for unqualified warranties or assume liablity for site conditions not observed and/or accessable during or at the time of investigation. The works are restricted to the site detailed in the report with no offsite investigations conducted. Despite all resaonable care and dilligance taken ground conditions encountered and contaminant concentrations may not represent conditions between sample locations. Site characteristics may also change subsequent to this investigation due to natural processes, chemical reactions, spilling or leaking of contaminants, change in water levels or dumping of fill. All observations and interpretation is made from a limited number of observation points assuming geological and chemical conditions are representative across the site. No other warranties are made or intended. Third parties should seek their own independent advice regarding report contents. This report has been prepared exclusively for the client as detailed on the report and remains the property of this company and the client and can not be reproduced without the written consent of the client as detailed on the report and can then only be reproduced in its entirety.



1954

1966



1975

1983

1993

2004

2007

2010

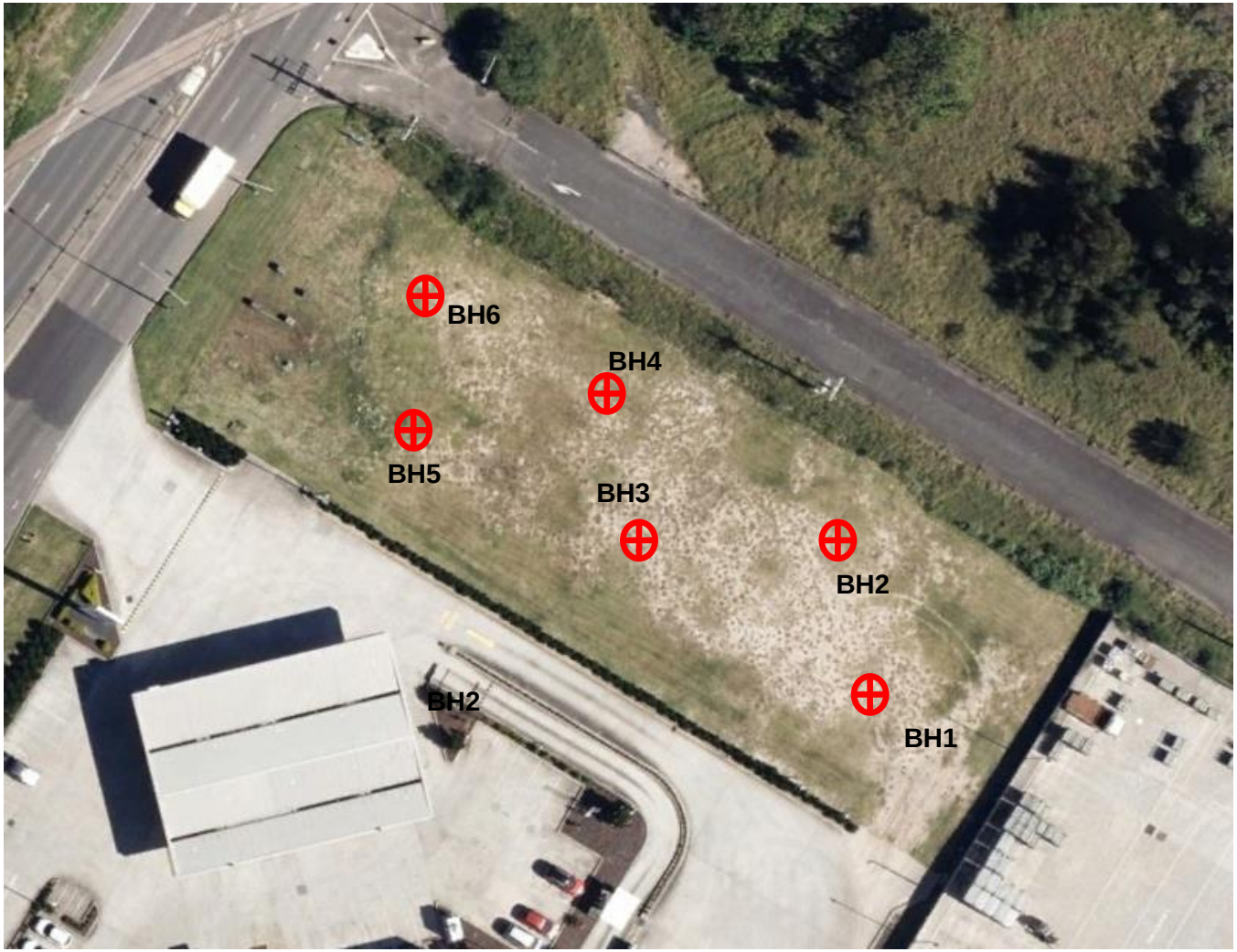
2013

2024

Figure 1 - Site Location

Figure 2 – Site Boundaries

N



DETAILED SITE INVESTIGATION

295 CORMORANT RD, KOORAGANG, NSW

FIGURE 3 – TEST LOCATIONS

MAY 2024

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(Top) Figure 4 - Geology Map of Site

(Bottom) Figure 5 – ASS Map of Site

X2: Disturbed terrain, elevation 2-4 m AHD

DEFINITION:

In engineering terms soil includes every type of uncemented or partially cemented inorganic or organic material found in the ground. In practice, if the material can be remoulded or disintegrated by hand in its field condition or in water it is described as a soil. Other materials are described using rock description terms.

CLASSIFICATION SYMBOL & SOIL NAME

Soils are described in accordance with the Unified Soil Classification (UCS) as shown in the table on Sheet 2.

PARTICLE SIZE DESCRIPTIVE TERMS

NAME	SUBDIVISION	SIZE
Boulders		>200 mm
Cobbles		63 mm to 200 mm
Gravel	coarse	20 mm to 63 mm
	medium	6 mm to 20 mm
	fine	2.36 mm to 6 mm
Sand	coarse	600 µm to 2.36 mm
	medium	200 µm to 600 µm
	fine	75 µm to 200 µm

MOISTURE CONDITION

Dry Looks and feels dry. Cohesive and cemented soils are hard, friable or powdery. Uncemented granular soils run freely through hands.

Moist Soil feels cool and darkened in colour. Cohesive soils can be moulded. Granular soils tend to cohere.

Wet As for moist but with free water forming on hands when handled.

CONSISTENCY OF COHESIVE SOILS

TERM	UNDRAINED STRENGTH s_u (kPa)	FIELD GUIDE
Very Soft	<12	A finger can be pushed well into the soil with little effort.
Soft	12 - 25	A finger can be pushed into the soil to about 25mm depth.
Firm	25 - 50	The soil can be indented about 5mm with the thumb, but not penetrated.
Stiff	50 - 100	The surface of the soil can be indented with the thumb, but not penetrated.
Very Stiff	100 - 200	The surface of the soil can be marked, but not indented with thumb pressure.
Hard	>200	The surface of the soil can be marked only with the thumbnail.
Friable	–	Crumbles or powders when scraped by thumbnail.

DENSITY OF GRANULAR SOILS

TERM	DENSITY INDEX (%)
Very loose	Less than 15
Loose	15 - 35
Medium Dense	35 - 65
Dense	65 - 85
Very Dense	Greater than 85

MINOR COMPONENTS

TERM	ASSESSMENT GUIDE	PROPORTION OF MINOR COMPONENT IN:
Trace of	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component.	Coarse grained soils: <5% Fine grained soils: <15%
With some	Presence easily detected by feel or eye, soil properties little different to general properties of primary component.	Coarse grained soils: 5 - 12% Fine grained soils: 15 - 30%

SOIL STRUCTURE

ZONING		CEMENTING	
Layers	Continuous across exposure or sample.	Weakly cemented	Easily broken up by hand in air or water.
Lenses	Discontinuous layers of lenticular shape.	Moderately cemented	Effort is required to break up the soil by hand in air or water.
Pockets	Irregular inclusions of different material.		

GEOLOGICAL ORIGIN

WEATHERED IN PLACE SOILS

Extremely weathered material	Structure and fabric of parent rock visible.
Residual soil	Structure and fabric of parent rock not visible.

TRANSPORTED SOILS

Aeolian soil	Deposited by wind.
Alluvial soil	Deposited by streams and rivers.
Colluvial soil	Deposited on slopes (transported downslope by gravity).
Fill	Man made deposit. Fill may be significantly more variable between tested locations than naturally occurring soils.
Lacustrine soil	Deposited by lakes.
Marine soil	Deposited in ocean basins, bays, beaches and estuaries.

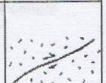
SOIL DESCRIPTION EXPLANATION SHEET 1/2

SOIL CLASSIFICATION INCLUDING IDENTIFICATION AND DESCRIPTION

FIELD IDENTIFICATION PROCEDURES (Excluding particles larger than 60 mm and basing fractions on estimated mass)							USC	PRIMARY NAME
COARSE GRAINED SOILS More than 50% of materials less than 63 mm is larger than 0.075 mm	(About the smallest particle visible to the naked eye)	GRAVELS More than half of coarse fraction is larger than 2.0 mm	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes.			GW	GRAVEL
				Predominantly one size or a range of sizes with more intermediate sizes missing.			GP	GRAVEL
			GRAVELS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below)			GM	SILTY GRAVEL
				Plastic fines (for identification procedures see CL below)			GC	CLAYEY GRAVEL
		SANDS More than half of coarse fraction is smaller than 2.0 mm	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate sizes missing			SW	SAND
				Predominantly one size or a range of sizes with some intermediate sizes missing.			SP	SAND
			SANDS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below).			SM	SILTY SAND
				Plastic fines (for identification procedures see CL below).			SC	CLAYEY SAND
FINE GRAINED SOILS More than 50% of material less than 63 mm is smaller than 0.075 mm	(A 0.075 mm particle is about the smallest particle visible to the naked eye)			IDENTIFICATION PROCEDURES ON FRACTIONS <0.2 mm.				
				DRY STRENGTH	DILATANCY	TOUGHNESS		
		SILTS & CLAYS Liquid limit less than 50		None to Low	Quick to slow	None	ML	SILT
				Medium to High	None	Medium	CL	CLAY
				Low to medium	Slow to very slow	Low	OL	ORGANIC SILT
		SILTS & CLAYS Liquid limit greater than 50		Low to medium	Slow to very slow	Low to medium	MH	SILT
				High	None	High	CH	CLAY
				Medium to High	None	Low to medium	OH	ORGANIC CLAY
HIGHLY ORGANIC SOILS		Readily identified by colour, odour, spongy feel and frequently by fibrous texture.					Pt	PEAT

• Low plasticity – Liquid Limit W_L less than 35%. • Modium plasticity – W_L between 35% and 50%.

COMMON DEFECTS IN SOIL

TERM	DEFINITION	DIAGRAM
PARTING	A surface or crack across which the soil has little or no tensile strength. Parallel or sub parallel to layering (eg bedding). May be open or closed.	
JOINT	A surface or crack across which the soil has little or no tensile strength but which is not parallel or sub parallel to layering. May be open or closed. The term 'fissure' may be used for irregular joints <0.2 m in length.	
SHEARED ZONE	Zone in clayey soil with roughly parallel near planar, curved or undulating boundaries containing closely spaced, smooth or slickensided, curved intersecting joints which divide the mass into lenticular or wedge shaped blocks.	
SHEARED SURFACE	A near planar curved or undulating, smooth, polished or slickensided surface in clayey soil. The polished or slickensided surface indicates that movement (in many cases very little) has occurred along the defect.	

TERM	DEFINITION	DIAGRAM
SOFTENED ZONE	A zone in clayey soil, usually adjacent to a defect in which the soil has a higher moisture content than elsewhere.	
TUBE	Tubular cavity. May occur singly or as one of a large number of separate or inter-connected tubes. Walls often coated with clay or strengthened by denser packing of grains. May contain organic matter	
TUBE CAST	Roughly cylindrical elongated body of soil different from the soil mass in which it occurs. In some cases the soil which makes up the tube cast is cemented.	
INFILLED SEAM	Sheet or wall like body of soil substance or mass with roughly planar to irregular near parallel boundaries which cuts through a soil mass. Formed by infilling of open joints.	

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SOIL DESCRIPTION EXPLANATION SHEET 2/2

LOCATION:	**295 CORMORANT DRIVE, KOORAGANG**
JOB NUMBER:	**E24 023**
DATE:	**22/03/2024**
MACHINE / LOGGED BY:	**TRAILER LOG / DS**

BH - 1

DEPTH (m BGL)	MATERIAL PROPERTIES	STRUCTURE AND ADDITIONAL OBSERVATIONS
0.0 – 0.6	Gravelly Sandy CLAY; low plasticity, brown, fine sand and gravel, M>Wp, soft	FILL
0.6 – 1.5	Silty SAND; fine to medium grained, grey becoming pale grey below 1.0m, low plasticity fines, dry becoming moist, dense	ALLUVIUM
1.5 – 3.0	SAND; medium to coarse grained, pale yellow, moist	ALLUVIUM
3.0 – 3.5+	Silty SAND; fine grained, dark grey, low plasticity fines, wet	ALLUVIUM

BOREHOLE BH1 TERMINATED AT 3.5m (Limit of Investigation)

MINOR SEEPAGE ENCOUNTERED @ 3.3m

LOCATION:	**295 CORMORANT DRIVE, KOORAGANG**
JOB NUMBER:	**E24 023**
DATE:	**22/03/2024**
MACHINE / LOGGED BY:	**TRAILER LOG / DS**

BH - 2

DEPTH (m BGL)	MATERIAL PROPERTIES	STRUCTURE AND ADDITIONAL OBSERVATIONS
0.0 – 0.5	Gravelly Sandy CLAY; low plasticity, brown, fine sand and gravel, M>Wp, soft	FILL
0.5 – 1.5	Silty SAND; fine to medium grained, grey becoming pale grey below 1.0m, low plasticity fines, dry becoming moist, dense	ALLUVIUM
1.5 – 3.2	SAND; medium to coarse grained, pale yellow, moist	ALLUVIUM
3.2 – 3.5+	Silty SAND; fine grained, dark grey, low plasticity fines, wet	ALLUVIUM

BOREHOLE BH2 TERMINATED AT 3.5m (Limit of Investigation)

MINOR SEEPAGE ENCOUNTERED @ 3.4m

LOCATION:	**295 CORMORANT DRIVE, KOORAGANG**
JOB NUMBER:	**E24 023**
DATE:	**22/03/2024**
MACHINE / LOGGED BY:	**TRAILER LOG / DS**

BH - 3

DEPTH (m BGL)	MATERIAL PROPERTIES	STRUCTURE AND ADDITIONAL OBSERVATIONS
0.0 – 0.5	Gravelly Sandy CLAY; low plasticity, brown, fine sand and gravel, M>Wp, soft	FILL
0.5 – 1.6	Silty SAND; fine to medium grained, grey becoming pale grey below 1.0m, low plasticity fines, dry becoming moist, dense	ALLUVIUM
1.6 – 3.3	SAND; medium to coarse grained, pale yellow, moist	ALLUVIUM
3.3 – 3.5+	Silty SAND; fine grained, dark grey, low plasticity fines, wet	ALLUVIUM

BOREHOLE BH1 TERMINATED AT 3.5m (Limit of Investigation)

MINOR SEEPAGE ENCOUNTERED @ 3.4m

LOCATION:	**295 CORMORANT DRIVE, KOORAGANG**
JOB NUMBER:	**E24 023**
DATE:	**22/03/2024**
MACHINE / LOGGED BY:	**TRAILER LOG / DS**

BH - 4

DEPTH (m BGL)	MATERIAL PROPERTIES	STRUCTURE AND ADDITIONAL OBSERVATIONS
0.0 – 0.6	Gravelly Sandy CLAY; low plasticity, brown, fine sand and gravel, M>Wp, soft	FILL
0.6 – 1.7	Silty SAND; fine to medium grained, grey becoming pale grey below 1.0m, low plasticity fines, dry becoming moist, dense	ALLUVIUM
1.7 – 3.4	SAND; medium to coarse grained, pale yellow, moist	ALLUVIUM
3.4 – 3.5+	Silty SAND; fine grained, dark grey, low plasticity fines, wet	ALLUVIUM

BOREHOLE BH1 TERMINATED AT 3.5m (Limit of Investigation)

SEEPAGE NOT ENCOUNTERED

LOCATION:	**295 CORMORANT DRIVE, KOORAGANG**
JOB NUMBER:	**E24 023**
DATE:	**22/03/2024**
MACHINE / LOGGED BY:	**TRAILER LOG / DS**

BH - 5

DEPTH (m BGL)	MATERIAL PROPERTIES	STRUCTURE AND ADDITIONAL OBSERVATIONS
0.0 – 0.5	Gravelly Sandy CLAY; low plasticity, brown, fine sand and gravel, M>Wp, soft	FILL
0.5 – 1.5	Silty SAND; fine to medium grained, grey becoming pale grey below 1.0m, low plasticity fines, dry becoming moist, dense	ALLUVIUM
1.5 – 3.1	SAND; medium to coarse grained, pale yellow, moist	ALLUVIUM
3.1 – 3.5+	Silty SAND; fine grained, dark grey, low plasticity fines, wet	ALLUVIUM

BOREHOLE BH5 TERMINATED AT 3.5m (Limit of Investigation)

MINOR SEEPAGE ENCOUNTERED @ 3.3m

LOCATION:	**295 CORMORANT DRIVE, KOORAGANG**
JOB NUMBER:	**E24 023**
DATE:	**22/03/2024**
MACHINE / LOGGED BY:	**TRAILER LOG / DS**

BH - 6

DEPTH (m BGL)	MATERIAL PROPERTIES	STRUCTURE AND ADDITIONAL OBSERVATIONS
0.0 – 0.7	Gravelly Sandy CLAY; low plasticity, brown, fine sand and gravel, M>Wp, soft	FILL
0.7 – 1.7	Silty SAND; fine to medium grained, grey becoming pale grey below 1.0m, low plasticity fines, dry becoming moist, dense	ALLUVIUM
1.7 – 3.2	SAND; medium to coarse grained, pale yellow, moist	ALLUVIUM
3.2 – 3.5+	Silty SAND; fine grained, dark grey, low plasticity fines, wet	ALLUVIUM

BOREHOLE BH6 TERMINATED AT 3.5m (Limit of Investigation)

MINOR SEEPAGE ENCOUNTERED @ 3.4m

RESULTS TABLE - SOIL

Sample	PQL	GUIDELINES*										BH1	BH1	BH1	BH2	BH2	BH3	BH3	BH4	BH4	BH5
Depth		HSL D[a]					ESL C&I[b]		NS ML[c]		DC D^	0.6	1.0	3.5	0.5	2.5	0.0	1.3	0.2	3.0	0.2
Date		Sand 0<1	Silt 0<1	Silt 1-2	Silt 2-4	Silt >4	Coarse	Fine	Coarse	Fine		22/3	22/3	22/3	22/3	22/3	22/3	22/3	22/3	22/3	22/3
Material Profile												C	C	C	C	C	C	C	C	C	C
Strata												SIlt	Silt	Silt	Silt	Silt	Silt	Fill	Silt	Silt	Silt
BTEX																					
Benzene	0.2	3	4	4	6	10	75	95			430	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toluene	0.5	NL	NL	NL	NL	NL	135	135			99K	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethylbenzene	0.5	NL	NL	NL	NL	NL	165	185			27K	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m&p Xylene	0.5											BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ortho-xylene	0.5											BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Total Xylene	3	230	NL	NL	NL	NL	180	95			61K	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
PAH																					
Naphlhlalne	1	NL	NL	NL	NL	NL	370	370			11K	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TRH																					
C6-10	10								700	800	26K	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
C>10-16	50						170	170	1000	1000	20K	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
C>16-34	100						1700	2500	3500	5000	27K	BDL	BDL	BDL	BDL	BDL	BDL	340	BDL	BDL	BDL
C>34-40	100						3300	6600	10000	10000	30K	BDL	BDL	BDL	BDL	BDL	BDL	260	BDL	BDL	BDL
F1	10	260	250	360	590	NL	215	215				BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
F2	50	NL	NL	NL	NL	NL						BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Bold RED exceedes guidelines from NEMP 1999 (Amended 2013) - Ecological Screening Levels (ESL) Commercial and Industrial (C&I)

BDL Denotes Below Detection Limits All units in mg/kg **NL** Denotes Not Limited as vapour considered not a risk for this compound

* Guidelines from NEMP 1999 (Amended 2013) ^ DC D from CRC Care TR10 2011 – Direct Contact (DC) 'D' (Commercial/Industrial)

[a] Vapour Based Health Screening Levels (HSL's) 'D' - Commercial and Industrial

[b] ESL C&I from Ecological Screening Levels - Commercial and Industrial (C&I)

[c] NS ML Management Limits of Non Sensitive Sites – Commercial and Industrial

RESULTS TABLE - SOIL

Sample	PQL	GUIDELINES*										BH5	BH5	BH6	BH6	DUP					
Depth		HSL D[a]					ESL C&I[b]		NS ML[c]		DC D^	1.2	2.5	0.6	3.2	6/3.2					
Date		Sand 0<1	Silt 0<1	Silt 1-2	Silt 2-4	Silt >4	Coarse	Fine	Coarse	Fine		22/3	22/3	22/3	22/3	22/3					
Material Profile												C	C	C	C	C					
Strata												SIlt	Silt	Silt	Silt	Silt					
BTEX																					
Benzene	0.2	3	4	4	6	10	75	95			430	BDL	BDL	BDL	BDL	BDL					
Toluene	0.5	NL	NL	NL	NL	NL	135	135			99K	BDL	BDL	BDL	BDL	BDL					
Ethylbenzene	0.5	NL	NL	NL	NL	NL	165	185			27K	BDL	BDL	BDL	BDL	BDL					
m&p Xylene	0.5											BDL	BDL	BDL	BDL	BDL					
Ortho-xylene	0.5											BDL	BDL	BDL	BDL	BDL					
Total Xylene	3	230	NL	NL	NL	NL	180	95			61K	BDL	BDL	BDL	BDL	BDL					
PAH																					
Naphlhlalne	1	NL	NL	NL	NL	NL	370	370			11K	BDL	BDL	BDL	BDL	BDL					
TRH																					
C6-10	10								700	800	26K	BDL	BDL	BDL	BDL	BDL					
C>10-16	50						170	170	1000	1000	20K	BDL	BDL	54	BDL	BDL					
C>16-34	100						1700	2500	3500	5000	27K	BDL	BDL	370	BDL	BDL					
C>34-40	100						3300	6600	10000	10000	30K	BDL	BDL	100	BDL	BDL					
F1	10	260	250	360	590	NL	215	215				BDL	BDL	BDL	BDL	BDL					
F2	50	NL	NL	NL	NL	NL						BDL	BDL	BDL	BDL	BDL					

Bold RED exceedes guidelines from NEMP 1999 (Amended 2013) - Ecological Screening Levels (ESL) Commercial and Industrial (C&I)

BDL Denotes Below Detection Limits All units in mg/kg **NL** Denotes Not Limited as vapour considered not a risk for this compound

* Guidelines from NEMP 1999 (Amended 2013) ^ DC D from CRC Care TR10 2011 – Direct Contact (DC) 'D' (Commercial/Industrial)

[a] Vapour Based Health Screening Levels (HSL's) 'D' - Commercial and Industrial

[b] ESL C&I from Ecological Screening Levels - Commercial and Industrial (C&I)

[c] NS ML Management Limits of Non Sensitive Sites – Commercial and Industrial

RESULTS TABLE - SOIL

Sample	PQL	Guidelines *		BH1	BH1	BH1	BH2	BH2	BH3	BH3	BH4	BH4	BH5
Depth		HIL 'D'[e]	ESL	0.6	1.0	3.5	0.5	2.5	0.0	1.3	0.2	3.0	0.2
Date			C&I[f]	22/3	22/3	22/3	22/3	22/3	22/3	22/3	22/3	22/3	22/3
			Profile	C	C	C	C	C	C	C	C	C	C
PAH													
Naphthalene	0.5		370	BDL	BDL	1.0	BDL	BDL	BDL	0.2	BDL	BDL	BDL
Acenaphthylene	0.5			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Acenaphthene	0.5			BDL	BDL	0.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Fluorene	0.5			BDL	BDL	0.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Phenanthrene	0.5			BDL	BDL	0.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Anthracene	0.5			BDL	BDL	0.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Fluoranthene	0.5			BDL	0.1	0.7	BDL	BDL	BDL	0.2	BDL	BDL	BDL
Pyrene	0.5			BDL	0.1	0.7	BDL	BDL	BDL	0.1	BDL	BDL	BDL
Benzo(a)anthracene	0.5			BDL	BDL	0.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chrysene	0.5			BDL	BDL	0.2	BDL	BDL	BDL	0.1	BDL	BDL	BDL
Benzo(b,j+k)fluoranthene	1			BDL	BDL	0.4	BDL	BDL	BDL	0.2	BDL	BDL	BDL
Benzo(a)pyrene	0.5	40	0.7	BDL	0.08	0.3	BDL	BDL	BDL	0.1	BDL	BDL	BDL
Indeno(1,2,3-c,d)pyrene	0.5			BDL	BDL	0.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibenzo(a,h) anthracene	0.5			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzo(g,h,i)perylene	0.5			BDL	BDL	0.2	BDL	BDL	BDL	0.1	BDL	BDL	BDL
Total +PAH	0.5	4000		BDL	0.4	4.8	BDL	BDL	BDL	1.0	BDL	BDL	BDL
METALS													
Arsenic	5	3000	160	9	<4	6	21	<4	17	<4	16	<4	10
Cadmium	1	900		0.4	<0.4	<0.4	<0.4	<0.4	0.6	<0.4	0.8	<0.4	0.4
Chromium	2	3600	310	8	3	25	10	2	9	5	8	2	8
Copper	5	240K	400	6	3	17	5	<1	9	5	11	<1	13
Lead	5	1500	1800	52	11	62	46	2	75	22	99	1	55
Mercury	0.1	730		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	2	6000	55	4	3	19	3	1	5	3	6	1	6
Zink	5	400K	360	58	42	300	48	8	84	50	100	6	88

* Guidelines from NEMP 1999 (Amended 2013)

Results in **Red BOLD** exceed Guideline Levels

[e] HIL - Health Investigation Levels 'D' Commercial and Industrial [f] ESL C&I from Ecological Screening Levels - Commercial and Industrial (C&I)

RESULTS TABLE - SOIL

Sample	PQL	Guidelines *		BH5	BH5	BH6	BH6	DUP					
Depth		HIL 'D'[e]	ESL	1.2	2.5	0.6	3.2	6/3.2					
Date			C&I[f]	22/3	22/3	22/3	22/3	22/3					
			Profile	C	C	C	C	C					
PAH													
Naphthalene	0.5		370	BDL	BDL	BDL	BDL	BDL					
Acenaphthylene	0.5			BDL	BDL	BDL	BDL	BDL					
Acenaphthene	0.5			BDL	BDL	BDL	BDL	BDL					
Fluorene	0.5			BDL	BDL	BDL	BDL	BDL					
Phenanthrene	0.5			BDL	BDL	BDL	BDL	BDL					
Anthracene	0.5			BDL	BDL	BDL	BDL	BDL					
Fluoranthene	0.5			BDL	0.1	BDL	BDL	BDL					
Pyrene	0.5			BDL	0.1	BDL	BDL	BDL					
Benzo(a)anthracene	0.5			BDL	BDL	BDL	BDL	BDL					
Chrysene	0.5			BDL	BDL	BDL	BDL	BDL					
Benzo(b,j+k)fluoranthene	1			BDL	BDL	BDL	BDL	BDL					
Benzo(a)pyrene	0.5	40	0.7	BDL	0.06	BDL	BDL	BDL					
Indeno(1,2,3-c,d)pyrene	0.5			BDL	BDL	BDL	BDL	BDL					
Dibenzo(a,h) anthracene	0.5			BDL	BDL	BDL	BDL	BDL					
Benzo(g,h,i)perylene	0.5			BDL	BDL	BDL	BDL	BDL					
Total +PAH	0.5	4000		BDL	0.3	BDL	BDL	BDL					
METALS													
Arsenic	5	3000	160	<4	<4	18	<4	<4					
Cadmium	1	900		<0.4	<0.4	0.7	<0.4	<0.4					
Chromium	2	3600	310	3	1	12	2	2					
Copper	5	240K	400	3	<1	4	<1	<1					
Lead	5	1500	1800	9	2	68	2	1					
Mercury	0.1	730		<0.1	<0.1	0.7	0.2	0.1					
Nickel	2	6000	55	2	<1	2	1	2					
Zink	5	400K	360	40	5	49	14	8					

* Guidelines from NEMP 1999 (Amended 2013)

Results in **Red BOLD** exceed Guideline Levels

[e] HIL - Health Investigation Levels 'D' Commercial and Industrial [f] ESL C&I from Ecological Screening Levels - Commercial and Industrial (C&I)

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CERTIFICATE OF ANALYSIS 347448

Client Details

Client	Sanko excavation Environmental & Civil Services
Attention	Damien Sankowsky
Address	76 Wollombi Rd, Millfield, NSW, 2325

Sample Details

Your Reference	**E24 023-295 Cormorant DV**
Number of Samples	15 Soil
Date samples received	26/03/2024
Date completed instructions received	26/03/2024

Analysis Details

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

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

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

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	04/04/2024
Date of Issue	10/04/2024

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Results Approved By
Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		347448-1	347448-2	347448-3	347448-4	347448-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.6	1.0	3.5	0.5	2.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	29/03/2024	29/03/2024	29/03/2024	29/03/2024	29/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	102	94	93	87	96

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		347448-6	347448-7	347448-8	347448-9	347448-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH5
Depth		0.0	1.3	0.2	3.0	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	29/03/2024	29/03/2024	29/03/2024	29/03/2024	29/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	103	86	74	82	101

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		347448-11	347448-12	347448-13	347448-14	347448-15
Your Reference	UNITS	BH5	BH5	BH6	BH6	DUP
Depth		1.2	2.5	0.6	3.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	29/03/2024	29/03/2024	29/03/2024	29/03/2024	29/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	101	102	82	75	94

svTRH (C10-C40) in Soil						
Our Reference		347448-1	347448-2	347448-3	347448-4	347448-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.6	1.0	3.5	0.5	2.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	30/03/2024	30/03/2024	30/03/2024	30/03/2024	30/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	81	82	89	81	79

svTRH (C10-C40) in Soil						
Our Reference		347448-6	347448-7	347448-8	347448-9	347448-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH5
Depth		0.0	1.3	0.2	3.0	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	30/03/2024	30/03/2024	30/03/2024	30/03/2024	30/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	170	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	280	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	450	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	340	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	260	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	610	<50	<50	<50	<50
Surrogate o-Terphenyl	%	119	82	82	79	83

svTRH (C10-C40) in Soil						
Our Reference		347448-11	347448-12	347448-13	347448-14	347448-15
Your Reference	UNITS	BH5	BH5	BH6	BH6	DUP
Depth		1.2	2.5	0.6	3.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	30/03/2024	30/03/2024	30/03/2024	30/03/2024	30/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	80	79	84	78	78

PAHs in Soil						
Our Reference		347448-1	347448-2	347448-3	347448-4	347448-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.6	1.0	3.5	0.5	2.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Naphthalene	mg/kg	<0.1	<0.1	1.0	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.4	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1	0.7	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.1	0.7	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.4	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.08	0.3	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.4	4.8	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	96	99	96	96	99

PAHs in Soil						
Our Reference		347448-6	347448-7	347448-8	347448-9	347448-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH5
Depth		0.0	1.3	0.2	3.0	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Naphthalene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.1	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	1.0	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	99	96	95	99	97

PAHs in Soil						
Our Reference		347448-11	347448-12	347448-13	347448-14	347448-15
Your Reference	UNITS	BH5	BH5	BH6	BH6	DUP
Depth		1.2	2.5	0.6	3.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.06	0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.3	0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	105	102	100	96	95

Organochlorine Pesticides in soil						
Our Reference		347448-1	347448-2	347448-3	347448-4	347448-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.6	1.0	3.5	0.5	2.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	98	97	91	92	99

Organochlorine Pesticides in soil						
Our Reference		347448-6	347448-7	347448-8	347448-9	347448-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH5
Depth		0.0	1.3	0.2	3.0	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	96	96	99	95	94

Organochlorine Pesticides in soil						
Our Reference		347448-11	347448-12	347448-13	347448-14	347448-15
Your Reference	UNITS	BH5	BH5	BH6	BH6	DUP
Depth		1.2	2.5	0.6	3.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	96	95	95	96	93

Organophosphorus Pesticides in Soil						
Our Reference		347448-1	347448-2	347448-3	347448-4	347448-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.6	1.0	3.5	0.5	2.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	98	97	91	92	99

Organophosphorus Pesticides in Soil						
Our Reference		347448-6	347448-7	347448-8	347448-9	347448-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH5
Depth		0.0	1.3	0.2	3.0	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	96	96	99	95	94

Organophosphorus Pesticides in Soil						
Our Reference		347448-11	347448-12	347448-13	347448-14	347448-15
Your Reference	UNITS	BH5	BH5	BH6	BH6	DUP
Depth		1.2	2.5	0.6	3.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	96	95	95	96	93

PCBs in Soil						
Our Reference		347448-1	347448-2	347448-3	347448-4	347448-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.6	1.0	3.5	0.5	2.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	97	100	98	100	100

PCBs in Soil						
Our Reference		347448-6	347448-7	347448-8	347448-9	347448-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH5
Depth		0.0	1.3	0.2	3.0	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	98	97	97	98	97

PCBs in Soil						
Our Reference		347448-11	347448-12	347448-13	347448-14	347448-15
Your Reference	UNITS	BH5	BH5	BH6	BH6	DUP
Depth		1.2	2.5	0.6	3.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	99	95	96	99	95

Acid Extractable metals in soil						
Our Reference		347448-1	347448-2	347448-3	347448-4	347448-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.6	1.0	3.5	0.5	2.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/04/2024	02/04/2024	02/04/2024	02/04/2024	02/04/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Arsenic	mg/kg	9	<4	6	21	<4
Cadmium	mg/kg	0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	3	25	10	2
Copper	mg/kg	8	3	17	5	<1
Lead	mg/kg	52	11	62	46	2
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	3	19	3	1
Zinc	mg/kg	58	42	300	48	8

Acid Extractable metals in soil						
Our Reference		347448-6	347448-7	347448-8	347448-9	347448-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH5
Depth		0.0	1.3	0.2	3.0	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/04/2024	02/04/2024	02/04/2024	02/04/2024	02/04/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Arsenic	mg/kg	17	<4	16	<4	10
Cadmium	mg/kg	0.6	<0.4	0.8	<0.4	0.4
Chromium	mg/kg	9	5	8	2	8
Copper	mg/kg	9	5	11	<1	13
Lead	mg/kg	75	22	99	1	55
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	3	6	1	6
Zinc	mg/kg	84	50	100	6	88

Acid Extractable metals in soil						
Our Reference		347448-11	347448-12	347448-13	347448-14	347448-15
Your Reference	UNITS	BH5	BH5	BH6	BH6	DUP
Depth		1.2	2.5	0.6	3.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/04/2024	02/04/2024	02/04/2024	02/04/2024	02/04/2024
Date analysed	-	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Arsenic	mg/kg	<4	<4	14	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	3	1	12	2	2
Copper	mg/kg	3	<1	4	<1	<1
Lead	mg/kg	9	2	38	2	1
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	<1	2	1	2
Zinc	mg/kg	40	5	49	14	8

Acid Extractable metals in soil		
Our Reference		347448-16
Your Reference	UNITS	BH1 - [TRIPLICATE]
Depth		0.6
Type of sample		Soil
Date prepared	-	02/04/2024
Date analysed	-	03/04/2024
Arsenic	mg/kg	19
Cadmium	mg/kg	0.5
Chromium	mg/kg	6
Copper	mg/kg	8
Lead	mg/kg	62
Mercury	mg/kg	<0.1
Nickel	mg/kg	4
Zinc	mg/kg	66

Moisture						
Our Reference		347448-1	347448-2	347448-3	347448-4	347448-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.6	1.0	3.5	0.5	2.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	29/03/2024	29/03/2024	29/03/2024	29/03/2024	29/03/2024
Moisture	%	11	1.5	18	12	4.6

Moisture						
Our Reference		347448-6	347448-7	347448-8	347448-9	347448-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH5
Depth		0.0	1.3	0.2	3.0	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	29/03/2024	29/03/2024	29/03/2024	29/03/2024	29/03/2024
Moisture	%	14	3.2	10	4.0	13

Moisture						
Our Reference		347448-11	347448-12	347448-13	347448-14	347448-15
Your Reference	UNITS	BH5	BH5	BH6	BH6	DUP
Depth		1.2	2.5	0.6	3.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Date analysed	-	29/03/2024	29/03/2024	29/03/2024	29/03/2024	29/03/2024
Moisture	%	3.6	2.7	16	4.3	5.1

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date extracted	-			28/03/2024	1	28/03/2024	28/03/2024		28/03/2024	[NT]
Date analysed	-			29/03/2024	1	29/03/2024	29/03/2024		29/03/2024	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	87	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	87	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	92	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	93	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	81	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	84	[NT]
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	83	[NT]
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	95	1	102	107	5	97	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	28/03/2024	28/03/2024		[NT]	[NT]
Date analysed	-			[NT]	11	29/03/2024	29/03/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	11	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	11	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	11	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	11	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	11	101	98	3	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date extracted	-			28/03/2024	1	28/03/2024	28/03/2024		28/03/2024	[NT]
Date analysed	-			30/03/2024	1	30/03/2024	30/03/2024		30/03/2024	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	126	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	116	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	114	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	126	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	116	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	114	[NT]
Surrogate o-Terphenyl	%		Org-020	83	1	81	81	0	124	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	[NT]
Date extracted	-			[NT]	11	28/03/2024	28/03/2024		28/03/2024	[NT]
Date analysed	-			[NT]	11	30/03/2024	30/03/2024		30/03/2024	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	11	<50	<50	0	119	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	11	<100	<100	0	113	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	11	<100	<100	0	100	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	11	<50	<50	0	119	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	11	<100	<100	0	113	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	11	<100	<100	0	100	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	11	80	80	0	119	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date extracted	-			28/03/2024	1	28/03/2024	28/03/2024		28/03/2024	[NT]
Date analysed	-			03/04/2024	1	03/04/2024	03/04/2024		03/04/2024	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	0.2	67	96	[NT]
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	0.8	156	94	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	0.7	150	92	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	0.2	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	0.3	100	90	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	0.5	86	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	0.2	120	94	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	0.2	67	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	0.2	67	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	99	1	96	96	0	95	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	[NT]
Date extracted	-			[NT]	11	28/03/2024	28/03/2024		28/03/2024	[NT]
Date analysed	-			[NT]	11	03/04/2024	03/04/2024		03/04/2024	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	0.1	0	90	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	90	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	92	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	94	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	98	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	94	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	86	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	11	<0.05	<0.05	0	92	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	11	105	98	7	103	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date extracted	-			28/03/2024	1	28/03/2024	28/03/2024		28/03/2024	[NT]
Date analysed	-			03/04/2024	1	03/04/2024	03/04/2024		03/04/2024	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	122	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	118	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	120	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	132	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	134	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	136	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	138	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	122	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	128	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	126	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	94	1	98	93	5	94	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	[NT]
Date extracted	-			[NT]	11	28/03/2024	28/03/2024		28/03/2024	[NT]
Date analysed	-			[NT]	11	03/04/2024	03/04/2024		03/04/2024	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	124	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	120	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	124	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	132	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	126	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	140	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	138	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	126	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	130	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	122	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	11	96	97	1	94	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date extracted	-			28/03/2024	1	28/03/2024	28/03/2024		28/03/2024	[NT]
Date analysed	-			03/04/2024	1	03/04/2024	03/04/2024		03/04/2024	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	110	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	[NT]
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	[NT]
Fenthion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	[NT]
Phosalone	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	94	1	98	93	5	94	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	[NT]
Date extracted	-			[NT]	11	28/03/2024	28/03/2024		28/03/2024	[NT]
Date analysed	-			[NT]	11	03/04/2024	03/04/2024		03/04/2024	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	112	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	94	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	96	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	94	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	96	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	90	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	100	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	11	96	97	1	94	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date extracted	-			28/03/2024	1	28/03/2024	28/03/2024		28/03/2024	[NT]
Date analysed	-			03/04/2024	1	03/04/2024	03/04/2024		03/04/2024	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	99	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	101	1	97	98	1	98	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	[NT]
Date extracted	-			[NT]	11	28/03/2024	28/03/2024		28/03/2024	[NT]
Date analysed	-			[NT]	11	03/04/2024	03/04/2024		03/04/2024	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	11	<0.1	<0.1	0	118	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	11	99	94	5	96	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date prepared	-			02/04/2024	1	02/04/2024	02/04/2024		02/04/2024	[NT]
Date analysed	-			03/04/2024	1	03/04/2024	03/04/2024		03/04/2024	[NT]
Arsenic	mg/kg	4	Metals-020	<4	1	9	13	36	104	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	0.4	0.9	77	85	[NT]
Chromium	mg/kg	1	Metals-020	<1	1	6	120	181	94	[NT]
Copper	mg/kg	1	Metals-020	<1	1	8	12	40	97	[NT]
Lead	mg/kg	1	Metals-020	<1	1	52	74	35	112	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	88	[NT]
Nickel	mg/kg	1	Metals-020	<1	1	4	5	22	100	[NT]
Zinc	mg/kg	1	Metals-020	<1	1	58	87	40	100	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	02/04/2024	02/04/2024		[NT]	[NT]
Date analysed	-			[NT]	11	03/04/2024	03/04/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	11	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	11	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	11	3	3	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	11	3	2	40	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	11	9	8	12	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	11	2	2	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	11	40	32	22	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

PAHs in Soil - The RPD for duplicate results is accepted due to the non homogenous nature of sample/s 347448-1.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 347448-1 for Cr and Zn. Therefore a triplicate result has been issued as laboratory sample number 347448-16.

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 424 344

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph: 02 9910 6200 / sydney@envirolab.com.au

Perth Lab - MPL Laboratories
16-18 Hayden Crt Myaree, WA 6154
Ph: 08 9317 2505 / lab@mpl.com.au

Melbourne Lab - Envirolab Services
1A Dalmore Drive Scoresby VIC 3179
Ph: 03 9763 2500 / melbourne@envirolab.com.au

Adelaide Office - Envirolab Services
7a The Parade, Norwood, SA 5067
Ph: 08 7087 6800 / adelaide@envirolab.com.au

Brisbane Office - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
Ph: 07 3266 9532 / brisbane@envirolab.com.au

Darwin Office - Envirolab Services
Unit 7, 17 Willes Rd, Berrimah, NT 0820
Ph: 08 8967 1201 / darwin@envirolab.com.au

Client: Sanko Excavaton Environmental & Civil Services P/L
Contact Person: Damien Sankowsky
Project Mgr:
Sampler:
Address: 26 LEARMONTH ST, WILLOW TREE, NSW, 2339
0407 434 604
Phone: Mob:
Email: seecservices@hotmail.com

Client Project Name / Number / Site etc (ie report title): E24 023 - 295 CORMORANT AVE KOORAGANG
PO No.:
Envirolab Quote No.: 17SY108C3
Date results required:
Or choose: standard / same day / 1 day / 2 day / 3 day
Note: Inform lab in advance if urgent turnaround is required - surcharges apply
Additional report format: esdat / equis /
Lab Comments: TRH/BTEX/PAH/OCOP/PCB/HM8.

Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Combo 6 Suite															Provide as much information about the sample as you can
1	BH 1	0.6	13	SOIL JAR	/															
2	BH 1	1.0	↓	↓	/															
3	BH 1	3.5	↓	↓	/															
4	BH 2	0.5	↓	↓	/															
5	BH 2	2.5	↓	↓	/															
6	BH 3	0.0	↓	↓	/															
7	BH 3	1.3	↓	↓	/															
8	BH 4	0.2	↓	↓	/															
9	BH 4	3.0	↓	↓	/															
10	BH 5	0.2	↓	↓	/															
11	BH 5	1.2	↓	↓	/															
12	BH 5	2.5	↓	↓	/															
13	BH 6	0.6	↓	↓	/															
14	BH6	2.2	↓	↓	/															
15	DUP		↓	↓	/															

Relinquished by (Company): SANKO
Print Name: D. SANKOWSKY
Date & Time: 25.3.24
Signature: [signature]

Received by (Company): ELS SYD
Print Name: Shawn Tok
Date & Time: 26/3/24 1025
Signature: [signature]

Lab use only: 347446
Samples Received: Cool or Ambient (circle one)
Temperature Received at: 10 (if applicable)
Transported by: Hand delivered / courier

15 SAMPLES IN TOTAL

DEVELOPMENT APPLICATION

SHEET LIST

Sheet Number	Sheet Name	Current Rev
00	Title Page	3
01	Proposed Site Plan	3
02	Site Analysis Plan	1
03	Building A Plans	3
04	Building A Elevations	3
06	Building B Plans	3
07	Building B Elevations	3
10	Perspectives	3

GENERAL NOTES:

1. BUILDING SHELL DESIGN INTENT SHOWN.CONTRACTOR TO PROPOSE DETAILED DESIGN FOR CONSTRUCTION, INCLUDING ALL SITE RELATED WORKS, STRUCTURAL, CIVIL WORKS & BUILDING SERVICES.
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING IN-GROUND AND ABOVE-GROUND SERVICES WITHIN THE SCOPE OF WORKS BEFORE COMMENCING CONSTRUCTION/DEMOLITION.
3. ANY 3D DRAWINGS ARE INDICATIVE ONLY, AND ARE TO BE READ IN CONJUNCTION WITH OTHER RELEVANT DRAWINGS.
4. ALL ACCESSIBILITY AND MOBILITY DESIGN (DDA) ITEMS TO COMPLY WITH A.S. 1428.1 2009
5. THIS DRAWINGS SHOULD BE READ IN CONJUNCTION WITH ALL RELEVANT CONTRACTS, SPECIFICATIONS, SCHEDULES AND DRAWINGS INCLUDING CIVIL, STRUCTURAL, HYDRAULIC
6. DIMENSIONS:

CONTRACTOR AND SUB-CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF THIS DRAWING AND SITE CONDITIONS PRIOR TO ANY WORK COMMENCING.
FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS (UNLESS NOTED OTHERWISE).
FIGURED DIMENSIONS ARE:

- WALL / PARTITIONS SETOUT TO CENTRE LINE WHERE NOTED
- ALL OTHER WALL/PARTITION DIMENSIONS ARE TO FINISHED FACE OF PARTITION.
- CEILINGS: FINISHED UNDERSIDE OF CEILINGS - CEILING HEIGHT IS MEASURED FROM FINISH FLOOR LEVEL.
- FITTINGS AND FIXTURES: - DIMENSIONS TO FIXTURES AND FITTINGS ARE SETOUT FROM "FINISH" WALL FACE / FINISH FLOOR LEVEL.

PLANS TO BE READ IN CONJUNCTION WITH:

- BUILDING CODE OF AUSTRALIA
- RELEVANT AUSTRALIAN STANDARDS
- HYDRAULIC DRAWING SET
- CIVIL DRAWING SET
- STRUCTURAL DRAWING SET
- LANDSCAPE DRAWING SET

IF NO INTERNAL FITOUT FINISHES & PLANS ARE PRESENT, CLIENT SELECTIONS & DETAILS ARE TO TAKE PRECEDENCE.

LEGEND:

℄ CENTRE LINE

DP ▭ RAINWATER DOWNPIPE LOCATION AND NOS. SHOWN INDICATIVELY. CONTRACTOR TO DESIGN AND CONSTRUCT TO COMPLY WITH RELEVANT CODES AND STANDARDS.

BCA 2022 LIST OF CLAUSES:

- **Clause B1D4 – Materials & Forms Constructions**
- **Spec. 5 - Fire-Resisting Construction**
- **Spec. 7 – Fire Hazard Properties**
- **Spec. 8 – Performance of External Walls in a Fire**
- **Clause C3D7 – Vertical Separation of Openings in External Walls**
- **Clause C3D13 – Separation of Equipment**
- **Clause C3D14 – Electricity Supply System**
- **Clause C4D5 – Acceptable Methods of Protection (of openings)**
- **Clause C4D9 – Opening in Fire Isolated Exits**
- **Clause C4D15 – Openings for Service Installations**
- **Clause D2D15 – Discharge from Exits**
- **Clause D3D6 – Installations in Exits and Paths of Travel**

***- Clause D3D14 – Goings and Risers**
Treads which have:-

a. A surface with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586 **or**

(b) A nosing strip with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586.

***- Clause 3D15 – Landings** which have: -

a. A surface with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586; or

b. A strip at the edge of the landing with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586, where the edge leads to a flight below.

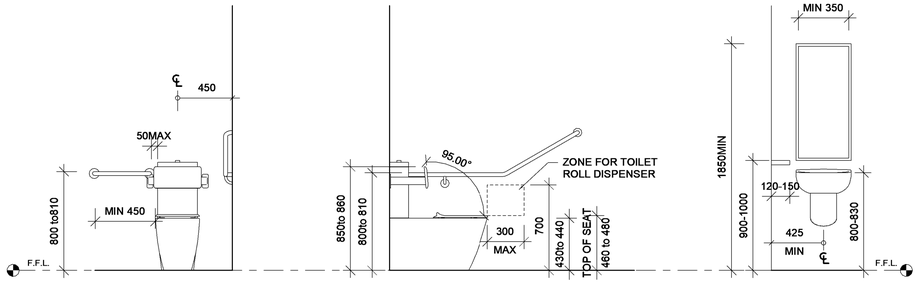
- **Clause D3D16 – Thresholds**

***- Clause D3D17 - D3D21 – Balustrades**

***- Clause D3D22 – Handrails**

- **Clause D3D26 – Operation of Latch**
- **Clause D3D28 – Signs on Doors**
- **Clause D4D2 – General Building Access Requirements**
- **Clause D4D4 – Parts of Building to be Accessible**
- **Clause D4D7 - Signage**
- **Clause D4D9 – Tactile Indicators**
- **Clause F2P2 - Wet Areas**
- **Clause F1D6 / F1D7 – Damp Proofing**
- **Clause F4D8 – Construction of Sanitary Compartments**
- **Part F6 – Light and Ventilation**
- **Clause F7D5 – Sound Insulation Rating of Floors**
- **Clause F7D6 – Sound Insulation Rating of Walls**
- **Clause F7D7 – Sound Insulation Rating of Internal Services**
- **Clause F7D8 – Sound Isolation of Pumps**

ACCESS AND MOBILITY



DISABLED BATHROOM TYPICAL DIMENSIONS
SCALE - 1:25

DIMENSIONS FROM WALLS ARE TAKE FROM THE FINISHED FACE

INFORMATION SHOWN IS INDICATIVE ONLY AND TO BE READ IN CONJUNTION WITH AS 1428.1 - 2009

KERB RAMP TYPICAL DIMENSIONS
SCALE - 1:25

REFER TO AS 1428.1 - 2009 FOR FURTHER INFORMATION

Rev	Description	Date	Issued by
3	DA Set	18.01.24	LT
2	DRAFT DESIGN	07.12.23	M.Marshall
1	NEW DESIGN	23.11.23	B.SIVA

2 Elwell Close
Beresfield, NSW 2322
PO Box 596
East Maitland NSW 2323
Ph: (02)4966 0218
BROWN COMMERCIAL BUILDING
www.brownbuild.com.au

Client

TBA

Project

INDUSTRIAL

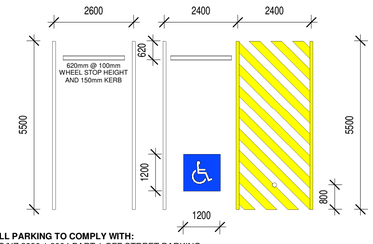
Location:	
Lot:	1
No:	295
Street:	COMMORANT ROAD
Suburb:	KOORAGANG
DP:	1195449
Scale	As indicated
Drawn by	B.SIVA
Checked by	
Sheet Size	A1

Drawing

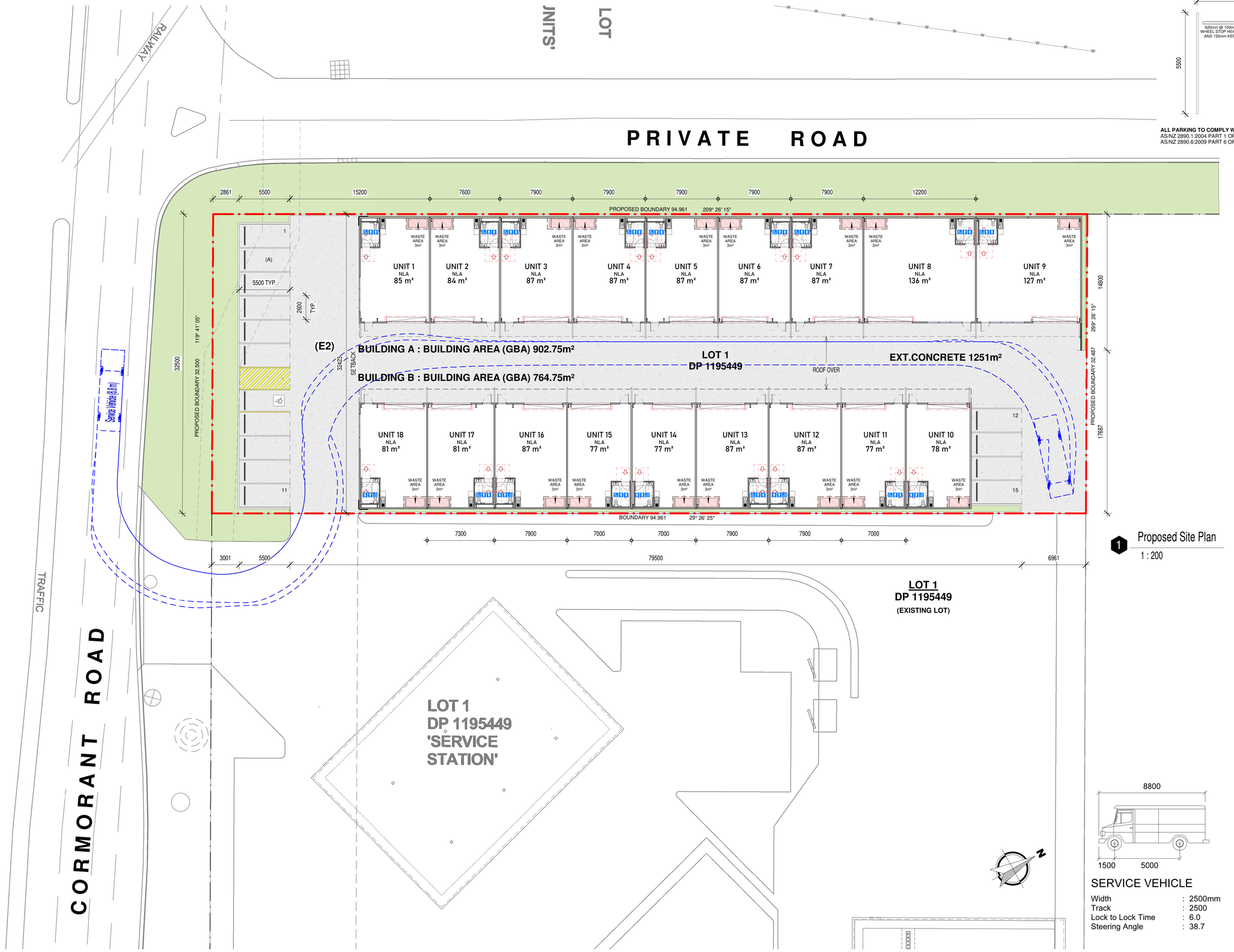
Title Page

Job No:	Issue:	No:
BC0497	3	00

PARKING DETAILS



ALL PARKING TO COMPLY WITH:
AS/NZ 2890.1:2004 PART 1 OFF STREET PARKING
AS/NZ 2890.6:2009 PART 6 OFF-STREET PARKING FOR PEOPLE WITH DISABILITIES



1 Proposed Site Plan
1 : 200

SERVICE VEHICLE

Width	: 2500mm
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

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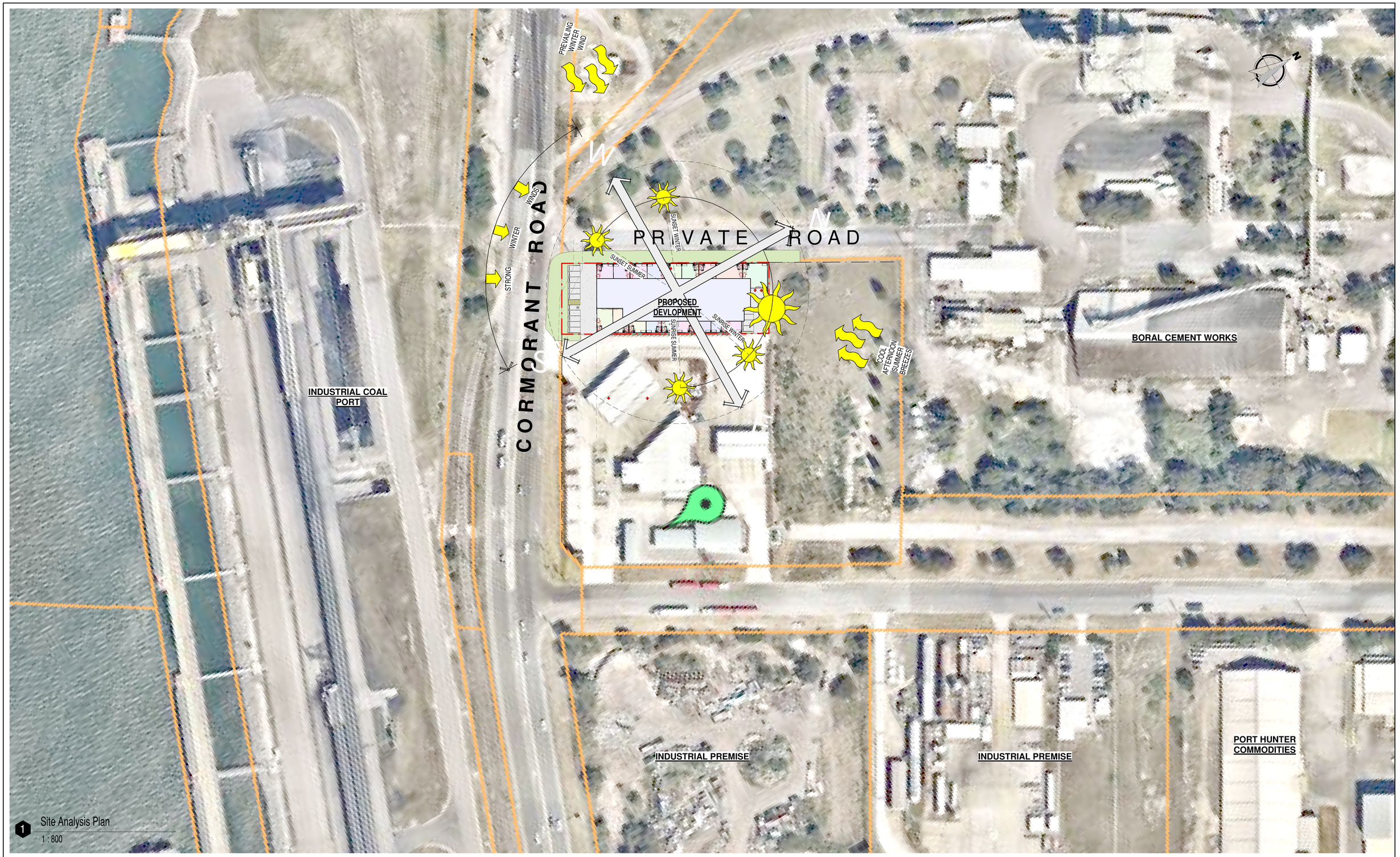
Checked by	
Sheet Size	A1

Drawing

Proposed Site Plan

Job No:	Issue:	No:
BC0497	3	01



1 Site Analysis Plan
1 : 800

Rev	Description	Date
1	NEW DESIGN	23.11.23

W.A.BROWN BUILDING PTY LTD
P.O.Box 596 East Maitland NSW 2323
2 Elwell Close Beresfield - Ph (02) 4966 0218 - Fax (02) 4028 6945

Client: TBA

Project: INDUSTRIAL

Location:	
Lot:	1
No:	295
Street:	COMMORANT ROAD
Suburb:	KOORAGANG
DP:	1195449

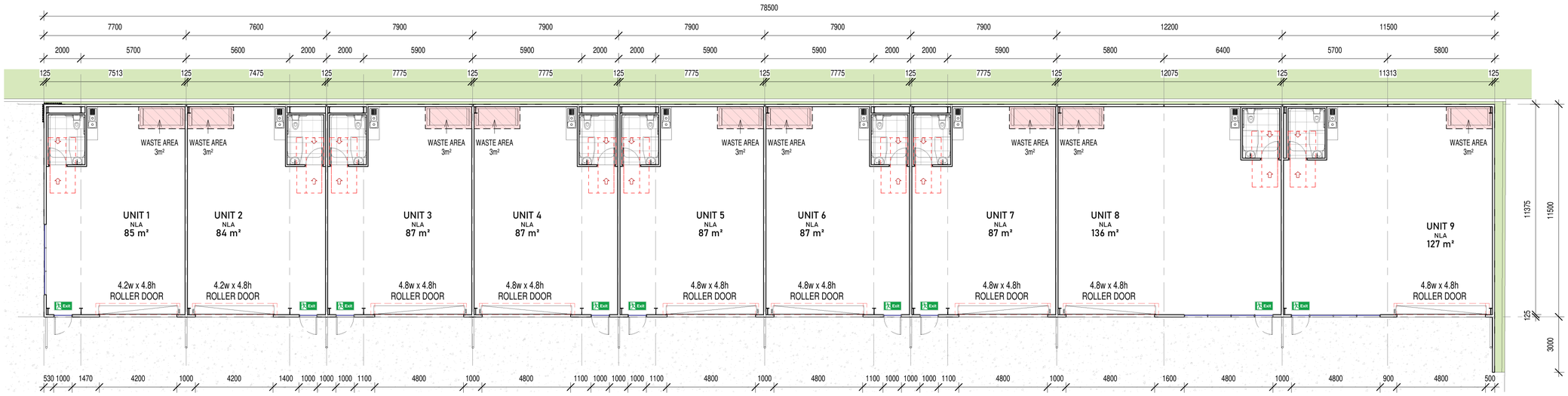
Scale	As indicated
Drawn by	B.SIVA
Checked by	
Sheet Size	A1

Drawing: Site Analysis Plan

Job No: BC0497

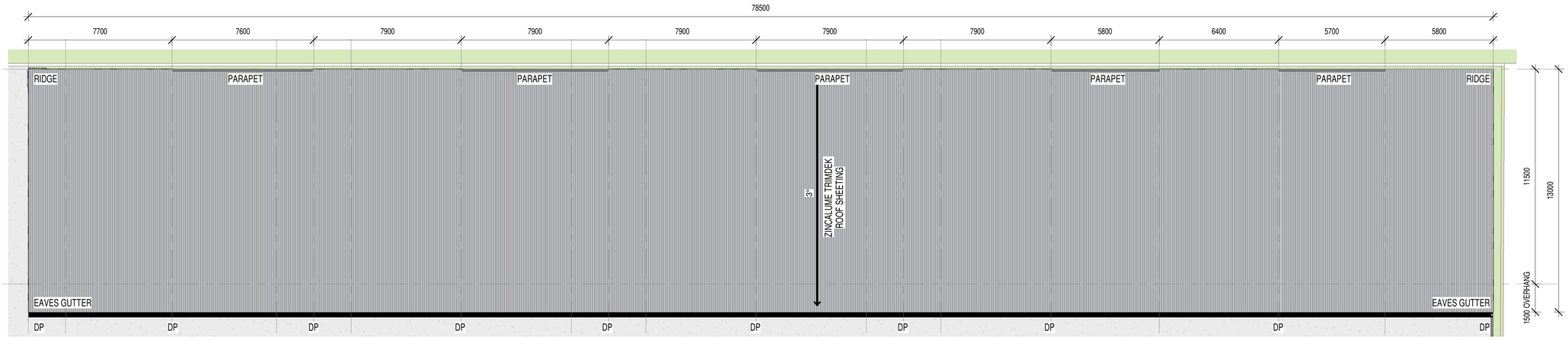
Issue: 1

DWG No: 02



1 BUILDING A FLOOR PLAN

1 : 125



2 BUILDING A ROOF PLAN

1 : 125

Rev	Description	Date	Issued by
3	DA Set	18.01.24	LT
2	DRAFT DESIGN	07.12.23	M.Marshall
1	NEW DESIGN	23.11.23	B.SIVA

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www.brownbuild.com.au
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Beresfield, NSW 2322
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Client

TBA

Project

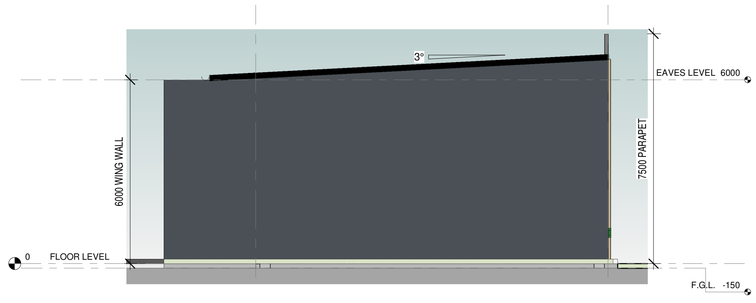
INDUSTRIAL

Location:	
Lot:	1
No:	295
Street:	COMMORANT ROAD
Suburb:	KOORAGANG
DP:	1195449
Scale	1 : 125
Drawn by	B.SIVA
Checked by	
Sheet Size	A1

Drawing

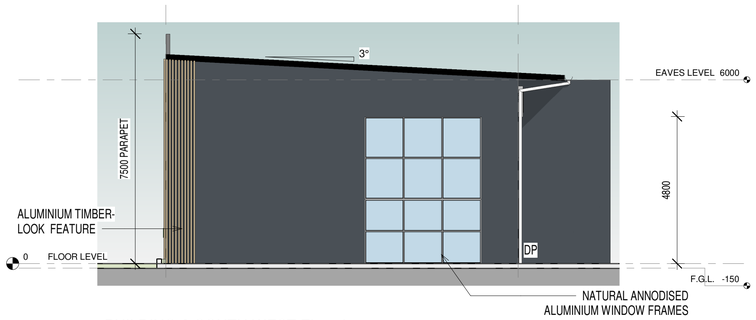
Building A Plans

Job No:	Issue:	No:
BC0497	3	03



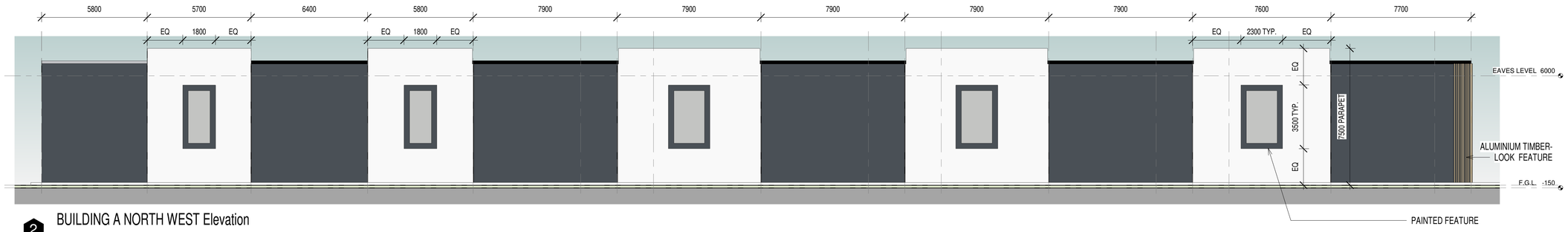
1 BUILDING A NORTH EAST Elevation

1 : 100



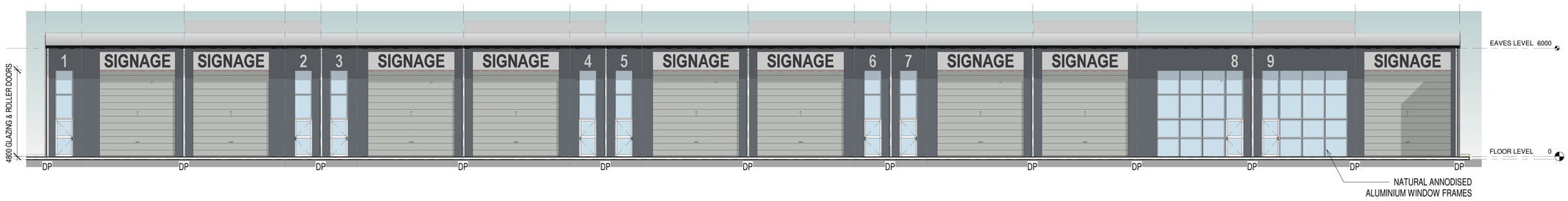
4 BUILDING A SOUTH WEST Elevation

1 : 100



2 BUILDING A NORTH WEST Elevation

1 : 125



3 BUILDING A SOUTH EAST Elevation

1 : 125

FINISHES SCHEDULE

- DULUX: WHITE ON WHITE
  LOCATION: WALLS & DOWNPIPES
- DULUX: AGELESS GREY
  LOCATION: WALLS
- DULUX: TRANQUIL RETREAT
  LOCATION: WALLS
- TRIMDEK ZINCALUME
  ROOF SHEETING
- COLORBOND: NIGHT SKY
  LOCATION: FASCIA & GUTTERS
- COLORBOND: SHALE GREY
  LOCATION: ROLLER DOORS
- TIMBER-LOOK ALUMINIUM BATTEN
  COLOUR: NORDIC OAK

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Client

TBA

Project

INDUSTRIAL

Location:	
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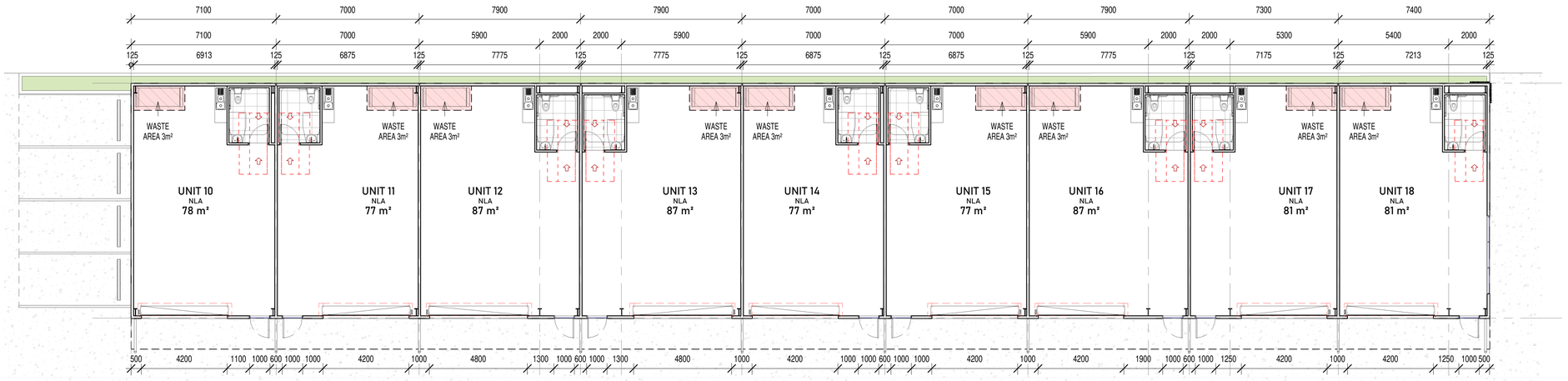
Scale	As indicated
Drawn by	B.SIVA
Checked by	
Sheet Size	A1

Drawing

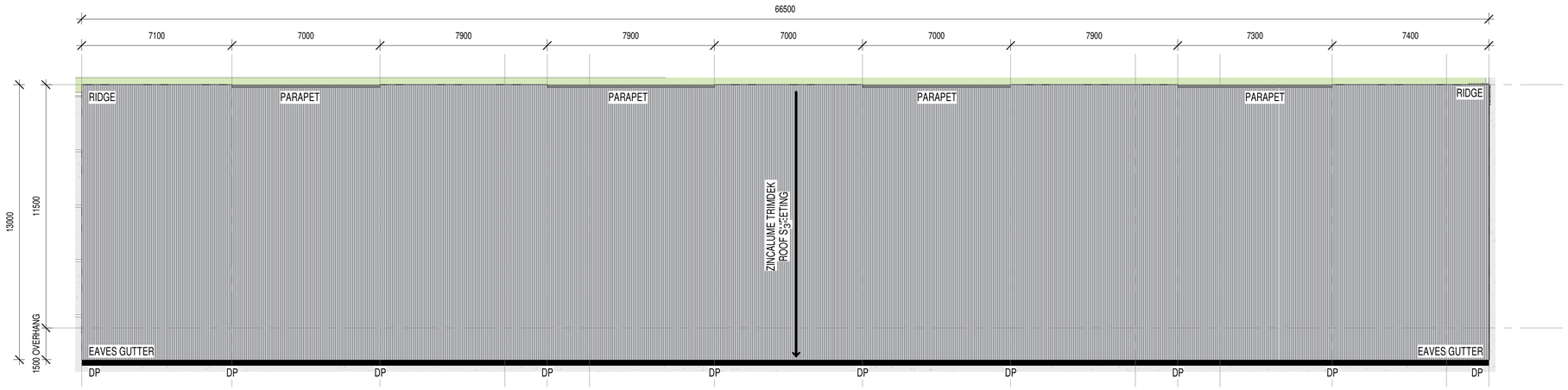
Building A Elevations

Job No:	Issue:	No:
BC0497	3	04



1 BUILDING B FLOOR PLAN

1 : 125



2 BUILDING B ROOF PLAN

1 : 125

Rev	Description	Date	Issued by
3	DA Set	18.01.24	LT
2	DRAFT DESIGN	07.12.23	M.Marshall
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TBA

Project

INDUSTRIAL

Location:	
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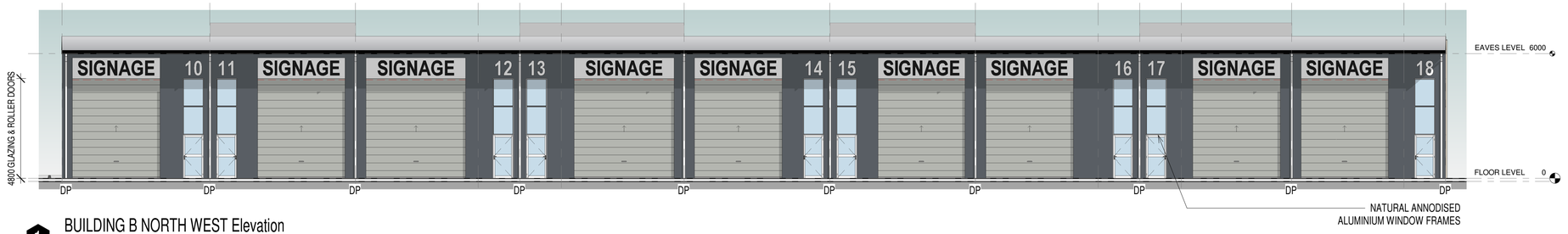
Scale	1 : 125
Drawn by	B.SIVA
Checked by	
Sheet Size	A1

Drawing

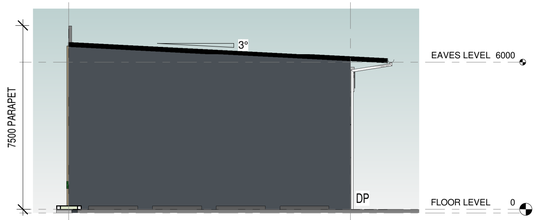
Building B Plans

Job No:	Issue:	No:
BC0497	3	06



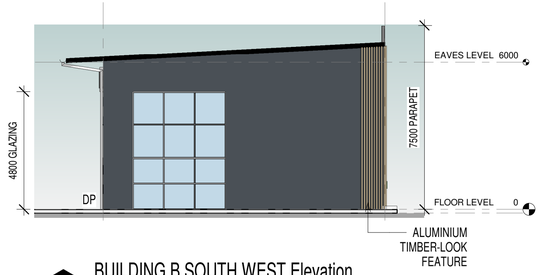
1 BUILDING B NORTH WEST Elevation

1 : 125



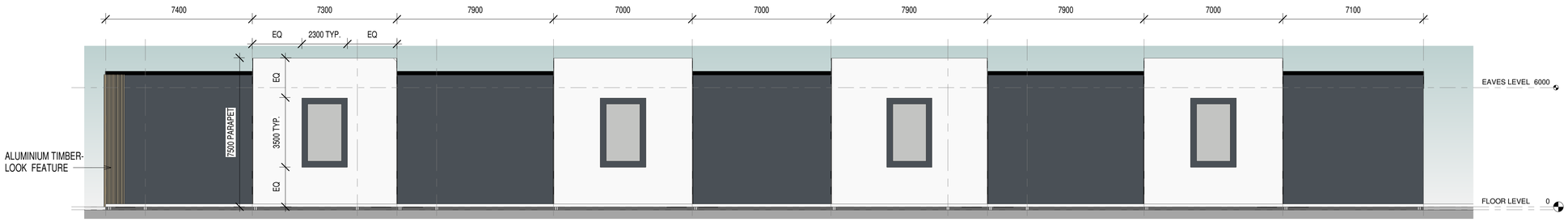
2 BUILDING B NORTH EAST Elevation

1 : 125



3 BUILDING B SOUTH WEST Elevation

1 : 125



4 BUILDING B SOUTH EAST Elevation

1 : 125

FINISHES SCHEDULE

- DULUX: WHITE ON WHITE
  LOCATION: WALLS & DOWNPIPES
- DULUX: AGELESS GREY
  LOCATION: WALLS
- DULUX: TRANQUIL RETREAT
  LOCATION: WALLS
- TRIMDEK ZINCALUME
  ROOF SHEETING
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Client

TBA

Project

INDUSTRIAL

Location:	
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DP:	1195449
Scale	As indicated
Drawn by	B.SIVA
Checked by	
Sheet Size	A1

Drawing

Building B Elevations

Job No:	Issue:	No:
BC0497	3	07

Rev	Description	Date	Issued by
3	DA Set	18.01.24	LT
2	DRAFT DESIGN	07.12.23	M.Marshall
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PO Box 596
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Client

TBA

Project

INDUSTRIAL

Location:	
Lot:	1
No:	295
Street:	COMMORANT ROAD
Suburb:	KOORAGANG
DP:	1195449
Scale	1 : 1
Drawn by	B.SIVA
Checked by	
Sheet Size	A1

Drawing

Perspectives

Job No:	Issue:	No:
BC0497	3	10