Douglas PARTNERS

GROUNDED EXPERTISE

Remediation Action Plan

Indigenous Centre of Excellence - P1 Carpark Relocation

171 Victoria Road Rydalmere Campus, Rydalmere NSW

Prepared for Western Sydney University

Project 227190.04

14 August 2025

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Document History

Details

Project No.	227190.04
Document Title	Remediation Action Plan
Site Address	171 Victoria Road Rydalmere Campus, Rydalmere NSW
Report Prepared For	Western Sydney University
Filename	227190.04.R.001.Rev0

Status and Review

Status	Prepared by	Reviewed by	Date issued
Draft A	Joel James-Hall	Nerilee Edwards	6 August 2025
Revision 0	Joel James-Hall	Nerilee Edwards	14 August 2025

Distribution of Copies

Status	Issued to
Draft A	Western Sydney University
Revision 0	Western Sydney University

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature	Date
Author	14 August 2025
Reviewer	14 August 2025

FS604853

Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

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Remediation Action Plan
Indigenous Centre of Excellence - P1 Carpark Relocation
171 Victoria Road Rydalmere Campus, Rydalmere NSW

1. Introduction

Douglas Partners Pty Ltd (Douglas) has prepared this remediation action plan (RAP) for the proposed Indigenous Centre of Excellence (ICoE) project area at 171 Victoria Road Western Sydney University Rydalmere Campus, Rydalmere NSW. The RAP was commissioned by Steven Botterill of Western Sydney University (WSU) and was undertaken in accordance with Douglas' proposal dated 21 July 2025.

Approval for the proposed development is being sought under a state significant development (SSD-64916225) application. The development is proposed to be conducted in two stages, shown on TTW Drawings 01011 and 02011, (Appendix A) and described as follows:

- Stage 1: construction of a new carpark, which will replace a carpark currently present in the area of the proposed ICoE building; and
- Stage 2: construction of the ICoE (including demolition of the carpark currently present in this area).

Douglas previously undertook separate investigations for the two stages, which found:

- Stage 1, future P1 carpark – contamination investigation (Douglas, 2024a). The investigation identified asbestos contamination in soils (including detection above health screening levels at one location). Whilst the proposed carpark relocation works boundary has undergone minor changes since the Douglas (2024a) report, the recorded asbestos contamination results are applicable to the current development area and the investigation is considered to appropriately characterise the area for the purposes of preparation of this RAP; and
- Stage 2, ICoE building – detailed site investigation (DSI) (Douglas, 2025). Overall, the DSI concluded that the assessment area (the ICoE building) was suitable for the proposed redevelopment, with recommendations to implement a general unexpected finds protocol and further waste classification of soils prior to off-site disposal.

The 'site' for the purposes of this RAP is therefore the Stage 1, proposed carpark area (refer figure below and Drawings in Appendix A). This RAP outlines the requirements to render the site suitable for the proposed development. This report addresses the Planning Secretary's Environment Assessment Requirements (SEARs), specifically #17 Contamination and Remediation. The table below summarises how the SEARs Item 17 will be addressed for the two stages of the site.

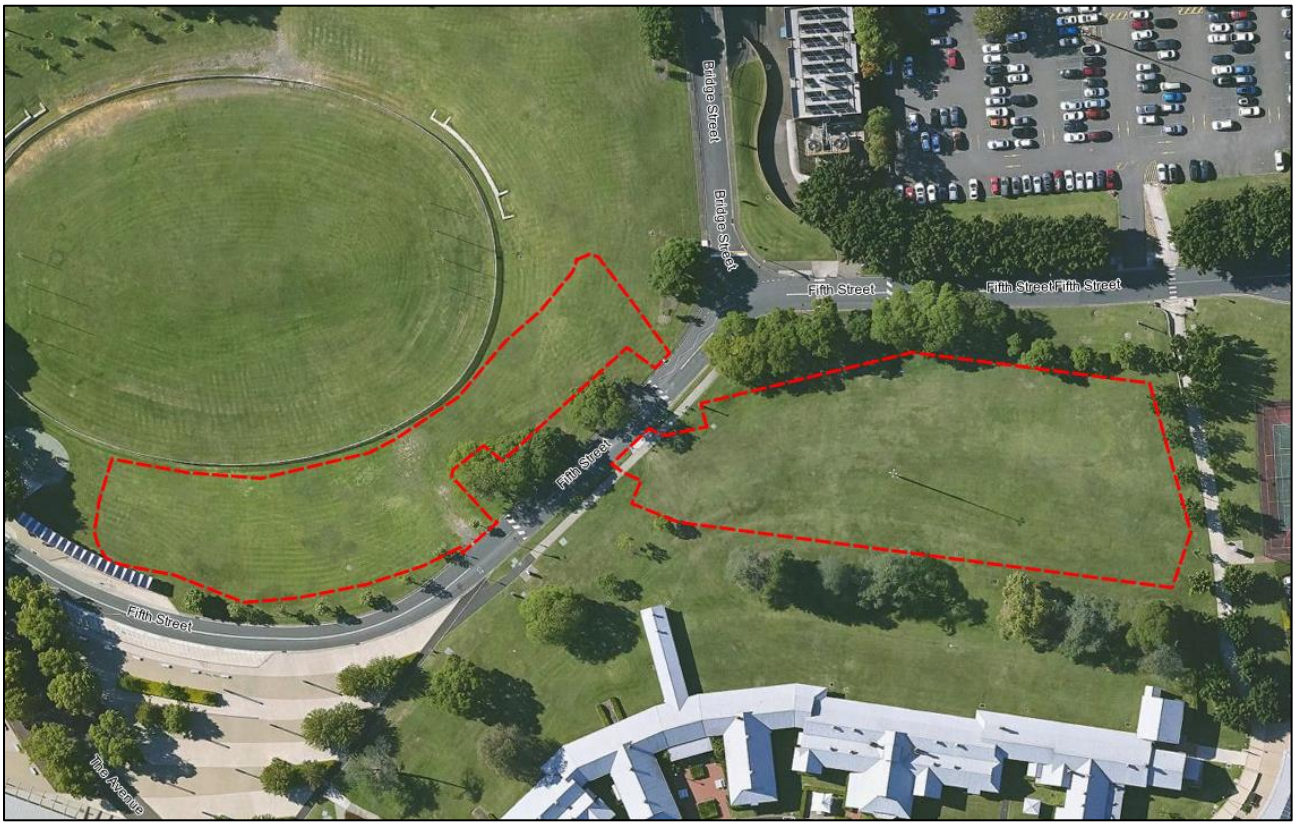


Figure 1: The site (proposed P1 carpark, approximate boundary shown in dashed red outline)

Table 1: SSD action items

Stage	Contamination Status	Actions Required to Close out SEARs	Anticipated Subsequent Reporting for SSD Conditions
1 (P1 carpark)	Remediation / management required	Remediation and validation in accordance with this RAP	Site Validation Report. Long-term environmental management plan (LTEMP) if the preferred on-site management approach is undertaken.
2 (ICoE)	Determined suitable for the development (Douglas, 2025).	DSI (Douglas, 2025) as supporting documentation. No further action required.	Nil (unless triggered under the UFP)

The following key guidelines were consulted in the preparation of this report:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999* (as amended 2013) [NEPM] (NEPC, 2013);
- NSW EPA *Guidelines for Consultants Reporting on Contaminated Land* (NSW EPA, 2020); and

- CRC CARE *Remediation Action Plan: Development - Guideline on Establishing Remediation Objectives* (CRC CARE, 2019a); and
- WA DoH *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (WA DoH, 2021).

The remediation objectives, devised in accordance with CRC CARE (2019a), are to:

- Address potentially unacceptable risks to relevant environmental values from contamination; and
- Render the site suitable, from a contamination perspective, for the proposed development.

This RAP presents the procedures and plans which provide the means by which site remediation can be achieved. The Remediation Contractor must base their detailed work methodologies around the requirements of this RAP.

This report must be read in conjunction with all appendices including the notes provided in Appendix A.

2. Proposed development

Based on the TTW SSD plans (attached in Appendix A) the proposed development is understood to comprise the following two elements.

Stage 1 - P1 Carpark Relocation

The P1 carpark relocation works are understood to be scheduled to be conducted prior to development of the ICoE building to replace the carpark currently occupying the proposed ICoE building area. The new carpark is to be divided into a western and eastern section (separated by Fifth Street) as shown on Drawing 1, Appendix A, which are referred to herein as the western carpark and eastern carpark. With the existing open space, grassed areas to be redeveloped into on-grade carparks.

Cut and fill is understood to be required as follows (refer civil drawing CI-02011, Appendix A):

- Western carpark, excavation will be required in the north-eastern part of this section to depths of up to ~1.2 m which comprises the mounded fill towards Bridge Street; generally minimal fill in other areas to maintain the approximate current levels (estimated net 120 m^3 cut); and
- Eastern carpark – generally minor cut, up to ~0.5 m deep (estimated net 830 m^3 cut).

Overall based on review of the cut and fill it is expected that there would be a net surplus of material which may require off-site disposal. Based on the proposed remediation strategy (refer Section 10) additional cut is required to manage the current extent of identified contamination (refer Section 8).

The geotechnical report prepared for the P1 carpark relocation (Douglas, 2024c) noted the requirement to excavate existing organic rich topsoil and uncontrolled fill to the required design subgrade level (DSL). Uncontrolled fill was considered to be potentially re-usable (from a geotechnical perspective) if screened to remove deleterious and/or oversize material, and then mixed and moisture conditioned to specification. From a contamination perspective the material must also meet the remediation acceptance criteria (RAC) (Section 11), and other considerations outlined in Section 10.

Stage 2 - ICoE Building

The ICoE building development is understood to broadly entail:

- Site preparation including demolition of the existing carpark, tree removal and installation of inground utilities;
- Construction of a new four-storey structure (no basement levels); and
- External landscaping works.

Based on cut and fill plans the levels for the proposed ICoE building generally require raising of the landform by up to 1 m, with limited cut at the existing landscaping peripheries.

The ICoE development details are provided for information, noting this area does not form part of the required remediation extent (the site).

3. Scope of work

The scope of work to achieve the objective is as follows:

- Summarise the findings of previous investigations used to inform the status of contamination and contamination risk at the site;
- Present a conceptual site model (CSM) to list potential and likely contamination source, pathway and receptor linkages to address potentially unacceptable risks to human health and relevant environmental values from contamination;
- Define the anticipated extent of remediation;
- Assess potentially suitable remediation options to render the site suitable for its proposed use, and which will minimise potentially unacceptable risk to human health and/or the environment and which includes the consideration of the principles of ecologically sustainable development;
- Discuss options with the client to support their selection of the preferred management and/or remediation strategy to render the site suitable, from a contamination perspective, for the proposed development;
- Establish the remediation acceptance criteria (RAC) to be adopted for validation of remediation;
- Identify how successful implementation of the RAP will be demonstrated / validated;
- Outline waste classification, handling and tracking requirements;
- Outline environmental safeguards required to complete the remediation works;

- Include contingency plans and an unexpected finds protocol; and
- Identify the need for, and nature of, any long-term management and/or monitoring following the completion of management / remediation and, if required, provide an outline of an environmental management plan.

4. Site description

Site address	171 Victoria Road Rydalmere Campus, Rydalmere NSW
Legal description	Lot 100 Deposited Plan 816829
Area	Western carpark - ~4,600 m^2 Eastern carpark - ~ 4,620 m^2
Zoning	SP2 - Education
Local council area	City of Paramatta
Current use	Open space / recreational
Surrounding uses	Surrounding areas (to the south, east and west) – WSU campus (open space, internal roadways, carpark (east)), campus buildings (south). North – WSU open space / recreation areas and Victoria Road.

5. Environmental setting

Regional topography	Regional topography generally slopes to the south following Vineyard Creek (east) which in turn drains into Parramatta River (south). Levels are generally lower following Vineyard Creek with localised hilly areas surrounding.
Site topography	Site topography is generally fairy level with levels ranging between RL ~10-12 m AHD. Other portions of the WSU campus to the south rises to ~RL 18-20 m AHD.
Soil landscape	Transitional area between the Birrong fluvial soil landscape (i.e. silty, sandy clays) associated with Vineyard Creek (east), and residual Blacktown soil landscape (typically clays / silty clays). The transitional area is mapped approximately following Fifth street with areas north of Fifth Street mapped as fluvial, and areas south as within the Blacktown Group. This boundary is noted to generally correspond with the local topography.
Geology	Transitional area between Ashfield Shale (west) and Hawkesbury Sandstone (east). Alluvial sediments are noted to be mapped further to the east corresponding to the alignment of Vineyard Creek.

Acid sulfate soils (ASS)	The site is not mapped within an area of known ASS risk. Previous investigation (Douglas, 2024a; Douglas, 2025) did not recommend further investigation management of ASS.
Surface water and Groundwater	Surface water and groundwater flows are anticipated to generally follow regional topography with local flows discharging to Vineyard Creek (south-east to east) and more generally south towards Parramatta River. Local surface water is likely intercepted by urban stormwater infrastructure. Review of nearby registered groundwater wells (within ~500 m) indicates recorded groundwater levels between ~2.6 to 3.2 m below ground level (bgl).

6. Summary of previous investigations

Previous test locations are shown on Drawing 2, Appendix A. Previous summary results tables are extracted and provided in Appendix C.

It is noted that the proposed works area (i.e. the site boundary) has been modified since undertaking the contamination investigation for the P1 carpark relocation (Douglas, 2024a), and therefore test locations TP1, TP9, and TP10 are no longer within the site boundary. However, given the proximity to the site and assessment of similar nearby fill the results from these test locations are still considered relevant for the current site.

6.1 Site history

Based on published information on the WSU website[1] the Parramatta South campus previously comprised the female orphan school (circa 1818), prior to being closed and re-opened as the Rydalmere Hospital for the Insane and then the Rydalmere Psychiatric Hospital (1888-1985). Redevelopment as part of WSU occurred through the transfer of the land to WSU and development commencing circa 2000.

Review of historical aerial imagery indicated the site previously included structures in the proposed eastern carpark area, and partly in the proposed western carpark area, but generally otherwise comprised open space usage. More significant changes for the site occurred by 2011 with construction of a carpark in the western part of the site, which was then demolished by 2020, and redeveloped as a sports oval.

Douglas understands that fill material was relocated from development elsewhere within WSU to the north-east part of the proposed western carpark area, forming a fill mound near Bridge Street, near previous test locations TP7 to TP10 and TP22 (refer Drawing 1, Appendix A). The relocated material is understood to have potentially included material from footpath construction works from Building Eha to the light rail platform (south-east of the current site). A

[1] https://www.westernsydney.edu.au/uws25/25_year_history/places/parramatta_south accessed November 2024

previously reviewed waste classification report indicated that this may have included asbestos waste.

6.2 Fieldwork results

6.2.1 General subsurface conditions

With respect to the current site the following general subsoil profile was observed:

Western carpark area (TP1-TP10 and TP21-TP22)

- **FILL** – apparently variably compacted and of varying composition of clay, sands and silt with minor proportions of building rubble (brick, tile, terracotta, plastic, concrete and timber fragments, steel pipes and rods, and trace amounts of potential asbestos-containing material and fragments of geofabric), and with minor proportions of gravel-, cobble- and boulder-sized sandstone fragments in the eastern part of the footprint, to depths ranging from 0.5 m to 3.0 m, thickening to the north-east. Deeper fill and increased frequency of inclusions were noted in test locations within the raised fill mound, i.e. at TP 7-10 and TP22; overlying;
- **ALLUVIUM** – a discontinuous stratum that underlies the fill near the north-eastern end of the footprint only, of predominantly medium to high plasticity silty clay and silty sandy clay to terminations depths ranging from 1.3 m to 3.7 m, deepening to the north-east; or
- **RESIDUAL SOIL** – a discontinuous stratum that underlies the fill over most of the site, of varying composition including silty clay, silty sandy clay and sandy clay of medium to high plasticity, to termination depths ranging from 1.1 m to 2.4 m.

Bedrock was not encountered in any test pit, nor was free groundwater observed in the test pits during excavation.

Eastern carpark area (TP11-TP20 and TP23-TP24)

- **FILL / Silty SAND** – apparently moderately to well compacted, fine to medium, with trace proportions of rootlets and gravel to depths ranging from 0.2 m to 0.6 m; overlying
- **Fill / Silty Sandy CLAY** – apparently moderately compacted with minor proportions of cobble- and boulder-sized sandstone fragments, inclusions of boulder-sized concrete fragments and trace proportions of gravel, rootlets and ceramic pipe fragments to depths ranging from 0.4 m to 1.1 m; overlying
- **RESIDUAL SOIL** – a generally continuous stratum (absent at TP13 only) of varying composition including silty clay, silty sandy clay and sandy clay of medium to high plasticity, with minor proportions of gravel-, cobble- and boulder-sized sandstone to depths ranging from 0.6 m to 1.6 m.

Test pits refused on apparent bedrock at depths between 1 m and 1.6 m bgl. Free groundwater was not observed in the test pits during excavation.

6.2.2 Asbestos in soil

Asbestos in soil screening was undertaken at test pit locations with suspected asbestos containing materials (ACM) and/or indicators of potential ACM (e.g. building demolition materials).

No potential ACM was recorded in the samples subject to screening.

Potential ACM was, however, recorded and sampled directly from excavated fill in the following locations:

- TP8 – as a fragment of potential ACM (PACM1) at 0.5 m deep. Potential ACM was not recorded in the 10 L sample subject to the field screening test from this horizon.
- TP12 – as a fragment of potential ACM (PACM2) at 0.4 m deep. Potential ACM was not recorded in the 10 L sample subject to the field screening test from this horizon.

Based on the relative mass (laboratory weighed) of the samples (PACM1 (48g) and PACM2 (120g)) the approximate concentration in soils have been estimated against the typical mass of the bulk 10L samples analysed (~16 kg), and an asbestos content of 15% (refer extracted Table C2 in Appendix C). The samples therefore correspond to approximate concentrations of (rounded to 2 significant figures):

- TP8/0.5 m – 0.11 % w/w (exceeding the health screening level [refer Section 6.3 below and Section 11] of 0.05% w/w); and
- TP12/0.4 m- 0.05 % w/w (potentially exceeding the HSL of 0.05% w/w, noting the concentration is rounded up).

6.3 Analytical results

Both previous investigations considered a commercial land-use scenario (D) (NEPC, 2013), based on the proposed tertiary education land use (ICoE), and carpark. The current adopted SAC are the same as those previously adopted (commercial D land-use), and are summarised in Section 11, with further detail provided in Appendix D.

With regards to the ICoE building area (Douglas, 2025):

- No exceedances of health-based site assessment criteria (SAC) were identified;
- Benzene, toluene, ethylbenzene and xylenes (BTEX), organochlorine pesticides (OCP), organophosphorus pesticides (OPP), polychlorinated biphenyls (PCB) and phenols were not detected above the laboratory practical quantification limit (PQL); and
- Benzo(a)pyrene (BaP) was identified in five samples exceeding the low reliability ecological based criteria (NEPC, 2013). With further consideration of CRC CARE higher reliability criteria (CRC CARE, 2017) the results were not considered to indicate a risk to ecological receptors.

Therefore, as noted in Section 1 no remediation of contamination was recommended for this area of the SSD.

With regards to the site (Douglas, 2024a):

- Excluding asbestos, no exceedances of health-based site assessment criteria (SAC) were identified;
- BTEX, OCP, OPP, PCB and phenols were not detected above the PQL;
- BaP was identified exceeding the low reliability Tier 1 criteria (NEPC, 2013), as was not considered significant compared to higher reliability criteria (CRC CARE, 2017);

- Asbestos was detected by the laboratory as follows:
  - TP8/0.5-0.7 m and 1.1-1.3m (as asbestos fines / fibrous asbestos [AF/FA]). TP8/1.1-1.3 is noted to exceed the health screening level (HSL) for AF/FA, TP8/0.5-0.7 was recorded as a concentration below the HSL);
  - TP22/2.3-2.5 m (as both ACM > 7 mm and AF/FA). AF/FA results were within the HSL; and
  - PACM1 (TP8) and PACM2 (TP12) were both confirmed to contain asbestos. Considering the discussion in Section 6.2.2 these test locations both therefore may exceed the SAC.

7. Conceptual site model

The following conceptual site model (CSM) is based on the model developed in Douglas (2024a). A CSM provides an overview of potential linkages between contamination sources (S), pathways (P) and receptors (R).

Table 2: Summary of potential sources

Potential sources and associated CoPC
On-site source
S1 – Fill CoPC – asbestos in soil

The following potential human and environmental receptors, along with relevant potential pathways, have been identified and summarised in Table 3.

Table 3: Summary of potential receptors and pathways

Potential human receptors
HR1: Current users [tertiary education, recreational) **HR2:** Construction and maintenance workers **HR3:** End users [tertiary education]
Potential pathways to human receptors
HP1: Inhalation of dust

A summary of the potentially complete exposure pathways for the proposed land use is shown in the table below.

Table 4: Summary of potentially complete exposure pathways

Source and CoPC	Exposure pathway	Receptor	Risk management action
S1: Fill: asbestos	**HP1:** Inhalation of dust / fibres	**HR1:** Current users [tertiary education, recreational) **HR2:** Construction and maintenance workers **HR3:** End users [tertiary education]	Remediation and / or management to reduce risk to acceptable level for the proposed land-use. Manage per additional finds protocol. Asbestos remediation strategies to consider risk of additional volumes of soil to manage

8. Remediation extent

The extent of remediation comprises all fill within the site which is to be categorised into three categories based on previous results and the further assessment recommended in this RAP:

Fill category 1 (asbestos detected above SAC)

This category is to comprise all fill where asbestos is recorded above the SAC.

Previous test locations comprising detection of asbestos above the SAC (Fill Category 1) comprise:

- TP8 at depths of 0.5 to 1.3 m (noting fill was observed at this location to a depth of 2.3 m which may also have a risk of additional asbestos); and
- TP12 at a depth of 0.4 m (fill previously observed to depths of 1 m).

It is noted that from a risk management perspective it may be prudent to consider deeper fill at these locations (i.e. to depths of 2.3 m at TP8 and 1.0 m at TP12) to potentially contain asbestos based on previous field observations of anthropogenic materials.

Fill category 2 (asbestos detected below SAC, and fill with high risk of additional finds)

This category is to comprise all fill in which asbestos is recorded below the SAC (following appropriate characterisation assessment in accordance with this RAP) or where otherwise considered to have a higher risk of additional finds based on field observations (i.e. the presence of significant quantities of building debris inclusions in the fill).

Previous test locations where material potentially classifiable as Fill Category 2 was recorded comprise:

- TP22: asbestos recorded below the SAC; and
- TP1, TP3, TP7, TP14, TP21: fill assessed to have a high risk of asbestos impact based on building debris observations.

Fill category 3 (no asbestos detected)

This category is to comprise fill where asbestos is not recorded, and where significant inclusions of building debris are not observed, following appropriate characterisation assessment in accordance with this RAP.

Previous test locations where material potentially classifiable as Fill Category 3 was recorded comprise those not listed above.

The approximate extent of the fill potentially in categories 1 – 3 recorded in the previous test pits is shown on Drawing 3, Appendix A, noting this is subject to further assessment as described herein.

The actual extent of the areas will depend on further investigation and delineation as part of the proposed remediation strategy (refer Section 10).

9. Remediation options assessment

The objective of the remediation options assessment and evaluation is to establish a preferred remediation strategy based on a number of evaluation criteria (CRC CARE, 2019b).

Based on the proposed extent of the works, the extent of contamination and the nature of the proposed works the potential remediation options are considered as follows:

- Do nothing / further assessment – not considered appropriate given the requirement for excavation in soil which has results currently exceeding health-based criteria. Further testing is considered likely to confirm or expand the extent of asbestos detections above the SAC;
- Treatment – not considered suitable for managing potentially friable asbestos (i.e. AF/FA) in soils. This option would also not be suitable from a waste management perspective based on the NSW EPA approach to managing asbestos waste in soils; and
- On-site management – for asbestos this generally comprises capping of the asbestos contaminated materials either in their existing location or consolidation and capping in a 'containment area'. In situ capping without excavation is understood not to be viable based on the need to potentially excavate all fill due to geotechnical considerations. Noting an overall expected surplus of material to the development, the potential locations for placement for capping could comprise replacement in their current location in accordance with geotechnical requirements, replacement in a borrow pit within the site, or in a borrow pit or mound in another area of the WSU Rydalmere campus.

  This management could be applied to all fill, or fill could be further assessed and segregated to allow targeting of the remediation / management to fill exceeding the SAC.

  Noting the proposed development includes hardstand finishes the use of a borrow pit to place contaminated soils at depth provides a viable option to minimise waste disposal, and safely manage soils at depth. This option would need to be weighed against the additional excavation / construction costs, requirements for pavement subgrade materials and consideration of the long-term management requirements, i.e. preparing a long-term environmental management plan (LTEMP) which has a suitable, legal enforcement mechanism.

- Off-site disposal – considered the simplest approach, i.e. excavate / replace the contaminated soils. This option would likely have higher disposal costs, and place additional burden on waste receiving facilities, but may be preferrable if an LTEMP is not feasible and/or there are significant time constraints to the development works; or
- On-site management and off-site disposal – a combined approach could consider be removal of surplus fill to accommodate the DSL. If fill could remain in situ (noting this may not be possible due to geotechnical requirements), a temporary working cap over the asbestos contaminated fill could allow the remainder of works to be conducted outside of asbestos conditions, with a final cap placed (e.g. subgrade and pavements) to manage retained deeper fill. This option could potentially reduce disposal costs compared to full off-site disposal but would also require the additional requirements of a LTEMP. It is also considered limited in application given the currently identified highest risk of ACM is within an area of deeper cut requirements which would then largely be disposed off-site.

10. Preferred remediation strategy

10.1 Rationale

The preferred option was selected in consultation with the client and was based on both technical considerations (as discussed herein), and other project specific considerations (such as program, cost, and consideration of ongoing liability implications).

It is considered that given the geotechnical requirements for assessing suitability of subgrades, and subgrade preparation (discussed in Section 2) that the majority of fill will require initial excavation, which provides the opportunity to further assess contamination in the fill, and allow fill to be placed into categories based on the recorded asbestos (i.e. Fill Category 1, 2 and 3) to 'triage' if material needs to be managed, or if it is suitable for usage without further management.

Capping of a borrow pit will require further geotechnical inputs to determine requirements for placement and compaction of uncontrolled fill beneath pavements. It is considered that a 300 mm capping is suitable from a contamination perspective, however conservatively, and to allow flexibility in a placement and compaction strategy for the proposed pavement a minimum capping thickness of 500 mm is recommended.

The preferred remediation strategy is therefore considered as follows:

Base Strategy - On-site management of soils

- Preparation of a borrow pit (i.e. to over excavate natural materials) within the site. Two preliminary options are considered for the borrow pit location (refer preliminary civil drawings attached in Appendix A):
  - Western P1 carpark (west of Fifth Street), located near test location TP21, to manage fill Category 1 and 2; and
  - Eastern P1 carpark (east of Fifth Street), considered a secondary management area (if required) for additional finds (i.e. fill Category 2 or 3).
- Excavation / relocation of known asbestos contaminated soils (Category 1 and 2 fill);

- Additional testing / inspection during excavation if additional asbestos is identified. If so, relocation to the borrow pit;
- Capping of asbestos contaminated soils;
- Re-use of surplus natural materials on-site (or part of the larger SSD works), and as a contingency, off-site re-use/disposal; and
- Management of subsequent additional finds after capping through an unexpected finds protocol.

Contingency - off-site disposal

- Targeted removal of known asbestos contamination (fill Category 1) / other excess soils;
- Additional targeted investigation of fill Category 2 to assess suitability to remain on-site, and refine waste classification of soils; and
- Management of subsequent additional finds after capping through an unexpected finds protocol.

10.2 Sequence of remediation

The general sequence of remediation shall be determined by the Remediation Contractor with the aim of minimising the potential for cross contamination of 'clean' areas / soils with contaminated soils. This should include avoiding, wherever possible transporting or placing contaminated soil over 'clean' areas separating stockpiles of different origin / contamination profile and validating the complete removal of any contaminated material placed / potentially impacting 'clean' areas.

The general sequence of remediation should consider the following recommended sequence:

- Task 1: Borrow pit construction
- Task 2: Excavation of confirmed asbestos contaminated soils (fill Category 1 and 2) and placement into the Borrow Pit;
- Task 3: Excavation and further assessment of the remaining fill for asbestos;
- Task 4: Placement of additional identified asbestos impacted fill into the Borrow Pit;
- Task 5: Off-site disposal of excess soil (contingency – if required); and
- Task 6: Capping of asbestos impacted fill.

Roles and responsibilities are outlined in the site management plan (Appendix D).

10.3 Task 1: Borrow Pit Construction

Indicatively the borrow pit in the western carpark is anticipated to manage fill Category 1, and potentially some Category 2 fill. The second borrow pit in the eastern carpark may potentially be required subject to the actual volume of asbestos material requiring management (refer Task 2).

Therefore, this task may be commenced in parallel with Task 2.

For preparation of the borrow pit as a future area to manage asbestos contaminated soils on-site the following sequence is to be undertaken:

- Revise the estimated borrow pit volumes based on the actual volume of asbestos requiring management in consultation with the Environmental Consultant. Further investigation may be conducted as required to provide a better estimate of volume of fill to be placed in the borrow pit(s). Construction of a second borrow pit (i.e. eastern carpark) may be staggered to allow for management of additional material if the volume of the first borrow pit is exceeded;
- Survey the extent of the proposed borrow pit(s);
- Excavation of soils to the nominated depth:
    - Overlying fill is to be separated and stockpiled separately to the underlying natural soil. The fill is to be assessed / classified by the Environmental Consultant for potential on- or off-site re-use or disposal in accordance with Section 13;
    - Surplus natural soils are to be stockpiled separately to the overlying fill. The natural soils are to be assessed / classified by the Environmental Consultant for potential on- or off-site re-use or disposal in accordance with Section 12 (on-site re-use) and 13 (off-site disposal); and
    - Additional assessment, if required, to assess suitability for beneficially re-use (e.g. geotechnical requirements for pavements).
- Survey the depths at the base of the borrow pit.
- Line the walls and sides of the borrow pit with a marker layer meeting the requirements of Section 11.1.

Note that depending on the total depth of the borrow pit, additional consideration should be given to the excavatability of the material, and requirements to safely bench / shore the excavation. Per the geotechnical investigation undertaken for the ICoE (Douglas, 2024b), it was recommend that where space permits, batter slopes for un-surcharged slopes above the groundwater table not higher than 2 m should be constructed no steeper than 1.5H:1V (horizontal : vertical) in the temporary case, and 2H:1V in the permanent case.

10.4 **Task 2: Excavation and Management of Fill Category 1 and 2**

This task preferably to be undertaken following excavation of the borrow pit to facilitate direct relocation of contaminated soils.

The general process is therefore:

- Review of all WHS requirements to manage asbestos during the works by the Asbestos Contractors and licenced asbestos assessor (LAA), and incorporation of these requirements into the works methodology.
- Relocation of Category 1 fill with an initial lateral extent of 10m, or up to the nearest test location without asbestos detected. Excavation should be undertaken under supervision by the Environmental Consultant to inform the depth and lateral extent. The depth of excavation should consider the following excavation to the depth of the fill layer in which the asbestos was identified:
    - TP8 – to depth of 2.3 m; and
    - TP12 – to depth of 1.0 m.

- Depending on available space in the borrow pit relocation may also be similarly considered for TP22, TP7 (and material within the site near TP9 and TP10) based on risk of further asbestos finds. Noting the requirements to determine suitability as subgrade material the material from these locations can be visually assessed by the Environmental Consultant to determine if direct relocation may reduce unnecessary testing (i.e. if further ACM is identified). Otherwise, category 2 fill is to be assessed as part of the overall sequence in Task 3;
- Excavated fill is to be temporarily stockpiled on a physical separation layer, or directly loaded into plant to place in the borrow pit; and
- If required, temporarily cover the borrow pit with a physical barrier (e.g. geofabric) after placement / between shifts.

10.5 Task 3: Excavation and Validation of Remaining Fill

For remaining areas:

- Stripping of fill to the DSL.
- Separate and stockpile into the following:
  - Topsoil fill;
  - General fill with building debris inclusions; and
  - General fill with no building debris inclusions.
- Assessment of stockpiled fill by the Environmental Consultant where the stockpiled materials are proposed to be re-used on-site in accordance with Section 12.4, or otherwise in accordance with Section 13 to facilitate off-site disposal. Testing of stockpiled soils for site suitability will include testing of the following at an initial rate of 1 per 25 m^3 as per NSW EPA (2022) including:
  - Field assessment of asbestos by screening 10L bulk samples through a 7mm sieve; and
  - Laboratory analysis for AF/FA.

  If suspect asbestos materials are identified then field testing may be halted, if desired, and the material treated as asbestos contaminated. In this regard, an initial reduced frequency may be recommended by the Environmental Consultant to 'triage' the fill material based on risk of additional asbestos finds.
- Inspection of the base of the excavation by the Environmental Consultant (this may be conducted progressively in sub-areas if required by the excavation programme). If fill remains at the DSL then validation testing in accordance with Section 12 is to be undertaken on the retained in-situ fill material, to depths of up to 2 m (or reaching natural soils, whichever is shallower). Where natural soils are encountered, surficial validation testing is considered sufficient:
  - Fill which does not meet the RAC (refer Section 11) will require further excavation as recommended by the Environmental Consultant. This indicatively could require excavation to the nearest test locations meeting the RAC.

10.6 Task4: Capping of Asbestos Impacted Fill

Following completion of Tasks 1 to 3 a borrow pit(s) is to be capped for long term management of the asbestos contaminated soils as follows:

- Survey of the levels and extent of placed fill material in the borrow pit in accordance with Section 12.2;
- Placement of a maker layer meeting the requirements of Section 11.1, including a minimum ~200 mm overlap of rolls. The geofabric marker layer is recommended to be fixed / pinned if not immediately covered in soils;
- Placement of capping soils to provide a minimum 500 mm thickness of suitable soils overlying the marker layer (noting this will require material specifications for pavement subgrades outside the scope of this report). This capping thickness is based on a final pavement finish covering the capping area. Suitable capping soils are considered as follows:
  - Virgin excavated natural materials (VENM). This may include imported or site won natural soils; OR
  - Imported soils under a resource recovery order (RRO), which meet respective requirements of an RRO (Refer further requirements in Section 14), and otherwise the SAC.

    Note that fill materials are not considered suitable based on the capping providing a clear visual distinction between a capping layer and underlying contaminated soils.
- Surveying of the final capped layer to confirm the total capping thickness and extent in accordance with Section 12.2.
- As noted in Section 10.1, a management strategy for placement and compaction of uncontrolled fill beneath pavements is to be developed by a Geotechnical Consultant.

10.7 Contingency strategy – targeted removal and off-site disposal of soils

If there is insufficient space in the borrow pit (or if the borrow pit is not constructed), or required due to the project programme, excess / contaminated soil may be disposed of off-site.

In the event that disposal of asbestos contaminated soil or potential asbestos contaminated soil is conducted:

- Segregate and assess any fill in accordance with Section 10.5 as required to assess the final waste classification. All fill is to assumed to be asbestos contaminated until assessed;
- Excavation of asbestos impacted fill;
- Stockpiling of the material on a physical separation layer (or direct loading);
- Off-site disposal of the soil to a suitable licenced landfill in accordance with a formal waste classification confirmed by the Environmental Consultant; and
- Validation of resulting excavation / stockpile footprint, if required to assess site suitability / waste classification of the surrounding soils. Validation assessment will be conducted in accordance with Section 12.

11. Assessment criteria

11.1 Remediation acceptance criteria

The overarching remediation acceptance criterion (RAC) to be adopted for the project is for 'no unacceptable risks posed by the relevant media (i.e., soils, groundwater or soil vapour) to human health or the environment'.

The remediation works are to be validated as meeting the RAC by the Environmental Consultant by means of visual inspection, field screening, recovery and analysis of samples and review of any available plans as set out in this report.

In the absence of derivation of Tier 2 site specific target levels (SSTL), the (RAC) for contaminants in soil are the same as the Tier 1 site assessment criteria (SAC) adopted for (Douglas, 2024a) protective of human health and ecology. The following table provides a summary of the RAC.

Table 5: Remediation acceptance criteria

Item	Remediation acceptance criteria
Capped asbestos contaminated soils (borrow pit)	
Marker layer	A geotextile barrier providing a warning of the presence of soil contamination. A specialised or improvised geotextile fabrics may be used, meeting the following conditions: • Contrasting colour to the surrounding soils. • Water permeable. • High visibility. • Rot-proof and chemically inert. • High tensile strength. • Coverage of the contaminated area and at least 0.5 m beyond boundary if practical. • Parallel sheets and adjoining sheets to be fixed together or overlap by at least 20 cm.
Capped layer	Meeting the nominated design thickness of 0.5 m (within the nominated tolerance), and hardstand cover finish, such as asphalt / concrete with a nominal minimum thickness of 50 mm. The capping material may consist of required subgrade materials which meet specifications set out in Section 14. The cap is to be placed over the marker layer. If a soft cap finished is used (e.g. landscaping) then the bottom 0.3 m of the capping is to be compacted to a level sufficient to deter hand excavation. The upper 0.2 m can be accessible topsoil.

Item	Remediation acceptance criteria
Other areas	
Asbestos	No visible / surficial asbestos. No significant building demolition materials visible in surficial soils. Bonded ACM in soil < 0.05 % w/w AF/FA in soil < 0.001% w/w

11.2 Site assessment criteria

Additional area(s) of contamination encountered beyond those outlined in Section 8 during the course of the remediation and site redevelopment will be subject to the contingency plan or unexpected find protocol (Appendix F) and assessed using the SAC in Appendix D. The SAC are the same as the Tier 1 SAC adopted for Douglas (2024; 2025).

The adopted investigation and screening levels comprise levels for a generic commercial / industrial land use scenario. With the broader list of contaminants and their SAC included in Appendix D. The SAC should also be used as part of the assessment framework for imported soils (i.e. contaminant concentrations in imported soils must comply with the SAC).

The SAC are not RAC, and an exceedance of the SAC does not automatically trigger the need for remediation. Exceedances of the SAC will trigger the need for further assessment of risk by the Environmental Consultant to determine the need for remediation in accordance with NEPC (2013).

12. Validation plan

12.1 Data quality objectives

The data quality objectives (DQO) for the validation plan are included in Appendix G.

12.2 Validation assessment requirements

The following site validation work will be required:

- Field assessment by the Environmental Consultant comprising:
  - Visual inspection, including taking photographs for record purposes;
  - Collecting validation samples from excavations resulting from the removal of contaminated soils, including contaminated soil stockpile footprints (if relevant); and
  - Collecting validation / characterisation samples for materials to be re-used on site.

- Surveying of the constructed borrow pit by the Surveyor. Surveys are recommended to include a survey density of every 5 – 10 m around the edge of the survey area and 10 – 20 m in the central portion of the survey area, or otherwise a minimum of the corners and central point of an excavation (five points) for small excavations / areas. Survey points are to be accurate to the nearest 100 mm. Surveys are to be conducted to:
  - Survey of the extent and levels of the base of the excavations;
  - Survey of the extent and levels of the top of the marker layer (i.e. after filling with contaminated soils);
  - Survey of the extent and levels of the top of the capping layer (i.e. prior to installation of pavements); and
  - Overlaying of the pre- and post- capping surveys to demonstrate the capping thickness.
- Laboratory analysis of validation samples at a NATA accredited laboratory for:
  - The CoPC relevant to the soil; and
  - Quality control (QC) samples in accordance with Section 15.
- Comparison by the Environmental Consultant of the laboratory results with the SAC and/or RAC as appropriate (refer to Section 11).
- Preparation by the Environmental Consultant of a validation report detailing the methods and results of the remediation works and validation assessment.

12.3 Visual inspections

All areas to be assessed and validated will first be subject to a visual inspection by the Environmental Consultant.

12.4 Validation sampling

The sampling frequency will depend on the volume or area to be assessed and the previous results. The following approximate sampling frequencies will be adopted but may be modified by the Environmental Consultant to take into account previous results, where applicable, and findings from the visual inspections.

Small to medium areas / excavations (base <500 m^2):

- Base of excavation: one sample per 25 m^2 or part thereof, with a minimum of three samples where the base of the excavation is fill rather than natural soils; and
- Sides of excavation: one sample per 20 m length or part thereof with a minimum of one sample per wall. Additional samples will be collected at depths of concern where there is more than one depth of concern, with a minimum of one sample per 1.5 m depth in fill.

Large areas / excavations (base ≥500 m^2):

- Base of excavation: sampling on a grid at a density in accordance with Table 2 in NSW EPA (2022) or a minimum of 10 samples. In sub-areas with any specific signs of concern, a higher sampling density may be required; and

- Sides of excavation: one sample per 20 m length or part thereof with a minimum of one sample per wall. Additional samples will be collected at depths of concern where there is more than one depth of concern, with a minimum of one sample per 1.5 m depth in fill.

Stockpiles, for on-site re-use:

- Asbestos: sampling at a rate of 1 sample per 25 m^3 as per NSW EPA (2022) including:
  - Field assessment of asbestos by screening 10L bulk samples through a 7mm sieve;
  - Laboratory analysis for AF/FA; and
  - An initial reduced rate (e.g. 1 per 50-100 m^3) may be considered for assessing on-site re-use of stockpiled materials to more quickly sort materials identified or at high risk to contain asbestos. The full sampling density however will be required to validate suitability for beneficial on-site re-use.
- Other potential contaminants: sampling at a rate consistent with the NSW EPA (2022), only required where indicators of chemical contamination are observed.

Where contaminated soils are stored or treated on bare soils, the footprint of the stockpile will require validation following removal of the contaminated soils in accordance with the above frequencies.

Validation samples will be analysed by a NATA accredited laboratory for the relevant CoPC relevant to the soil.

Validation sample test results will be compared to the RAC, as per the DQO (Appendix G). Where the RAC are considered to have not been met, the remediation excavation(s) will be expanded to 'chase-out' impacted material, as advised by the Environmental Consultant, with the validation sampling then continuing into the extended excavation. This process will continue until all results are below the RAC.

In the event that contamination extends beyond site boundaries or in areas that cannot be practically chased out (e.g. under buildings), validation samples will be taken at the limit of excavation. Notwithstanding that there may be residual contamination present.

Advice may need to be obtained from a qualified geotechnical or structural engineer regarding excavation and/or structure stability if excavations approach site boundaries and/or existing structures.

13. Waste disposal

Disposal of waste must be to an appropriately licensed waste facility, as per *Protection of the Environment Operations Act 1997* NSW (POEO Act) and the *Protection of the Environment (Waste) Regulation 2014* NSW.

Any waste disposed off-site must be initially classified by the Environmental Consultant in accordance with:

- NSW EPA *Waste Classification Guidelines, Part 1: Classifying Waste* (NSW EPA, 2014a);

- NSW EPA *Waste Classification Guidelines, Part 2: Immobilisation of Waste* (NSW EPA, 2014b);
- NSW EPA *Waste Classification Guidelines, Part 4: Acid Sulfate Soils* (NSW EPA, 2014c); and
- NSW EPA *Addendum to the Waste Classification Guidelines (2014) - Part 1: Classifying Waste* (NSW EPA, 2016) [addendum for per- and poly-fluoroalkyl substances (PFAS)].

Samples will be collected from stockpiles / *in situ* fill at various depths to characterise the full depth of the material proposed to be disposed of off-site. The frequency is to be determined by the Environmental Consultant based on the risk of contamination and heterogeneity of the material.

For stockpiles comprising similar materials and a:

- Volume up to and include 250 m^3: a recommended minimum frequency of one sample per 25 m^3, with a minimum of three per stockpile (NSW EPA, 2022); or
- Volume greater than 250 m^3: a recommended minimum frequency of one sample per 25-250 m^3, with a minimum of 10 samples calculation of the 95% upper confidence limit of the arithmetic mean for all applicable analytes (NSW EPA, 2022). Note that this does not apply to stockpiles impacted, or potentially impacted, by asbestos. For stockpiles greater than 250 m^3 which are impacted, or potentially impacted, by asbestos the Environmental Consultant shall provide guidance in accordance with NSW EPA (2022).

All waste must be tracked by the Remediation Contractor from 'cradle to grave'. Copies of all consignment notes / disposal dockets (or similar) and environment protection licences for receipt and disposal of the materials must be maintained by the Remediation Contractor as part of the site log and must be provided to the Environmental Consultant for inclusion in the validation report.

14. **Imported material**

Any soil, aggregate etc imported for the remediation works must have contaminant concentrations that meet the relevant criteria outlined in Section 11. Imported materials will only be accepted for use at the site if:

- It can legally be accepted onto the site (e.g. classified as virgin excavated natural material (VENM), accompanied by a report / certificate prepared by a qualified environmental consultant);
- Visual inspection of the imported soil confirms that the soil has no signs of concern and is consistent with those described in the supporting classification documentation;
- It has no aesthetic issues of concern, and
- The materials are validated (by inspection / sampling) by the Environmental Consultant as being suitable for use at the site.

The classification report / certificate for all material proposed for import must be reviewed and approved in writing by the Environmental Consultant prior to import. Materials to be imported may need to meet other requirements (e.g. geotechnical or landscaping requirements) which are to be assessed by others, as required.

If permitted by the development consent and approved by the site owner, Remediation Contractor and Environmental Consultant, material classified under a NSW EPA RRO may also be accepted, provided the material can be used on site in accordance with the corresponding RRE. For example, this could include excavated natural material (ENM), classified under NSW EPA *Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014, The excavated natural material order 2014* (NSW EPA, 2014d).

The need for check-sampling of VENM and/or RRO material is to be determined by the Environmental Consultant depending on the source of the material, adequacy of the supporting documentation provided and inspection(s) of material. Quarried material / VENM may need little or no check sampling.

Any recycled materials proposed for importation must be sampled at a frequency of one sample per 25 m^3, with a minimum of three samples per load. The recycled material will not be permitted to be used on site until the results of the inspection and laboratory analysis have been approved in writing by the Environmental Consultant.

15. Quality assurance and quality control

Field quality assurance and quality control (QA / QC) testing will include the following:

- 10% sample intra-laboratory analysis, analysed for the same suite as primary sample (noted not applicable where asbestos is the only analyte analysed given the heterogenous nature of asbestos contamination); and
- Trip spike and trip blank samples (analysed for BTEX) (approximately one per batch of samples where volatile contaminants are CoPC).

The laboratory will undertake analysis in accordance with its NATA accreditation, including in-house QA / QC procedures.

The QC analytical results will be assessed using the following criteria:

- Sampling location rationale met the sampling objective;
- Standard operating procedures (SOP) are followed;
- Appropriate QA / QC samples are collected/prepared and analysed;
- Samples are stored under secure, temperature-controlled conditions;
- Chain of custody documentation is employed for the handling, transport and delivery of samples to the selected laboratory;
- Conformance with specified holding times;
- Accuracy of spiked samples within the laboratory's acceptable range (typically 70-130% for inorganic contaminants and greater for some organic contaminants); and
- Field and laboratory duplicate, and replicate samples will have a precision average of +/- 30% relative percentage difference (RPD).

16. Management and responsibilities

16.1 Site management plan

A general site management plan for the operational phase of site remediation is included in Appendix E. The management plan includes soil, noise, dust, work health safety (WHS), remediation schedule, hours of operation and incident response. The Remediation Contractor is to implement the general site management plan for the duration of remediation works by incorporating the plan into their over-arching construction environmental management plan (CEMP).

16.2 Site responsibilities

The site management plan (Appendix E) provides a summary of the general program management and associated responsibilities. Contact details for key utilities are also included in the event of needing to respond to any incidents.

16.3 Contingency plan and unexpected finds protocol

Plans for contingency situations (e.g. encountering asbestos in fill), along with an unexpected finds protocol for dealing with unexpected finds during remediation work / earthworks, are included in Appendix F.

17. Validation reporting

17.1 Documentation

The following documents will need to be collated and reviewed by the Environmental Consultant as part of the validation assessment (including those items that are prepared by the Environmental Consultant):

- Any licences and approvals required for the remediation works (Remediation Contractor);
- Waste classification report(s) (Environmental Consultant);
- Assessment results for assessment of suitability of fil for re-use outside of the borrow pit (Environmental Consultant);
- Transportation Record: comprising a record of all truckloads of soil (including aggregate) entering the site, including truck identification (e.g. registration number), date, time, source site, load characteristics (e.g. type of material, i.e. quarried aggregate, etc.), approximate volume, use (e.g., general site raising, service trenches, etc.) (Remediation Contractor);
- Disposal dockets: for any soil disposed off-site including transportation records, spoil source, spoil disposal location, receipt provided by the receiving waste facility / site (Remediation Contractor). Note: A record of the building materials disposed off-site is also to be kept and provided to the Principal, on request;
- Imported materials records: records for any soil imported onto the site, including source site, classification reports, inspection records of soil upon receipt at site and transportation records (Remediation Contractor);

- Records relating to any unexpected finds and contingency plans implemented (Remediation Contractor);
- Laboratory certificates and chain-of-custody documentation;
- Inspections records from the Environmental Consultant;
- Photographic records by all contractors and consultants of the works undertaken within their purview of responsibilities (Remediation Contractor);
- Surveys pre- and post-installation of geotextile marker layer and clean fill cap, including an overlay of the surveys (Remediation Contractor);
- Airborne asbestos monitoring records (Remediation Contractor); and
- Interim / final visual and sampling clearances for any asbestos related works (Remediation Contractor).

17.2 **Reporting**

A validation assessment report will be prepared by the Environmental Consultant in accordance with NSW EPA (2020).

The validation report shall describe the remediation approach adopted, methodology, results and conclusion of the assessment and make a statement regarding the suitability of the site for the proposed SSD.

If the preferred remediation strategy of on-site management is undertaken the Environmental Consultant will prepare a LTEMP in accordance with NSW EPA guidelines to outline management procedures for future works to maintain the integrity of the cap.

18. **Conclusions**

It is considered that the site can be made suitable for the proposed carpark subject to implementation of this RAP, and if required, the subsequent implementation of a LTEMP.

The obligations within the LTEMP (if required) must be legally enforceable (e.g. by way of a suitably worded consent condition).

19. **References**

CRC CARE. (2017). *Risk-based Management and Remediation Guidance for Benzo(a)pyrene*. Technical Report no. 39: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.

CRC CARE. (2019a). *Remediation Action Plan: Development - Guideline on Establishing Remediation Objectives*. National Remediation Framework: CRC for Contamination Assessment and Remediation of the Environment.

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Douglas. (2024a). *Report on Contamination Investigation, P1 Carpark Relocation. Western Sydney University, Rydalmere NSW*. Reference 227191.00.R.001.Rev0.

Douglas. (2024b). *Report on geotechnical investigation. 171 Victoria Road, Parramatta NSW*. Reference 227190.00.R.001.Rev2 dated June 2024.

Douglas. (2024c). *Investigation summary report, P1 carpark relocation. Western Sydney University, 171 Victoria Road, Parramatta NSW*. Reference 227191.00.R.001.Rev0 dated November 2024.

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NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

NSW EPA. (2014a). *Waste Classification Guidelines, Part 1: Classifying Waste*. NSW Environment Protection Authority.

NSW EPA. (2014b). *Waste Classification Guidelines, Part 2: Immobilisation of Waste*. NSW Environment Protection Authority.

NSW EPA. (2014c). *Waste Classification Guidelines, Part 4: Acid Sulfate Soils*. NSW Environment Protection Authority.

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NSW EPA. (2016). *Addendum to the Waste Classification Guidelines (2014) - Part 1: Classifying Waste*. NSW Environment Protection Authority.

NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land*. Contaminated Land Guidelines: NSW Environment Protection Authority.

NSW EPA. (2022). *Sampling Design, Part 1: Application; Part 2: Interpretation*. NSW Environment Protection Authority.

WA DoH. (2021). *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*. WA Department of Health.

20. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report (or services) for this project at 171 Victoria Road Rydalmere Campus, Rydalmere NSW in line with Douglas' proposal dated 21 July 2025 and acceptance received from Steven Botterill on behalf of Western Sydney University. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of Western Sydney University for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

Asbestos has been previously detected by observation or by laboratory analysis in fill materials at the test locations sampled and analysed. Building demolition materials, such as brick, tile, terracotta, plastic, concrete and timber and metal were previously observed in the fill and these are considered as indicative of the possible presence of additional hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. This is either due to undetected variations in ground conditions, or to parts of the site being inaccessible and not available for inspection/sampling. It is therefore considered possible that additional HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

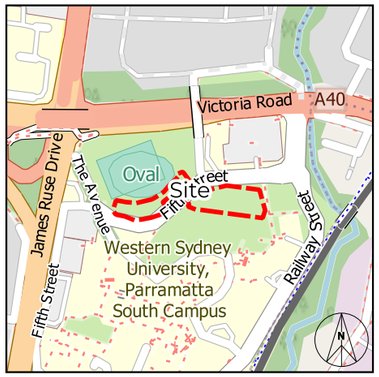
This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Appendix A

Drawings





SITE LOCATION

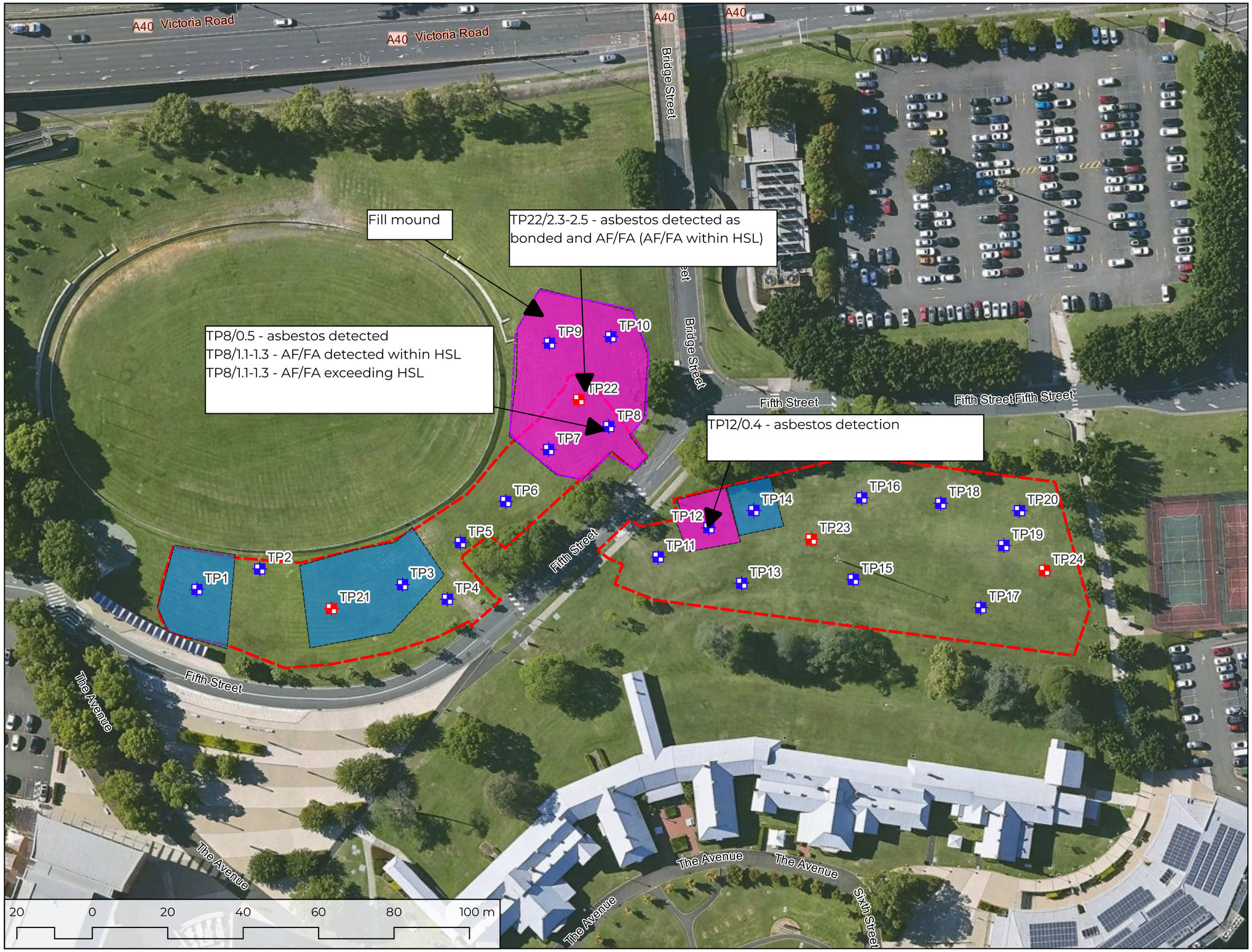
NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from "Metromap"
2. Features shown are approximate only.

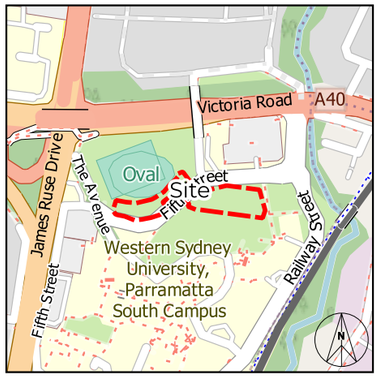
LEGEND

- Updated site boundary
- Raised fill mound
- Environmental Test Pit
- Geotechnical / Environmental Test Pit

Douglas PARTNERS

CLIENT: Western Sydney University		TITLE: **Site and Test Location Plan**	PROJECT: 227191.00
OFFICE: Sydney	DRAWN BY: JJH	**Proposed Carpark P1 Relocation**	DRAWING No: 1
SCALE: 1:1000 @A3	DATE: 13/08/2025	**Western Sydney University, Parramatta South Campus, NSW**	REVISION: 1





SITE LOCATION

NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from "Metromap" dated 23/07/2024,
2. Features shown are approximate only.

LEGEND

- Environmental Test Pit
- Geotechnical / Environmental Test Pit
- Asbestos detected and building demolition materials in fill within testpits
- Building demolition materials identified in fill within testpits

Unshaded areas no asbestos or building demolition materials identified in fill within test pits

Shaded extents are indicative only and will require further delineation / testing as discussion with the report.

Refer further detail provided within report

HSL - health screening level (HSL D)

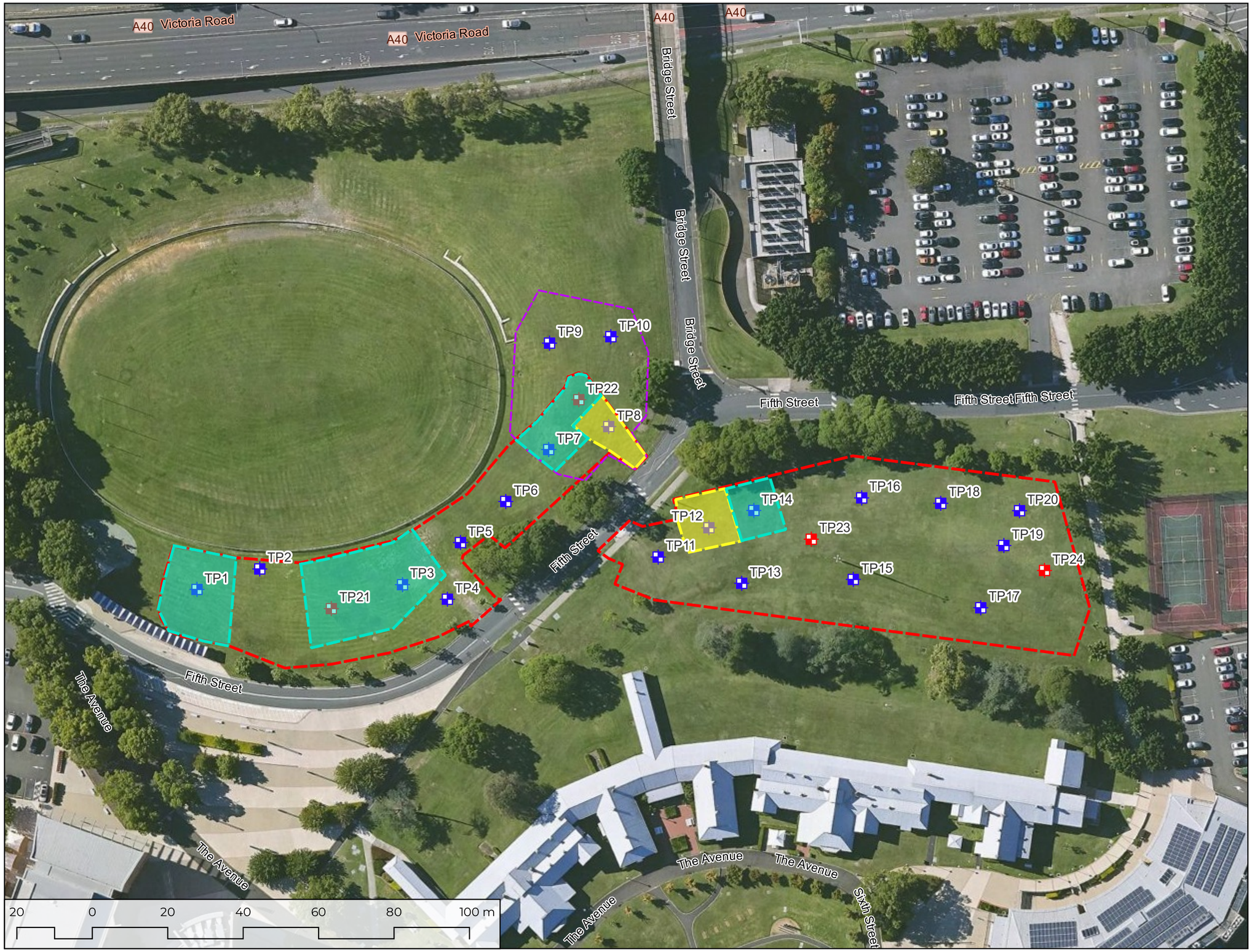
Douglas PARTNERS

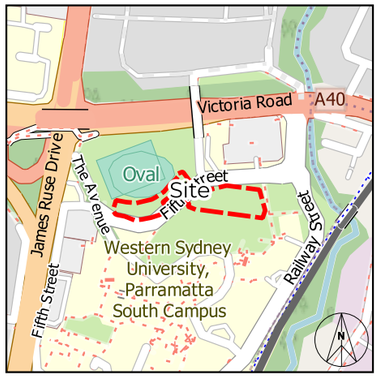
CLIENT:	Western Sydney University		
OFFICE:	Sydney	DRAWN BY:	JJH
SCALE:	1:1000 @A3	DATE:	30/07/2025

TITLE: **Summary asbestos results**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

PROJECT:	227191.00
DRAWING No:	2
REVISION:	0

DP.QGIS.A3LandscapeDrawingLayout.Rev3 - P:\227191.00 - WESTERN SYDNEY UNI PARRAMATTA CARPARK P1\7.0 Drawings\7.3 QGIS\227191.00.qgz





SITE LOCATION

NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from "Metromap"
2. Features shown are approximate only.

LEGEND

- Site Boundary
- Environmental Test Pit
- Geotechnical / Environmental Test Pit
- Approximate extent of the fill mound

Fill category

- Fill category 1 (ACM detected above SAC)
- Fill category 2 (ACM detected within SAC, and/or high risk of additonal finds)

Fill category 3 comprises all unshaded areas within the site

Shaded extents are indicative only and will require further delineation / testing as discussion with the report.

Refer further detail provided within report

Note:
ACM - asbestos containing material
SAC - site assessment criteria

Douglas PARTNERS

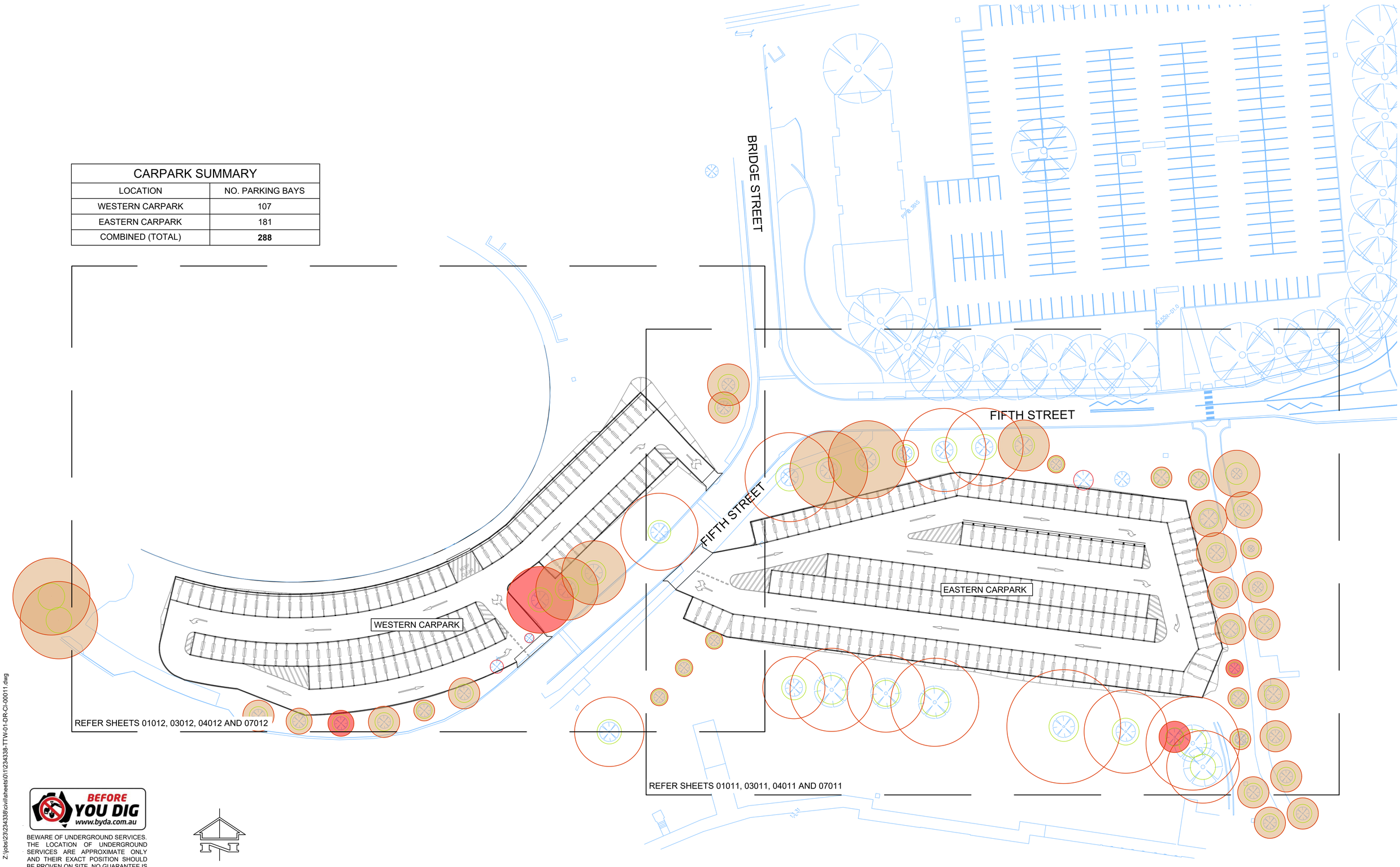
CLIENT:	Western Sydney University		
OFFICE:	Sydney	DRAWN BY:	JJH
SCALE:	1:1000 @A3	DATE:	30/07/20205

TITLE: **Approximate Remediation Areas**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

PROJECT:	227191.00
DRAWING No:	3
REVISION:	0

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WITH ALL RELEVANT NOTES AND LEGENDS

CARPARK SUMMARY	
LOCATION	NO. PARKING BAYS
WESTERN CARPARK	107
EASTERN CARPARK	181
COMBINED (TOTAL)	**288**



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0.0 8.0 16.0 24.0 32.0m
1:400 A1 1:800 A3

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Rev	Description	Eng Draft	Date
T4	TENDER ADDENDUM ISSUE	RP KN	02.05.2025
T3	TENDER ADDENDUM ISSUE	RP KN	19.12.2024
T2	TENDER ISSUE	RP JLE	08.10.2024
T1	TENDER ISSUE	RP JLE	03.10.2024
P2	PRELIMINARY ISSUE	RP JLE	23.09.2024
P1	PRELIMINARY ISSUE	RP PB	13.09.2024

Client: WESTERN SYDNEY UNIVERSITY

Engineer: TTW www.ttwengineers.com

Project: WSU CARPARK RELOCATION PROJECT

Drawing Title: GENERAL ARRANGEMENT PLAN

Scale at A1	Drawn	Designed	Approved
1:400	KN	JLE	RP

Project No	Originator	Zone	Type	Role	Sheet No.	Rev
234338	TTW		01	DR	CI-00011	T4

14.08.2025 10:53 AM

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NOTE: WORKS WITHIN CLOSE PROXIMITY TO EXISTING RETAINED TREES TO BE SUPERVISED BY A SUITABLY QUALIFIED ARBORIST. REFER TO PRELIMINARY TREE ASSESSMENT (PTA) DATED 25/08/24 BY TREE SURVEY FOR INFORMATION ON EXISTING TREES. IMPLEMENT APPROPRIATE TREE PROTECTION MEASURES IN ACCORDANCE WITH ARBORIST REQUIREMENTS. MAXIMUM 10% ENCROACHMENT INTO TPZ FOR TREES TO BE RETAINED.

FIFTH STREET

EXISTING SERVICES PIT TO BE MODIFIED TO SUIT FINISHED LEVEL AT RL 9.82. COVER TO BE CHANGED TO CLASS C

EXISTING TREE TO BE REMOVED AND GRUBBED

KERB ONLY (KO) TO BE PROVIDED ALONG THE EDGE OF THE PARKING

EXISTING SERVICES PIT TO BE MODIFIED TO SUIT FINISHED LEVEL AT RL 10.16. COVER TO BE CHANGED TO CLASS C

EXISTING POLE TO BE PROTECTED IN PLACE

CCTV POLE TO BE PROTECTED IN PLACE

FIFTH STREET

PROPOSED BORROW PIT TO CAP AND CONTAIN ASBESTOS CONTAMINATED MATERIALS (FILL CATEGORY 1 & 2). REFER DRG CI-02011 FOR DETAILS

MODIFY EXISTING KERB & GUTTER AND PROVIDE NEW VEHICULAR CROSSING OF WIDTH 11.0m IN ACCORDANCE WITH CITY OF PARRAMATTA STANDARD DRAWING DS8

EXISTING SERVICES TO BE PROTECTED DURING WORKS

EXISTING SERVICE TO BE RELOCATED. REFER TO SERVICES DRAWINGS

EXISTING REDUNDANT POWER SUPPLY TO LIGHT POLE TO BE REMOVED

EXISTING LIGHT POLE IN MIDDLE OF THE CARPARK TO BE RELOCATED. REFER TO SERVICES DRAWINGS FOR DETAILS

MODIFY SEWER PIT TO SUIT FINISHED LEVEL AT RL 11.17. COVER TO BE CHANGED TO CLASS C

1:2 MAXIMUM CUT BATTER TYPICAL TO TIE INTO EXISTING LEVELS

1:4 MAXIMUM FILL BATTER TYPICAL TO TIE INTO EXISTING LEVELS

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0.0 4.0 8.0 12.0 16.0m
1:200 A3 1:400 A3

NOT FOR CONSTRUCTION

Rev	Description	Eng Draft	Date
T4	TENDER ADDENDUM ISSUE	RP KN	02.05.2025
T3	TENDER ADDENDUM ISSUE	RP KN	19.12.2024
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P1	PRELIMINARY ISSUE	RP PB	13.09.2024
T5	TENDER ADDENDUM ISSUE	RP KN	14.08.2025

Client: WESTERN SYDNEY UNIVERSITY

Engineer: TTW www.ttwengineers.com

Project: WSU CARPARK RELOCATION PROJECT

Drawing Title: GEOMETRY SITE PLAN SHEET 1

Scale at A1	Drawn	Designed	Approved
1:200	KN	JLE	RP

Project No	Originator	Zone	Type	Role	Sheet No.	Rev
234338	TTW	01	DR	CI	01011	T5

14.08.2025 11:07 AM

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NOTE: WORKS WITHIN CLOSE PROXIMITY TO EXISTING RETAINED TREES TO BE SUPERVISED BY A SUITABLY QUALIFIED ARBORIST. REFER TO PRELIMINARY TREE ASSESSMENT (PTA) DATED 25/08/24 BY TREE SURVEY FOR INFORMATION ON EXISTING TREES. IMPLEMENT APPROPRIATE TREE PROTECTION MEASURES IN ACCORDANCE WITH ARBORIST REQUIREMENTS. MAXIMUM 10% ENCROACHMENT INTO TPZ FOR TREES TO BE RETAINED.

1:2 MAXIMUM CUT BATTER TYPICAL

EXISTING COUNCIL STORMWATER DRAIN

INDICATIVE 1% AEP FLOOD EXTENT

NO NET FILL WITHIN THE FLOOD OVERLAY ZONE TO ENSURE NO ADVERSE IMPACT TO FLOOD STORAGE

EXISTING SERVICE TO BE RELOCATED. REFER TO SERVICES DRAWINGS

PROVIDE NEW VEHICULAR CROSSING OF WIDTH 4.0m IN ACCORDANCE WITH CITY OF PARRAMATTA STANDARD DRAWING DS8

HERITAGE PICKET FENCE TO BE PROTECTED DURING WORKS. MINIMUM CLEARANCE OF 1.5m TO BE PROVIDED AT ALL TIMES

PROPOSED BORROW PIT TO CAP AND CONTAIN ASBESTOS CONTAMINATED MATERIALS (FILL CATEGORY 1 & 2). REFER DRG CI-02011 FOR DETAILS

KERB AND GUTTER TO BE PROVIDED ALONG THE EDGE OF THE PARKING

DISH DRAIN TO ALIGN TO EXISTING OVAL GATE

MAINTAIN CLEAR ACCESS TO EXISTING OVAL GATE

EXISTING TREES TO BE REMOVED AND GRUBBED

MODIFY SEWER PIT TO SUIT FINISHED LEVEL AT RL 9.84. COVER TO BE CHANGED TO CLASS C

MODIFY EXISTING KERB & GUTTER AND PROVIDE NEW VEHICULAR CROSSING OF WIDTH 9.0m IN ACCORDANCE WITH CITY OF PARRAMATTA STANDARD DRAWING DS8

FIFTH STREET

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0.0 4.0 8.0 12.0 16.0m
1:200 A1 1:400 A3

NOT FOR CONSTRUCTION

Rev	Description	Eng Draft	Date
T4	TENDER ADDENDUM ISSUE	RP KN	02.05.2025
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P1	PRELIMINARY ISSUE	RP PB	13.09.2024
T5	TENDER ADDENDUM ISSUE	RP KN	14.08.2025

Client: WESTERN SYDNEY UNIVERSITY

Engineer: TTW www.ttwengineers.com

Project: WSU CARPARK RELOCATION PROJECT

Drawing Title: GEOMETRY SITE PLAN SHEET 2

Scale at A1	Drawn	Designed	Approved
1:200	KN	JLE	RP

Project No	Originator	Zone	Type	Role	Sheet No.	Rev
234338	TTW	01	DR	CI	01012	T5

14.08.2025 2:27 PM

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CUT AND FILL VOLUME ESTIMATES

EASTERN CARPARK
CUT 940 m^3
FILL 110 m^3

WESTERN CARPARK
CUT 310 m^3
FILL 190 m^3

FX.XX DENOTES CUT AND FILL DEPTH FROM THE NATURAL SURFACE TO THE DESIGN FINISHED SURFACE

DENOTES PROPOSED ACM BORROW PIT EXTENT AS PER RAP REQUIREMENTS - SEE NOTE 4 & ASBESTOS CONTAMINATED MATERIALS VOLUMES AND BORROW PIT NOTES

NOTES:
1. NO BULKING FACTOR APPLIED.
2. CUT AND FILL VOLUME ESTIMATES CALCULATED FROM THE NATURAL SURFACE TO THE DESIGNED FINISHED SURFACE.
3. NO VOLUME ALLOWANCE HAS BEEN MADE FOR EXCAVATIONS REQUIRED FOR SERVICE TRENCHINGS, THICKENINGS, BORROW PITS TO CAP AND CONTAIN ASBESTOS CONTAMINATED MATERIALS AS DESCRIBED IN THE REMEDIATION ACTION PLAN (RAP) BY DOUGLAS PARTNERS ETC. THE CONTRACTOR SHALL MAKE THEIR OWN ALLOWANCE AS REQUIRED TO COMPLETE BULK EARTHWORKS.
4. CONTRACTOR TO BE AWARE OF ASBESTOS CONTAMINATED MATERIALS (ACM) PRESENT ON SITE. REMEDIATION OF ACM EXPOSED ON SITE SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE REQUIREMENTS NOTED IN THE REMEDIATION ACTION PLAN BY DOUGLAS PARTNERS. ACM VOLUMES ARE INDICATIVE ONLY AND ARE BASED ON REPORT BY DOUGLAS PARTNERS. ACTUAL VOLUME OF ACM MAY VARY. REFER ASBESTOS CONTAMINATED MATERIALS VOLUME AND BORROW PIT NOTES FOR ADDITIONAL REQUIREMENTS.
5. CONTRACTOR TO MAKE ALLOWANCE FOR DISPOSAL OF SITE WON MATERIAL. FOR RE-USE OF SITE WON MATERIAL, REFERENCE SHOULD BE MADE TO THE GEOTECHNICAL REPORT. THE CONTRACTOR IS TO MAKE ALLOWANCE FOR SORTING/TESTING AND HANDLING OF ANY FILL MATERIAL PROPOSED FOR RE-USE.
6. REFER TO GEOTECHNICAL REPORT PREPARED BY DOUGLAS PARTNERS 227191.00.R.001.REV0 DATED 15 NOVEMBER 2024 FOR SUBGRADE PREPARATION.
7. WORKS WITHIN CLOSE PROXIMITY TO EXISTING RETAINED TREES TO BE SUPERVISED BY A SUITABLY QUALIFIED ARBORIST.
8. THE CONTRACTOR SHALL UNDERTAKE A DILAPIDATION SURVEY OF EXISTING PAVEMENTS AROUND THE EXTENT OF WORKS PRIOR TO COMMENCING WORKS. DAMAGE TO EXISTING PAVEMENTS OUTSIDE THE LIMIT OF WORKS SHALL BE REMEDIATED AND MADE GOOD AT THE CONTRACTOR'S EXPENSE. CONTRACTOR TO OBTAIN ALL NECESSARY AUTHORITY PERMITS & APPROVALS.

ASBESTOS CONTAMINATED MATERIALS VOLUMES AND BORROW PIT NOTES

ASBESTOS CONTAMINATED MATERIALS (ACM) VOLUMES SHOWN ARE PRELIMINARY ESTIMATES ONLY, DERIVED FROM AVAILABLE ENVIRONMENTAL INVESTIGATIONS AND GEOTECHNICAL TEST PIT DATA PROVIDED BY DOUGLAS PARTNERS.

ESTIMATES ARE BASED ON ASSUMED CONTAMINATION EXTENTS FROM THE REMEDIATION ACTION PLAN (RAP) AND MAY NOT REFLECT ACTUAL SITE CONDITIONS. ACTUAL VOLUME OF ACM MAY VARY.

TTW DRAWINGS SHOW DESIGN INTENT ONLY. BORROW PIT LOCATIONS, EXTENTS, LEVELS AND VOLUMES ARE INDICATIVE ONLY.

THE CONTRACTOR SHALL UNDERTAKE THEIR OWN SITE INVESTIGATIONS AND DETAILED DESIGN TO FINALISE THE BORROW PIT VOLUME AND ARRANGEMENT IN ACCORDANCE WITH:
- GEOTECHNICAL REPORT BY DOUGLAS PARTNERS 227191.00.R.001Rev0 DATED 15 NOVEMBER 2024
- REMEDIATION ACTION PLAN BY DOUGLAS PARTNERS 227190.04.R.001Rev0 DATED 14 AUGUST 2025
- TTW DRAWINGS (DESIGN INTENT ONLY)

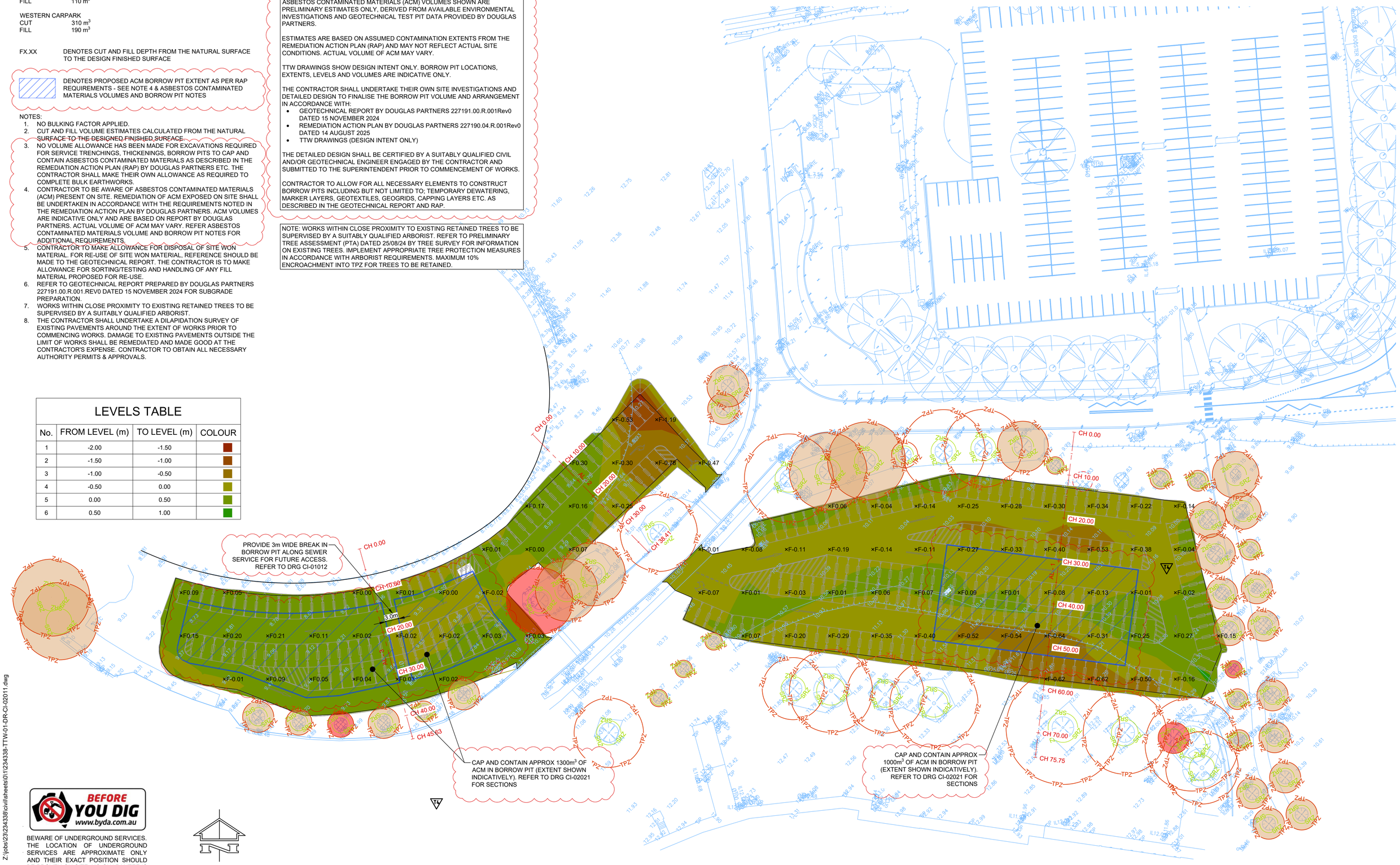
THE DETAILED DESIGN SHALL BE CERTIFIED BY A SUITABLY QUALIFIED CIVIL AND/OR GEOTECHNICAL ENGINEER ENGAGED BY THE CONTRACTOR AND SUBMITTED TO THE SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORKS.

CONTRACTOR TO ALLOW FOR ALL NECESSARY ELEMENTS TO CONSTRUCT BORROW PITS INCLUDING BUT NOT LIMITED TO; TEMPORARY DEWATERING, MARKER LAYERS, GEOTEXTILES, GEOGRIDS, CAPPING LAYERS ETC. AS DESCRIBED IN THE GEOTECHNICAL REPORT AND RAP.

NOTE: WORKS WITHIN CLOSE PROXIMITY TO EXISTING RETAINED TREES TO BE SUPERVISED BY A SUITABLY QUALIFIED ARBORIST. REFER TO PRELIMINARY TREE ASSESSMENT (PTA) DATED 25/08/24 BY TREE SURVEY FOR INFORMATION ON EXISTING TREES. IMPLEMENT APPROPRIATE TREE PROTECTION MEASURES IN ACCORDANCE WITH ARBORIST REQUIREMENTS. MAXIMUM 10% ENCROACHMENT INTO TPZ FOR TREES TO BE RETAINED.

LEVELS TABLE

No.	FROM LEVEL (m)	TO LEVEL (m)	COLOUR
1	-2.00	-1.50	
2	-1.50	-1.00	
3	-1.00	-0.50	
4	-0.50	0.00	
5	0.00	0.50	
6	0.50	1.00	



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0.0 8.0 16.0 24.0 32.0m
1:400 A1 1:800 A3

NOT FOR CONSTRUCTION

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Rev	Description	Eng Draft	Date
T4	TENDER ADDENDUM ISSUE	RP KN	14.08.2025
T3	TENDER ADDENDUM ISSUE	RP KN	02.05.2025
T2	TENDER ADDENDUM ISSUE	RP KN	19.12.2024
T1	TENDER ISSUE	RP JLE	08.10.2024

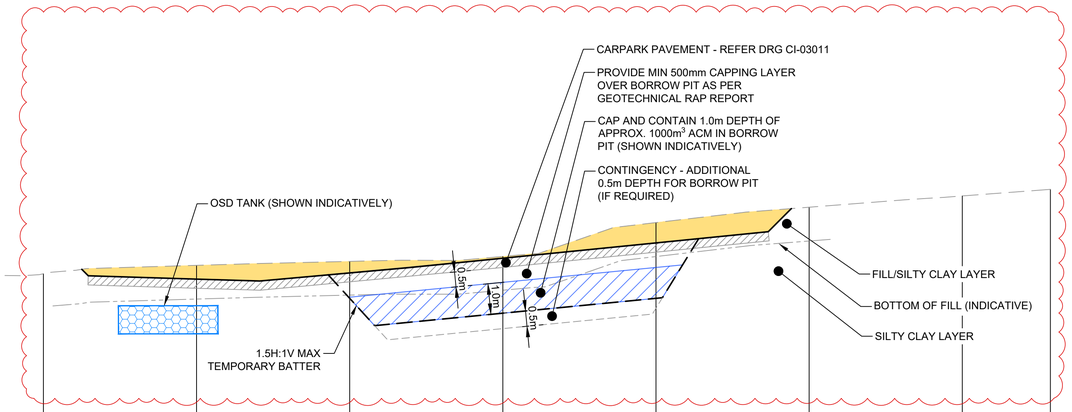
Client: WESTERN SYDNEY UNIVERSITY
Engineer: TTW www.ttwengineers.com
Project: WSU CARPARK RELOCATION PROJECT
Drawing Title: EARTHWORKS CUT AND FILL VOLUMES PLANS

Scale at A1	Drawn	Designed	Approved
1:400	KN	JLE	RP

Project No	Originator	Zone	Type	Role	Sheet No.	Rev
234338	TTW		DR	CI	02011	T4

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CUT
FILL

DATUM R.L. 4.00

DESIGN SURFACE (mAHD)		9.63	9.83	10.31	10.81				
EXISTING SURFACE (mAHD)	9.18	9.80	10.08	10.21	10.37	11.47	11.97	12.34	12.56
CUT/FILL DEPTH (m)			-0.45	-0.38	-0.06	-0.66			
CHAINAGE (m)	0.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	75.75

LONGITUDINAL SECTION AL - 1

SCALES: HORIZONTAL 1:200 VERTICAL 1:100

ASBESTOS CONTAMINATED MATERIALS VOLUMES AND BORROW PIT NOTES

ASBESTOS CONTAMINATED MATERIALS (ACM) VOLUMES SHOWN ARE PRELIMINARY ESTIMATES ONLY, DERIVED FROM AVAILABLE ENVIRONMENTAL INVESTIGATIONS AND GEOTECHNICAL TEST PIT DATA PROVIDED BY DOUGLAS PARTNERS.

ESTIMATES ARE BASED ON ASSUMED CONTAMINATION EXTENTS FROM THE REMEDIATION ACTION PLAN (RAP) AND MAY NOT REFLECT ACTUAL SITE CONDITIONS. ACTUAL VOLUME OF ACM MAY VARY.

TTW DRAWINGS SHOW DESIGN INTENT ONLY. BORROW PIT LOCATIONS, EXTENTS, LEVELS AND VOLUMES ARE INDICATIVE ONLY.

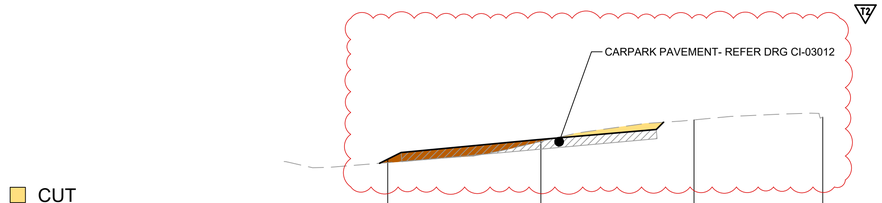
THE CONTRACTOR SHALL UNDERTAKE THEIR OWN SITE INVESTIGATIONS AND DETAILED DESIGN TO FINALISE THE BORROW PIT VOLUME AND ARRANGEMENT IN ACCORDANCE WITH:

- GEOTECHNICAL REPORT BY DOUGLAS PARTNERS 227191.00.R.001Rev0 DATED 15 NOVEMBER 2024
- REMEDIATION ACTION PLAN BY DOUGLAS PARTNERS 227190.04.R.001Rev0 DATED 14 AUGUST 2025
- TTW DRAWINGS (DESIGN INTENT ONLY)

THE DETAILED DESIGN SHALL BE CERTIFIED BY A SUITABLY QUALIFIED CIVIL AND/OR GEOTECHNICAL ENGINEER ENGAGED BY THE CONTRACTOR AND SUBMITTED TO THE SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORKS.

CONTRACTOR TO ALLOW FOR ALL NECESSARY ELEMENTS TO CONSTRUCT BORROW PITS INCLUDING BUT NOT LIMITED TO; TEMPORARY DEWATERING, MARKER LAYERS, GEOTEXTILES, GEOGRIDS, CAPPING LAYERS ETC. AS DESCRIBED IN THE GEOTECHNICAL REPORT AND RAP.

THE NATURAL SILTY CLAY/BOTTOM OF FILL LEVEL SHOWN IN THE LONGITUDINAL SECTIONS ARE INDICATIVE ONLY BASED ON GEOTECHNICAL BOREHOLE INFORMATION AND IS NOT GUARANTEED TO BE CORRECT OR COMPLETE. CONTRACTOR SHALL CONFIRM EXACT DEPTH TO THE NATURAL SILTY CLAY ON SITE. DEPTH MAY VARY ACROSS SITE.



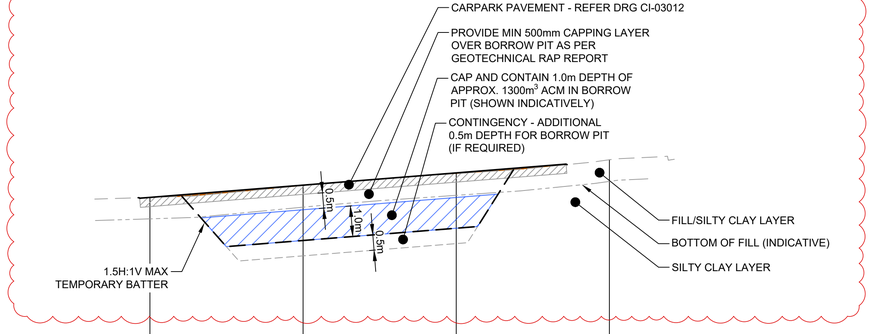
CUT
FILL

DATUM R.L. 4.00

DESIGN SURFACE (mAHD)	8.62	9.26			
EXISTING SURFACE (mAHD)	8.51	9.20	9.90	9.99	
CUT/FILL DEPTH (m)	0.11	0.07			
CHAINAGE (m) 0.00	10.00	20.00	30.00	38.41	

LONGITUDINAL SECTION AL - 2

SCALES: HORIZONTAL 1:200 VERTICAL 1:100



CUT
FILL

DATUM R.L. 4.00

DESIGN SURFACE (mAHD)	8.91	9.31	9.71		
EXISTING SURFACE (mAHD)	8.91	9.30	9.69	10.14	
CUT/FILL DEPTH (m)	0.00	0.02	0.02		
CHAINAGE (m) 0.00	10.00	20.00	30.00	40.00	45.63

LONGITUDINAL SECTION AL - 3

SCALES: HORIZONTAL 1:200 VERTICAL 1:100

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0.0 2.0 4.0 6.0 8.0m
1:100 A1 1:200 A3

0.0 4.0 8.0 12.0 16.0m
1:200 A1 1:400 A3

NOT FOR CONSTRUCTION

Rev	Description	Eng Draft	Date
T2	TENDER ADDENDUM ISSUE	RP KN	14.08.2025
T1	TENDER ADDENDUM ISSUE	RP KN	02.05.2025

Client: WESTERN SYDNEY UNIVERSITY

Engineer: TTW www.ttwengineers.com

Project: WSU CARPARK RELOCATION PROJECT

Drawing Title: EARTHWORKS SITE SECTIONS

Scale at A1	Drawn	Designed	Approved
AS SHOWN	KN	JLE	RP

Project No	Originator	Zone	Type	Role	Sheet No.	Rev
234338	TTW	01	DR	CI	02021	T2

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PAVEMENT LEGEND

P1 — VEHICULAR ASPHALT PAVEMENT
REFER TO CITY OF PARRAMATTA COUNCIL STANDARD DRAWING DS47 PAVEMENT FOR OFF-STREET CAR PARK.
PROVIDE BIDIM A29 GEOTEXTILE.

P2 — VEHICULAR CONCRETE PAVEMENT
REFER TO CITY OF PARRAMATTA COUNCIL STANDARD DRAWING DS8

P3 — ATLANTIS TURF CELL (OR SIMILAR APPROVED)
REFER TO PRODUCT SPECIFICATIONS

NOTES:
1. ANY UNCONTROLLED / SOFT SPOT TO BE REMOVED AND BACKFILL WITH ENGINEERING FILL / PROOF ROLL AND COMPACTED IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATION.

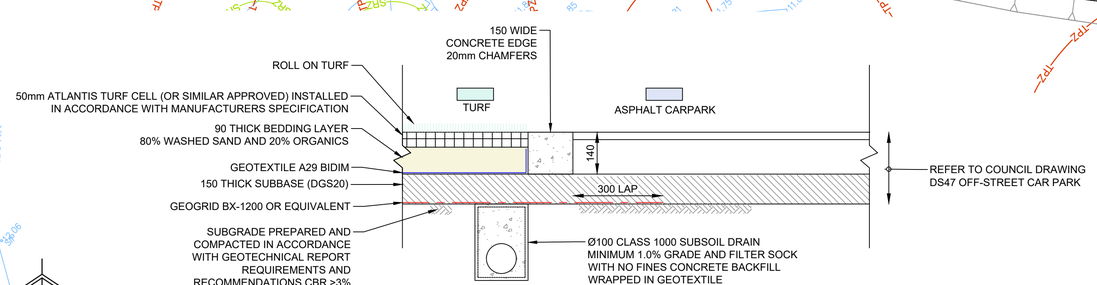
FIFTH STREET

FIFTH STREET

REFER TO PAVEMENT EDGE DETAIL BELOW FOR INTERFACE DETAIL

NOTE: WORKS WITHIN CLOSE PROXIMITY TO EXISTING RETAINED TREES TO BE SUPERVISED BY A SUITABLY QUALIFIED ARBORIST. REFER TO PRELIMINARY TREE ASSESSMENT (PTA) DATED 25/08/24 BY TREE SURVEY FOR INFORMATION ON EXISTING TREES. IMPLEMENT APPROPRIATE TREE PROTECTION MEASURES IN ACCORDANCE WITH ARBORIST REQUIREMENTS. MAXIMUM 10% ENCROACHMENT INTO TPZ FOR TREES TO BE RETAINED.

PROPOSED BORROW PIT TO CAP AND CONTAIN ASBESTOS CONTAMINATED MATERIALS (FILL CATEGORY 1 & 2). REFER DRG CI-02011 FOR DETAILS



PAVEMENT EDGE DETAIL
ASPHALT VEHICULAR AND ATLANTIS TURF CELL INTERFACE
SCALE N.T.S

0.0 4.0 8.0 12.0 16.0m
1:200 A1 1:400 A3

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P2	PRELIMINARY ISSUE	RP	JLE	23.09.2024
P1	PRELIMINARY ISSUE	RP	PB	13.09.2024
T6	TENDER ADDENDUM ISSUE	RP	KN	14.08.2025
T5	TENDER ADDENDUM ISSUE	RP	SFU	06.05.2025

Client: WESTERN SYDNEY UNIVERSITY

Engineer: TTW www.ttwengineers.com

Project: WSU CARPARK RELOCATION PROJECT

Drawing Title: PAVEMENT AND JOINTING PLAN SHEET 1

Scale at A1	Drawn	Designed	Approved
1:200	KN	JLE	RP

Project No	Originator	Zone	Type	Role	Sheet No.	Rev
234338	TTW		01	DR	CI-03011	T6

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THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES AND LEGENDS

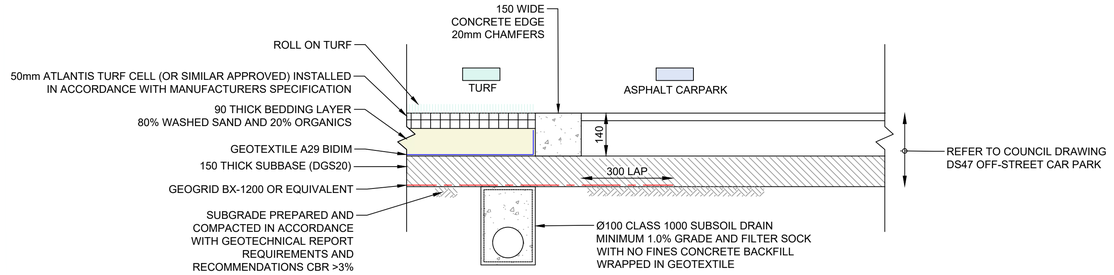
PAVEMENT LEGEND

P1 — VEHICULAR ASPHALT PAVEMENT
REFER TO CITY OF PARRAMATTA COUNCIL STANDARD DRAWING DS47 PAVEMENT FOR OFF-STREET CAR PARK.
PROVIDE BIDIM A29 GEOTEXTILE.

P2 — VEHICULAR CONCRETE PAVEMENT
REFER TO CITY OF PARRAMATTA COUNCIL STANDARD DRAWING DS8

P3 — ATLANTIS TURF CELL (OR SIMILAR APPROVED)
REFER TO PRODUCT SPECIFICATIONS

NOTES:
1. ANY UNCONTROLLED / SOFT SPOT TO BE REMOVED AND BACKFILL WITH ENGINEERING FILL / PROOF ROLL AND COMPACTED IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATION.



PAVEMENT EDGE DETAIL
ASPHALT VEHICULAR AND ATLANTIS TURF CELL INTERFACE
SCALE N.T.S

NOTE: WORKS WITHIN CLOSE PROXIMITY TO EXISTING RETAINED TREES TO BE SUPERVISED BY A SUITABLY QUALIFIED ARBORIST. REFER TO PRELIMINARY TREE ASSESSMENT (PTA) DATED 25/08/24 BY TREE SURVEY FOR INFORMATION ON EXISTING TREES. IMPLEMENT APPROPRIATE TREE PROTECTION MEASURES IN ACCORDANCE WITH ARBORIST REQUIREMENTS. MAXIMUM 10% ENCROACHMENT INTO TPZ FOR TREES TO BE RETAINED.

PROPOSED BORROW PIT TO CAP AND CONTAIN ASBESTOS CONTAMINATED MATERIALS (FILL CATEGORY 1 & 2). REFER DRG CI-02011 FOR DETAILS

REFER TO PAVEMENT EDGE DETAIL ABOVE FOR INTERFACE DETAIL

FIFTH STREET

KEEP CLEAR

BEFORE YOU DIG www.byda.com.au

BEWARE OF UNDERGROUND SERVICES. THE LOCATION OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN

0.0 4.0 8.0 12.0 16.0m
1:200 A1 1:400 A3

NOT FOR CONSTRUCTION

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Rev	Description	Eng	Draft	Date
T4	TENDER ADDENDUM ISSUE	RP	KN	02.05.2025
T3	TENDER ADDENDUM ISSUE	RP	KN	19.12.2024
T2	TENDER ISSUE	RP	JLE	08.10.2024
T1	TENDER ISSUE	RP	JLE	03.10.2024
P2	PRELIMINARY ISSUE	RP	JLE	23.09.2024
P1	PRELIMINARY ISSUE	RP	PB	13.09.2024
T6	TENDER ADDENDUM ISSUE	RP	KN	14.08.2025
T5	TENDER ADDENDUM ISSUE	RP	SFU	06.05.2025

Client: WESTERN SYDNEY UNIVERSITY

Engineer: TTW www.ttwengineers.com

Project: WSU CARPARK RELOCATION PROJECT

Drawing Title: PAVEMENT AND JOINTING PLAN SHEET 2

Scale at A1	Drawn	Designed	Approved
1:200	KN	JLE	RP

Project No	Originator	Zone	Type	Role	Sheet No.	Rev
234338	TTW				01-DR-CI-03012	T6

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Appendix B

About this Report

About this Report

November 2023

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

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Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

continued next page

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Appendix C

Previous Results

Table C1. Summary soil results

			Priority metals								Priority PAH				TRH >C10-C16				
			Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene [b]	Benzo(a)pyrene (B(a)P)	Benzo(a)pyrene TEQ (B(a)P TEQ)	Total PAH	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)
		PQL	4	0.4	1	1	1	0.1	1	1	1	0.05	0.5	0.05	50	25	50	100	100
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP1	0 - 0.2 m	14/10/24	6	<0.4	19	13	340	0.5	7	130	<1	1.1	1.6	15	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP1	0.5 - 0.7 m	14/10/24	10	<0.4	23	6	73	<0.1	4	27	<1	0.2	<0.5	1.7	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP1	1.5 - 1.7 m	14/10/24	5	<0.4	10	4	12	<0.1	5	11	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
BD1/20241014	1.5 - 1.7 m	15/10/24	6	<0.4	16	5	11	<0.1	7	12	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP2	0 - 0.2 m	14/10/24	7	<0.4	14	13	58	<0.1	5	29	<1	0.57	0.8	7.2	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP3	0 - 0.2 m	14/10/24	5	<0.4	13	19	97	0.1	7	46	<1	3.6	5.3	47	<50	<25	<50	260	100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP3	0.4 - 0.6 m	14/10/24	7	<0.4	18	8	49	<0.1	3	29	<1	1.1	1.6	12	<50	<25	<50	200	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP4	0 - 0.2 m	14/10/24	<4	<0.4	5	20	24	<0.1	3	84	<1	0.07	<0.5	0.07	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP5	0 - 0.2 m	14/10/24	6	<0.4	15	23	36	0.1	10	60	<1	0.2	<0.5	1.6	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP5	0.5 - 0.7 m	14/10/24	17	<0.4	34	4	21	<0.1	2	4	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP5	1.5 - 1.7 m	14/10/24	6	<0.4	8	3	8	<0.1	<1	2	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
TP6	0 - 0.2 m	14/10/24	5	<0.4	15	15	70	<0.1	4	46	<1	0.6	0.8	6.6	<50	<25	<50	110	140
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP6	0.5 - 0.7 m	14/10/24	5	<0.4	12	2	13	<0.1	2	5	<1	0.06	<0.5	0.2	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP7	0 - 0.2 m	14/10/24	5	<0.4	12	17	32	<0.1	5	57	<1	0.65	0.8	6	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP7	0.7 - 9 m	14/10/24	11	<0.4	26	2	15	<0.1	4	7	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP8	0.5 - 0.7 m	15/10/24	7	<0.4	12	41	220	0.4	6	270	<1	0.55	0.7	5.8	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP8	1.1 - 1.3 m	15/10/24	8	0.5	67	99	670	0.8	11	400	<1	1.6	2.3	17	<50	<25	<50	160	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
TP8	2 - 2.2 m	15/10/24	7	<0.4	20	10	57	<0.1	3	34	<1	0.2	<0.5	1.5	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	NL 215	NL -	- 2,500	- 6,600
TP9	0 - 0.2 m	14/10/24	11	<0.4	31	16	45	0.2	12	43	<1	0.2	<0.5	2.2	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP9	0.5 - 0.7 m	14/10/24	9	<0.4	21	17	53	0.1	9	47	<1	0.5	0.6	4.5	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP9	0.9 - 1.1 m	14/10/24	<4	<0.4	8	17	44	<0.1	5	37	<1	0.55	0.7	7.7	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP9	1.8 - 2 m	14/10/24	<4	<0.4	6	7	25	<0.1	2	26	<1	2.7	4.8	45	<50	<25	<50	300	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
TP10	0 - 0.2 m	15/10/24	<4	<0.4	12	15	40	0.2	7	56	<1	0.08	<0.5	0.3	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP10	1.3 - 1.5 m	15/10/24	7	<0.4	14	14	44	<0.1	8	60	<1	1	1.4	15	<50	<25	<50	170	<100

Table C1. Summary soil results

			Priority metals								Priority PAH				TRH >C10-C16				
			Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene [b]	Benzo(a)pyrene (B(a)P)	Benzo(a)pyrene TEQ (B(a)P TEQ)	Total PAH	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)
		PQL	4	0.4	1	1	1	0.1	1	1	1	0.05	0.5	0.05	50	25	50	100	100
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
TP10	2 - 2.2 m	15/10/24	9	<0.4	17	11	42	<0.1	9	63	<1	1.1	1.6	15	<50	<25	<50	120	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	NL 215	NL -	- 2,500	- 6,600
TP11	0 - 0.2 m	15/10/24	<4	<0.4	7	12	64	0.2	5	33	<1	0.2	<0.5	1.6	<50	<25	<50	<100	150
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP12	0 - 0.2 m	15/10/24	7	<0.4	16	5	25	<0.1	3	11	<1	0.1	<0.5	1.4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP12	0.5 - 0.7 m	15/10/24	14	<0.4	30	1	11	<0.1	2	3	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP13	0 - 0.2 m	15/10/24	12	<0.4	19	13	98	0.2	7	130	<1	0.61	0.8	7.8	<50	<25	<50	110	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP13	0.5 - 0.7 m	15/10/24	11	<0.4	30	<1	19	<0.1	2	4	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP14	0 - 0.2 m	15/10/24	11	<0.4	24	11	17	<0.1	2	10	<1	0.3	<0.5	6.3	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
BD5/20241015	0 - 0.2 m	14/10/24	7	<0.4	20	<1	12	<0.1	1	3	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP15	0 - 0.2 m	15/10/24	4	<0.4	12	4	19	<0.1	4	15	<1	0.07	<0.5	0.4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP16	0 - 0.2 m	15/10/24	<4	<0.4	17	12	58	0.1	6	48	<1	0.5	0.7	6.4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP16	0.5 - 0.7 m	15/10/24	9	<0.4	23	<1	11	<0.1	3	4	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP17	0.5 - 0.7 m	15/10/24	9	<0.4	14	<1	15	<0.1	<1	3	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP17	0 - 0.2 m	15/10/24	6	<0.4	19	5	31	<0.1	3	18	<1	0.4	<0.5	4.6	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP18	0.7 - 0.9 m	15/10/24	11	<0.4	21	<1	11	<0.1	<1	1	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP18	0 - 0.2 m	15/10/24	7	<0.4	16	8	45	<0.1	3	74	<1	0.09	<0.5	0.7	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
BD6/20241015	0 - 0.2 m	15/10/24	4	<0.4	12	5	27	<0.1	3	17	<1	0.56	0.7	7.5	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP19	0 - 0.2 m	15/10/24	6	<0.4	17	12	100	0.1	4	43	<1	0.3	<0.5	3.4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP20	0.5 - 0.7 m	15/10/24	9	<0.4	18	<1	11	<0.1	1	2	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP20	0 - 0.2 m	15/10/24	7	<0.4	27	11	120	0.1	3	41	<1	0.5	0.6	4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP21	1.1 - 1.3 m	14/10/02	15	<0.4	24	8	19	<0.1	1	5	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
BD2/20241014	1.1 - 1.3 m	14/10/24	15	<0.4	22	8	16	<0.1	1	7	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP22	0.5 - 0.7 m	14/10/24	11	<0.4	25	130	310	0.4	11	230	<1	1.2	1.8	13	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP22	2.3 - 2.5 m	14/10/24	8	0.5	17	26	110	0.2	8	130	<1	0.2	<0.5	2.4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	NL 215	NL -	- 2,500	- 6,600

Table C1. Summary soil results

			Priority metals								Priority PAH				TRH >C10-C16				
			Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene [b]	Benzo(a)pyrene (B(a)P)	Benzo(a)pyrene TEQ (B(a)P TEQ)	Total PAH	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)
		PQL	4	0.4	1	1	1	0.1	1	1	1	0.05	0.5	0.05	50	25	50	100	100
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP23	0 - 0.2 m	14/10/24	6	<0.4	32	6	56	<0.1	3	29	<1	0.1	<0.5	1.6	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP24	0 - 0.2 m	15/10/24	8	<0.4	20	15	130	0.1	5	49	<1	0.5	0.6	5.2	<50	<25	<50	140	130
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP13 - [TRIPLICATE]	0.5 - 0.7 m	15/10/24	10	<0.4	23	<1	20	<0.1	1	5	-	-	-	-	-	-	-	-	-
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	- -	- -	- -	- -	- -	- -	- -	- -	- -
TP23 - [TRIPLICATE]	0 - 0.2 m	14/10/24	<4	<0.4	11	7	48	<0.1	3	30	-	-	-	-	-	-	-	-	-
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	- -	- -	- -	- -	- -	- -	- -	- -	- -

Lab result

HIL/HSL value EIL/ESL/EGV value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance **Red** = EGV-indirect exceedance HSL 0-<1 Exceedance

Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Not limiting NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level EGV = Environmental Guideline Value ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample

b Naphthalene reported as highest detection from the BTEXN or PAH suite, or if both results <PQL as lowest PQL

c EIL criteria applies to DDT only

Site Assessment Criteria (SAC):

SAC based on generic land use thresholds for Commercial/ industrial D

Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

HIL	HIL-D (NEPC, 2013 or HEPA, 2020 (PFAS only))	EGV	EGV, all land uses, direct exposure (HEPA, 2020)
HSL (vapour ir	HSL-D (NEPC, 2013)	ESL	Commercial and Industrial (NEPC, 2013)
DC	Direct contact HSL D Commercial/Industrial (CRC CARE, 2011)	ML	Commercial and Industrial (NEPC, 2013)

Table C1. Summary soil results

			BTEX				Priority phenols	Priority OCP	Priority OPP	PCB
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Total Phenolics	Total Positive OCP	Total Positive OPP	Total PCB
		PQL	0.2	0.5	1	1	5	0.1	0.1	0.1
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP1	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP1	0.5 - 0.7 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP1	1.5 - 1.7 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			6 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
BD1/20241014	1.5 - 1.7 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP2	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP3	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP3	0.4 - 0.6 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP4	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP5	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP5	0.5 - 0.7 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP5	1.5 - 1.7 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			6 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP6	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP6	0.5 - 0.7 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP7	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP7	0.7 - 9 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP8	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP8	1.1 - 1.3 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			6 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP8	2 - 2.2 m	15/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			9 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP9	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP9	0.5 - 0.7 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP9	0.9 - 1.1 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP9	1.8 - 2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			6 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP10	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP10	1.3 - 1.5 m	15/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1

Table C1. Summary soil results

			BTEX				Priority phenols	Priority OCP	Priority OPP	PCB
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Total Phenolics	Total Positive OCP	Total Positive OPP	Total PCB
		PQL	0.2	0.5	1	1	5	0.1	0.1	0.1
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			6 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP10	2 - 2.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			9 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP11	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP12	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP12	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP13	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP13	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP14	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
BD5/20241015	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP15	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP16	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP16	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP17	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP17	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP18	0.7 - 0.9 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP18	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
BD6/20241015	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP19	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP20	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP20	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP21	1.1 - 1.3 m	14/10/02	<0.2	<0.5	<1	<1	-	-	-	-
			6 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
BD2/20241014	1.1 - 1.3 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP22	0.5 - 0.7 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP22	2.3 - 2.5 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			9 95	NL 135	NL 185	NL 95	- -	- -	- -	- -

Table C1. Summary soil results

			BTEX				Priority phenols	Priority OCP	Priority OPP	PCB
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Total Phenolics	Total Positive OCP	Total Positive OPP	Total PCB
		PQL	0.2	0.5	1	1	5	0.1	0.1	0.1
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP23	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP24	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP13 - [TRIPLICATE]	0.5 - 0.7 m	15/10/24	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -
TP23 - [TRIPLICATE]	0 - 0.2 m	14/10/24	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -

Lab result

HIL/HSL value EIL/ESL/EGV value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance **Red** = EGV-indirect exceedance HSL 0-<1 Exceedance

Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Not limiting NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level EGV = Environmental Guideline Value ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample

b Naphthalene reported as highest detection from the BTEXN or PAH suite, or if both results <PQL as lowest PQL

c EIL criteria applies to DDT only

Site Assessment Criteria (SAC):

SAC based on generic land use thresholds for Commercial/ industrial D

Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

HIL	HIL-D (NEPC, 2013 or HEPA, 2020 (PFAS only))	EGV
HSL (vapour ir	HSL-D (NEPC, 2013)	ESL
DC	Direct contact HSL D Commercial/Industrial (CRC CARE, 2011)	ML

Table C2. Summary Asbestos Results

Asbestos Content in Fibre Cement Sheet	15	**%**	(assumed)

Health Screening Levels	0.05	**% w/w**	Bonded ACM (Commercial D)	**HSL D**
	0.001	**% w/w**	AF/FA	

Test Location	Sample Depth (m)	Date	Field Screening							Laboratory Analysis			
			Approximate Sample Volume (L)	Weight of Sample (g)	Number of Fragments	Condition of Fragments	Size Range of Fragments (mm)	Weight of Retained ACM (g)	Bonded ACM in Soil (% w/w)#	Asbestos ID	ACM >7mm Estimation (g)	FA and AF Estimation (g)	FA and AF Estimation (% w/w)
TP1	0-0.2	14/10/2024	10	16329	0	-	-	-	**< 0.00**	NAD	-	-	<0.001
TP1	0.5-0.7	14/10/2024	10	15922	0	-	-	-	**< 0.00**	NAD	-	-	<0.001
TP2	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP3	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP3	0.4-0.6	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP4	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP5	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP5	0.5-0.7	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP6	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP6	0.5-0.7	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP7	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP7	0.7-0.9	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	-
TP8	0-0.2	15/10/2024	10	14681	0	-	-	-	**< 0.00**	-	-	-	-
TP8	0.5-0.7	15/10/2024	10	14872	0	-	-	-	**< 0.00**	**Detected**	-	0.0027	<0.001
PACM1 (TP8)	0.5	15/10/2024	-	-	-	-	-	-	-	**Detected**	48 **	-	-
TP8	1.1-1.3	15/10/2024	10	13990	0	-	-	-	**< 0.00**	**Detected**	-	0.0141	**0.0019**
TP8	1.7-1.9	15/10/2024	10	14381	0	-	-	-	**< 0.00**	-	-	-	-
TP9	0 - 0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP9	0.5 - 0.7	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP9	0.9 - 1.1	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP9	1.8 - 2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP10	0 - 0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP10	1.3 - 1.5	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP10	2 - 2.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP11	0 - 0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP12	0 - 0.2	15/10/2024	10	15608	0	-	-	-	**< 0.00**	NAD	-	-	<0.001
PACM2 (TP12)	0.4	15/10/2024	-	-	-	-	-	-	**-**	**Detected**	120 **	-	-
TP12	0.5-0.7	15/10/2024	10	14943	0	-	-	-	**< 0.00**	NAD			
TP13	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP13	0.5-0.7	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP14	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP15	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP16	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP16	0.5-0.7	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	-
TP17	0.5-0.7	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	-
TP17	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001

Douglas PARTNERS

Table C2. Summary Asbestos Results

Asbestos Content in Fibre Cement Sheet	15	**%**	(assumed)

Health Screening Levels	0.05	**% w/w**	Bonded ACM (Commercial D)	**HSL D**
	0.001	**% w/w**	AF/FA	

Test Location	Sample Depth (m)	Date	Field Screening							Laboratory Analysis			
			Approximate Sample Volume (L)	Weight of Sample (g)	Number of Fragments	Condition of Fragments	Size Range of Fragments (mm)	Weight of Retained ACM (g)	Bonded ACM in Soil (% w/w)#	Asbestos ID	ACM >7mm Estimation (g)	FA and AF Estimation (g)	FA and AF Estimation (% w/w)
TP18	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP18	0.7-0.9	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP19	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP20	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP20	0.5-0.7	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP22	0-0.2	15/10/2024	10	15136	0	-	-	-	**< 0.00**	-	-	-	-
TP22	0.5-0.7	15/10/2024	10	14766	0	-	-	-	**< 0.00**	NAD	-	-	<0.001
TP22	1.7-1.9	15/10/2024	10	15980	0	-	-	-	**< 0.00**	-	-	-	-
TP22	2.3-2.5	15/10/2024	-	-	-	-	-	-	-	**Detected**	0.2736	0.0054	<0.001
TP23	0-0.2	14/10/2024	-	-	-	-	-	-	-	NAD	-	-	<0.001
TP24	0-0.2	15/10/2024	-	-	-	-	-	-	-	NAD	-	-	<0.001

NOTES:

NT	Not Tested (Some asbestos fragments were collected but not tested)
*	Table 7 of Schedule B(1) - National Environmental Protection (Assessment of Site Contamination) Measure 1999 as ammened 2013
**	Laboratory weighed material sample fragments

Douglas PARTNERS

Table C3: Preliminary waste classification of soils

			Metals							TRH		BTEX				PAH			Phenols
Sample ID	Depth	Sample Date	Total Arsenic	Cadmium	Total Chromium	Lead	TCLP Lead	Mercury (inorganic)	Nickel	TRH C6 - C9	TRH C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes	Benzo(a)pyrene (B(a)P)	TCLP Benzo(a)pyrene (B(a)P)	Total PAH	Total Phenolics
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg
PQL			4	0.4	1	1	0.03	0.1	1	25	50	0.2	0.5	1	1	0.05	0.0001	0.05	5
CT1			100	20	100	100	-	4	40	-	10,000	10	288	600	1000	0.8	-	200	288
SCC1			500	100	1,900	1,500	-	50	1,050	-	10,000	18	518	1,080	1,800	10	-	200	518
TCLP1			-	-	-	-	5	-	-	-	-	-	-	-	-	-	0.04	-	-
CT2			400	80	400	400	-	16	160	-	40,000	40	1,152	2,400	4,000	3.2	-	800	1,152
SCC2			2,000	400	7,600	6,000	-	200	4,200	-	40,000	72	2,073	4,320	7,200	23	-	800	2,073
TCLP2			-	-	-	-	20	-	-	-	-	-	-	-	-	-	0.16	-	-
TP1	0 - 0.2 m	14/10/24	6	<0.4	19	340	0.1	0.5	7	<25	<50	<0.2	<0.5	<1	<1	1.1	-	15	-
TP1	0.5 - 0.7 m	14/10/24	10	<0.4	23	73	-	<0.1	4	<25	<50	<0.2	<0.5	<1	<1	0.2	-	1.7	<5
TP1	1.5 - 1.7 m	14/10/24	5	<0.4	10	12	-	<0.1	5	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
BD1/20241014	0 m	15/10/24	6	<0.4	16	11	-	<0.1	7	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP2	0 - 0.2 m	14/10/24	7	<0.4	14	58	-	<0.1	5	<25	<50	<0.2	<0.5	<1	<1	0.57	-	7.2	-
TP3	0 - 0.2 m	14/10/24	5	<0.4	13	97	-	0.1	7	<25	300	<0.2	<0.5	<1	<1	3.6	<0.0001	47	<5
TP3	0.4 - 0.6 m	14/10/24	7	<0.4	18	49	-	<0.1	3	<25	240	<0.2	<0.5	<1	<1	1.1	-	12	-
TP4	0 - 0.2 m	14/10/24	<4	<0.4	5	24	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.07	-	0.07	-
TP5	0 - 0.2 m	14/10/24	6	<0.4	15	36	-	0.1	10	<25	<50	<0.2	<0.5	<1	<1	0.2	-	1.6	-
TP5	0.5 - 0.7 m	14/10/24	17	<0.4	34	21	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	<5
TP5	1.5 - 1.7 m	14/10/24	6	<0.4	8	8	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP6	0 - 0.2 m	14/10/24	5	<0.4	15	70	-	<0.1	4	<25	150	<0.2	<0.5	<1	<1	0.6	-	6.6	-
TP6	0.5 - 0.7 m	14/10/24	5	<0.4	12	13	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	0.06	-	0.2	<5
TP7	0 - 0.2 m	14/10/24	5	<0.4	12	32	-	<0.1	5	<25	<50	<0.2	<0.5	<1	<1	0.65	-	6	-
TP7	0.7 - 9 m	14/10/24	11	<0.4	26	15	-	<0.1	4	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP8	0.5 - 0.7 m	15/10/24	7	<0.4	12	220	-	0.4	6	<25	<50	<0.2	<0.5	<1	<1	0.55	-	5.8	<5
TP8	1.1 - 1.3 m	15/10/24	8	0.5	67	670	0.63	0.8	11	<25	110	<0.2	<0.5	<1	<1	1.6	<0.0001	17	-
TP8	2 - 2.2 m	15/10/24	7	<0.4	20	57	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.2	-	1.5	<5
PACM1(TP8)	0.5	15/10/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP9	0 - 0.2 m	14/10/24	11	<0.4	31	45	-	0.2	12	<25	<50	<0.2	<0.5	<1	<1	0.2	-	2.2	-
TP9	0.5 - 0.7 m	14/10/24	9	<0.4	21	53	-	0.1	9	<25	<50	<0.2	<0.5	<1	<1	0.5	-	4.5	<5
TP9	0.9 - 1.1 m	14/10/24	<4	<0.4	8	44	-	<0.1	5	<25	<50	<0.2	<0.5	<1	<1	0.55	-	7.7	<5
TP9	1.8 - 2 m	14/10/24	<4	<0.4	6	25	-	<0.1	2	<25	330	<0.2	<0.5	<1	<1	2.7	<0.0001	45	-
TP10	0 - 0.2 m	15/10/24	<4	<0.4	12	40	-	0.2	7	<25	<50	<0.2	<0.5	<1	<1	0.08	-	0.3	-
TP10	1.3 - 1.5 m	15/10/24	7	<0.4	14	44	-	<0.1	8	<25	110	<0.2	<0.5	<1	<1	1	-	15	<5
TP10	2 - 2.2 m	15/10/24	9	<0.4	17	42	-	<0.1	9	<25	<50	<0.2	<0.5	<1	<1	1.1	-	15	-
TP11	0 - 0.2 m	15/10/24	<4	<0.4	7	64	-	0.2	5	<25	140	<0.2	<0.5	<1	<1	0.2	-	1.6	-
TP12	0 - 0.2 m	15/10/24	7	<0.4	16	25	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.1	-	1.4	-
PACM2(TP12)	0.4	15/10/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table C3: Preliminary waste classification of soils

			Metals							TRH		BTEX				PAH			Phenols
Sample ID	Depth	Sample Date	Total Arsenic	Cadmium	Total Chromium	Lead	TCLP Lead	Mercury (inorganic)	Nickel	TRH C6 - C9	TRH C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes	Benzo(a)pyrene (B(a)P)	TCLP Benzo(a)pyrene (B(a)P)	Total PAH	Total Phenolics
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg
PQL			4	0.4	1	1	0.03	0.1	1	25	50	0.2	0.5	1	1	0.05	0.0001	0.05	5
CT1			100	20	100	100	-	4	40	-	10,000	10	288	600	1000	0.8	-	200	288
SCC1			500	100	1,900	1,500	-	50	1,050	-	10,000	18	518	1,080	1,800	10	-	200	518
TCLP1			-	-	-	-	5	-	-	-	-	-	-	-	-	-	0.04	-	-
CT2			400	80	400	400	-	16	160	-	40,000	40	1,152	2,400	4,000	3.2	-	800	1,152
SCC2			2,000	400	7,600	6,000	-	200	4,200	-	40,000	72	2,073	4,320	7,200	23	-	800	2,073
TCLP2			-	-	-	-	20	-	-	-	-	-	-	-	-	-	0.16	-	-
TP12	0.5 - 0.7 m	15/10/24	14	<0.4	30	11	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP13	0 - 0.2 m	15/10/24	12	<0.4	19	98	-	0.2	7	<25	<50	<0.2	<0.5	<1	<1	0.61	-	7.8	-
TP13	0.5 - 0.7 m	15/10/24	11	<0.4	30	19	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	<5
TP14	0 - 0.2 m	15/10/24	11	<0.4	24	17	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	0.3	-	6.3	-
BD5/20241015	0 m	14/10/24	7	<0.4	20	12	-	<0.1	1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP15	0 - 0.2 m	15/10/24	4	<0.4	12	19	-	<0.1	4	<25	<50	<0.2	<0.5	<1	<1	0.07	-	0.4	-
TP16	0 - 0.2 m	15/10/24	<4	<0.4	17	58	-	0.1	6	<25	<50	<0.2	<0.5	<1	<1	0.5	-	6.4	-
TP16	0.5 - 0.7 m	15/10/24	9	<0.4	23	11	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP17	0.5 - 0.7 m	15/10/24	9	<0.4	14	15	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP17	0 - 0.2 m	15/10/24	6	<0.4	19	31	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.4	-	4.6	-
TP18	0.7 - 0.9 m	15/10/24	11	<0.4	21	11	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP18	0 - 0.2 m	15/10/24	7	<0.4	16	45	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.09	-	0.7	-
BD6/20241015	0 m	15/10/24	4	<0.4	12	27	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.56	-	7.5	-
TP19	0 - 0.2 m	15/10/24	6	<0.4	17	100	-	0.1	4	<25	<50	<0.2	<0.5	<1	<1	0.3	-	3.4	-
TP20	0.5 - 0.7 m	15/10/24	9	<0.4	18	11	-	<0.1	1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP20	0 - 0.2 m	15/10/24	7	<0.4	27	120	-	0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.5	-	4	-
TP21	1.1 - 1.3 m	14/10/02	15	<0.4	24	19	-	<0.1	1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
BD2/20241014	0 m	14/10/24	15	<0.4	22	16	-	<0.1	1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP22	0.5 - 0.7 m	14/10/24	11	<0.4	25	310	0.37	0.4	11	<25	<50	<0.2	<0.5	<1	<1	1.2	-	13	-
TP22	2.3 - 2.5 m	14/10/24	8	0.5	17	110	-	0.2	8	<25	<50	<0.2	<0.5	<1	<1	0.2	-	2.4	-
TP23	0 - 0.2 m	14/10/24	6	<0.4	32	56	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.1	-	1.6	-
TP24	0 - 0.2 m	15/10/24	8	<0.4	20	130	0.05	0.1	5	<25	250	<0.2	<0.5	<1	<1	0.5	-	5.2	-
TP13 - [TRIPLICATE]	0.5 - 0.7 m	15/10/24	10	<0.4	23	20	-	<0.1	1	-	-	-	-	-	-	-	-	-	-
TP23 - [TRIPLICATE]	0 - 0.2 m	14/10/24	<4	<0.4	11	48	-	<0.1	3	-	-	-	-	-	-	-	-	-	-

CT1 exceedance TCLP1 and/or SCC1 exceedance CT2 exceedance TCLP2 and/or SCC2 exceedance Asbestos detection

- = Not tested, no criteria or not applicable NAD = no asbestos detected

Notes:

a	QA/QC replicate of sample listed directly below the primary sample
b	Total chromium used as initial screen for chromium(VI).
c	TRH used as an initial screen for total petroleum hydrocarbons
d	Criteria for scheduled chemicals used as an initial screen
e	Criteria for Chlorpyrifos used as initial screen
f	NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste
PQL	Practical quantitation limit

CT1	Maximum values of specific contaminant concentration (SCC) for classification without TCLP: General solid waste
SCC1	Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
TCLP1	Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
CT2	Maximum values of specific contaminant concentration (SCC) for classification without TCLP: Restricted solid waste
SCC2	Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: Restricted solid waste
TCLP2	Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: Restricted solid waste

Table C3: Preliminary waste classification of soils

			OCP	OPP	PCB	Asbestos			
Sample ID	Depth	Sample Date	Total Analysed OCP	Total Analysed OPP	Total PCB	Asbestos Identification	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation
Units			mg/kg	mg/kg	mg/kg	-	g	g	%(w/w)
PQL			0.1	0.1	0.1				0.001
CT1			-	4	<50	-	-	-	-
SCC1			-	7.5	<50	-	-	-	-
TCLP1			-	-	-	-	-	-	-
CT2			-	16	<50	-	-	-	-
SCC2			-	30	<50	-	-	-	-
TCLP2			-	-	-	-	-	-	-
TP1	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP1	0.5 - 0.7 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP1	1.5 - 1.7 m	14/10/24	-	-	-	-	-	-	-
BD1/20241014	0 m	15/10/24	-	-	-	-	-	-	-
TP2	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP3	0 - 0.2 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP3	0.4 - 0.6 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP4	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP5	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP5	0.5 - 0.7 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP5	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP5	0.5 - 0.7 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP5	1.5 - 1.7 m	14/10/24	-	-	-	-	-	-	-
TP6	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP6	0.5 - 0.7 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP7	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP7	0.7 - 9 m	14/10/24	-	-	-	NAD	-	-	-
TP8	0.5 - 0.7 m	15/10/24	<0.1	<0.1	<0.1	Detected	–	0.0027	<0.001
TP8	1.1 - 1.3 m	15/10/24	-	-	-	Detected	–	0.0141	0.0019
TP8	2 - 2.2 m	15/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
PACM1(TP8)	0.5	15/10/24	-	-	-	Detected	-	-	-
TP9	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP9	0.5 - 0.7 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP9	0.9 - 1.1 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP9	1.8 - 2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP10	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP10	1.3 - 1.5 m	15/10/24	<0.1	0.1	<0.1	NAD	–	–	<0.001
TP10	2 - 2.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP11	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP12	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
PACM2(TP12)	0.4	15/10/24	-	-	-	Detected	-	-	-

Table C3: Preliminary waste classification of soils

			OCP	OPP	PCB	Asbestos			
Sample ID	Depth	Sample Date	Total Analysed OCP	Total Analysed OPP	Total PCB	Asbestos Identification	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation
Units			mg/kg	mg/kg	mg/kg	-	g	g	%(w/w)
PQL			0.1	0.1	0.1				0.001
CT1			-	4	<50	-	-	-	-
SCC1			-	7.5	<50	-	-	-	-
TCLP1			-	-	-	-	-	-	-
CT2			-	16	<50	-	-	-	-
SCC2			-	30	<50	-	-	-	-
TCLP2			-	-	-	-	-	-	-
TP12	0.5 - 0.7 m	15/10/24	-	-	-	NAD	-	-	-
TP13	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP13	0.5 - 0.7 m	15/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP14	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
BD5/20241015	0 m	14/10/24	-	-	-	-	-	-	-
TP15	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP16	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP16	0.5 - 0.7 m	15/10/24	-	-	-	NAD	-	-	-
TP17	0.5 - 0.7 m	15/10/24	-	-	-	NAD	-	-	-
TP17	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP17	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP18	0.7 - 0.9 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP18	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
BD6/20241015	0 m	15/10/24	-	-	-	-	-	-	-
TP19	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP20	0.5 - 0.7 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP20	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP21	1.1 - 1.3 m	14/10/02	-	-	-	-	-	-	-
BD2/20241014	0 m	14/10/24	-	-	-	-	-	-	-
TP22	0.5 - 0.7 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP22	2.3 - 2.5 m	14/10/24	-	-	-	Detected	0.2736	0.0054	<0.001
TP23	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP24	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP13 - [TRIPLICATE]	0.5 - 0.7 m	15/10/24	-	-	-	-	-	-	-
TP23 - [TRIPLICATE]	0 - 0.2 m	14/10/24	-	-	-	-	-	-	-

CT1 exceedance TCLP1 and/or SCC1 exceedance CT2 exceedance TCLP2 and/or SCC2 exceedance Asbestos detection

- = Not tested, no criteria or not applicable NAD = no asbestos detected

Notes:

a	QA/QC replicate of sample listed directly below the primary sample	CT1	Maximum values of specific contaminant cc
b	Total chromium used as initial screen for chromium(VI).	SCC1	Maximum values for leachable concentratic
c	TRH used as an initial screen for total petroleum hydrocarbons	TCLP1	Maximum values for leachable concentratic
d	Criteria for scheduled chemicals used as an initial screen	CT2	Maximum values of specific contaminant cc
e	Criteria for Chlorpyrifos used as initial screen	SCC2	Maximum values for leachable concentratic
f	NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste	TCLP2	Maximum values for leachable concentratic
PQL	Practical quantitation limit		

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.0 AHD
COORDINATE: E:317154.3, N:6257099.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP1
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[^] / DENSITY.[^]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO			FILL / Silty CLAY: dark brown; low to medium plasticity; with roots, trace igneous gravel and building rubble (tile, plastic and concrete fragments) .		FILL		D		ES		0.20		
			0.60m: metal pipe, possible redundant water main						ES		0.50		
											0.70		
	8	0.90	Silty CLAY: orange-brown mottled grey; medium to high plasticity; trace ironstone gravel.		RS possibly ALV	ND	w=PL		ES		1.00		
		1									1.20		
									* ES		1.50		
	7	2	Test Pit discontinued at 1.80m depth. Target depth reached.								1.70		
	6												

NOTES: [#] Soil origin is "probable" unless otherwise stated. [^] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS: *Field Replicate BD1/20241014 sample taken from 1.5-1.7m

OPERATOR: A & A Hire Service
LOGGED: NW

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 8.8 AHD
COORDINATE: E:317170.9, N:6257104.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP2
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	8.8 / 0.00	FILL / Silty CLAY: dark brown; low to medium plasticity; with rootlets.		FILL		D		ES		0.20		
		From 0.20m: with red-brown possibly reworked natural										
	0.50 / 8.3	Silty CLAY: yellow-brown and dark grey; medium to high plasticity.		RS	ND	w=PL		ES		0.70		
	1 / 7.8									0.90		
								ES		1.10		
		Test Pit discontinued at 1.30m depth. Target depth reached.								1.30		
	2 / 6.8											

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service
LOGGED: NW

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.6 AHD
COORDINATE: E:317208.8, N:6257100.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP3
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	9 / 0	FILL / Silty CLAY: dark brown ; low to medium plasticity; with rootlets.		FILL		D		ES		0.20		
		0.30m: with igneous gravel and gravel-sized concrete fragments, trace terracotta						ES		0.40		
	0.60									0.60		
	9 / 1	Silty CLAY: red-brown; medium to high plasticity; with angular to subangular ironstone gravel.		RS	ND	w=PL		ES		0.70		
										0.90		
	1									1.00		
								ES		1.20		
		Test Pit discontinued at 1.20m depth. Target depth reached.										
	8 / 2											
	7											

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: NW

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.9 AHD
COORDINATE: E:317220.7, N:6257096.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP4
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO		FILL / Silty SAND: brown to dark brown; fine to medium; trace rootlets, roots and gravel.		FILL		ND		ES		0.20		
	0.40	Silty CLAY: orange-brown, mottled red and grey; medium to high plasticity; with fine to medium sand, trace angular to subangular ironstone gravel.		RS	ND	w=PL		ES		0.50		
	9 / 1	1.00m-1.10m: boulder-sized sandstone fragments						ES		0.70 / 1.00		
		Test Pit discontinued at 1.10m depth. Target depth reached.								1.10		
	8 / 2											
	7											

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.4 AHD
COORDINATE: E:317224.2, N:6257111.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP5
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[^]	DENSITY.[^]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	9 / 0.40	FILL / Silty SAND: dark brown; fine to medium; trace rootlets, roots, gravel and cobble-sized sandstone fragments.		FILL					ES		0.20		
		FILL / Silty Sandy CLAY: orange-brown; trace ironstone gravel and cobble-sized sandstone fragments, possibly reworked natural soil. 0.70m: trace charcoal		FILL		ND	ND		ES		0.50 0.70		
	8 / 1.00	Silty Sandy CLAY: pale grey and orange mottled red ; trace angular to sub-angular ironstone gravel.		RS					ES		1 1.10		
									* ES		1.30 1.50		
	7 / 2	Test Pit discontinued at 1.70m depth. Target depth reached.									1.70		

NOTES: [#] Soil origin is "probable" unless otherwise stated. [^] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS: *Field Replicate BD3/20241014 sample taken from 1.5-1.7m

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.1 AHD
COORDINATE: E:317236.2, N:6257122.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP6
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	9	0.00	FILL / Clayey Silty SAND: brown and dark brown grading to yellow-brown with depth; fine to medium; trace gravel and rootlets.		FILL	ND	ND		ES		0.20		
		0.50	FILL / Sandy CLAY: red-orange; fine to medium sand; with cobble- and boulder-sized sandstone fragments and ironstone gravel.		FILL	ND	w=PL		ES		0.50 0.70		
	8	1									1		
		1.20	Silty Sandy CLAY: pale grey mottled red; fine to medium sand.		possibly RS				ES		1.30 1.50		
	7	2	Test Pit discontinued at 1.60m depth. Target depth reached.										

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.3 AHD
COORDINATE: E:317247.5, N:6257136.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP7
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	9	0.00	FILL / Silty SAND: dark brown and brown; fine to coarse; trace rootlets and building rubble (brick, timber, concrete, plastic fragments).		FILL		ND		ES		0.20		
		0.70	FILL / Sandy CLAY: yellow and red mottled grey; fine to coarse sand; trace ironstone and sandstone gravel, trace timber fragments.		FILL				ES		0.70 0.90		
	8	1				ND					1		
		1.30	Sandy CLAY: pale grey stained red; fine to coarse sand; with sandstone and ironstone gravel.		RS		w=PL		ES		1.30 1.50		
	7	2									2		
									ES		2.20 2.40		
			Test Pit discontinued at 2.40m depth. Target depth reached.										

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (600mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317263.5, N:6257142.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP8
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10		FILL / Silty SAND: brown and dark brown; with gravel, trace building rubble (brick, plastic, concrete and potential asbestos-containing material fragments).		FILL		M		ES		0.20		
									ES		0.50		
											0.70		
		1.00	FILL / Silty Sandy CLAY: grey brown and brown; with gravel, cobble and boulder-sized fragments of concrete, sandstone and igneous rock.								1		
	9		1.20m: geofabric with fine to coarse sand			ND			ES		1.10		
					FILL		ND				1.30		
			1.60m: dark brown-grey										
									ES		1.70		
		1.90	FILL / Silty SAND: dark brown to dark grey; trace building rubble (brick, concrete and plastic fragments).								1.90		
	2				FILL		M		ES		2.00		
											2.20		
	8	2.30	Silty Sandy CLAY: yellow-grey and grey-brown.		ALV		ND		ES		2.40		
			Test Pit discontinued at 2.60m depth. Target depth reached.								2.60		

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (600mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317247.8, N:6257164.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP9
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 2

CONDITIONS ENCOUNTERED								SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	10	FILL / Silty SAND: dark brown and brown; fine to medium; with clay and ironstone gravel, with cobble and boulder-sized fragments of sandstone, trace building rubble (brick and PVC pipe).		FILL				ES		0.20		
	0.20	FILL / Silty Sandy CLAY: brown; trace sandstone gravel and building rubble (brick and timber fragments).						ES		0.50		
										0.70		
				FILL				ES		0.90		
	1									1		
	9									1.10		
	1.60	FILL / Clayey Sandy SILT: dark brown ; low plasticity; fine sand; trace sandstone gravel and building rubble (timber and brick fragments).						ES		1.50		
										1.60		
								ES		1.80		
	2									2.00		
	8			FILL								
								ES		2.80		

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317247.8, N:6257164.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP9
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 2 of 2

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	3.00	Silty Sandy CLAY: grey-brown and yellow-brown.		ALV				ES		3.20 3.40		
		Test Pit discontinued at 3.70m depth. Target depth reached.										

NOTES: [#]Soil origin is "probable" unless otherwise stated. [*]Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 11.0 AHD
COORDINATE: E:317264.0, N:6257166.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP10
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		FILL / Silty SAND: brown and dark brown; trace rootlets and igneous gravel.		FILL				ES		0.20		
	0.50	FILL / Clayey Silty SAND: brown; with sandstone gravel and building rubble (brick, concrete, plastic and timber fragments), trace rootlets .						ES		0.60 0.80		
	10 1	1.00m-1.20m: boulder-sized fragment of asphalt (possible buried pavement surface)		FILL	ND	D to M		ES		1 1.30		
	1.90	FILL / Silty CLAY: dark grey and grey-brown; with boulder-sized sandstone fragments, trace rootlets, timber, gravel, and inclusions of orange-brown clay.		FILL		w=PL possibly		ES		1.50 2.00		
	9 2	2.30m: metal rod(large)								2.20		
		Test Pit discontinued at 2.40m depth. Refusal on boulder-sized fragment .										

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.5 AHD
COORDINATE: E:317276.6, N:6257108.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP11
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10	FILL / Clayey Silty SAND: dark brown and brown; trace rootlets.		FILL				ES		0.20		
	0.40	Silty Sandy CLAY: yellow-brown and orange-brown; trace gravel.		possibly ALV	ND	ND		ES		0.50 0.70		
	1.00	Silty CLAY: pale grey mottled red and yellow; with ironstone and sandstone gravel, with cobble-sized sandstone fragments.		RS				ES		1 1.10		
	9	Test Pit discontinued at 1.30m depth. Refusal on inferred bedrock.								1.30		
	2											
	8											

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317290.0, N:6257115.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP12
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10	FILL / Silty SAND: brown ; trace sandstone gravel, rootlets and building rubble (brick and potential asbestos-containing material fragments).		FILL		M		ES		0.20		
	0.50	FILL / Silty Sandy CLAY: yellow-brown; with gravel-, cobble- and boulder-sized sandstone fragments, trace ironstone gravel.		FILL	ND			ES		0.50 0.70		
	1.00 / 9	Silty CLAY: pale grey mottled red and orange-brown.		probably RS		w=PL		ES		1 1.10 1.30		
	8 / 2	Test Pit discontinued at 1.40m depth. Refusal on inferred bedrock.										

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.9 AHD
COORDINATE: E:317298.7, N:6257101.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP13
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	0.40	FILL / Silty SAND: brown and dark brown; fine to medium; trace rootlets, trace sandstone and ironstone gravel.		FILL	ND	D to M		ES		0.20		
		FILL / Silty Sandy CLAY: yellow-brown and red-brown; fine to coarse sand; with cobble-sized sandstone fragments, trace ironstone and sandstone gravel, trace rootlets. 0.80m: ceramic pipe		FILL		w=PL		ES		0.50 0.70		
	10 / 1	Test Pit discontinued at 1.00m depth. Refusal on inferred bedrock.										
	9 / 2											
	8											

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.1 AHD
COORDINATE: E:317301.9, N:6257120.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP14
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10 / 0	FILL / Silty SAND: brown and dark brown; trace rootlets, ironstone gravel and building rubble (brick fragments).		FILL				* ES		0.20		
	0.40	FILL / Silty Sandy CLAY: yellow-brown; with cobble-sized sandstone fragments, trace ironstone and sandstone gravel.		FILL	ND	ND		ES		0.50 0.70		
	9 / 1.00	Silty Sandy CLAY: pale grey mottled red and orange-brown.		possibly RS				ES		1 1.10 1.30		
	8 / 2	Test Pit discontinued at 1.50m depth. Refusal on inferred bedrock.										

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 11.1 AHD
COORDINATE: E:317328.3, N:6257102.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP15
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	11		FILL / Silty SAND: brown and dark brown; fine to medium; trace rootlets, ironstone and sandstone gravel.		FILL		M		ES		0.20		
		0.40	FILL / Silty Sandy CLAY: yellow-brown; with cobble-sized sandstone fragments, trace ironstone and sandstone gravel.		FILL	ND	ND		ES		0.50		
											0.70		
		1									1		
	10	1.10	Sandy CLAY: pale grey ; fine to coarse sand.		probably RS possibly FILL								
			1.40m: with boulder-sized sandstone fragments						ES		1.20		
											1.40		
	9	2	Test Pit discontinued at 1.60m depth. Refusal on inferred bedrock .										

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.0 AHD
COORDINATE: E:317330.5, N:6257123.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP16
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10	0.00	FILL / Silty SAND: dark brown; trace ironstone and sandstone gravel.		FILL				ES		0.20		
			0.30m: clay band, fine to medium										
		0.40	FILL / Silty Sandy CLAY: yellow-brown; fine to coarse sand.		FILL	ND	M		ES		0.50		
											0.70		
		0.90	Silty CLAY: pale grey and orange mottled red; with boulder-sized sandstone fragments and ironstone gravel.		probably RS				ES		1.00		
	9	1									1.20		
			Test Pit discontinued at 1.40m depth. Refusal on inferred bedrock.										
	8	2											

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 11.3 AHD
COORDINATE: E:317362.1, N:6257094.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP17
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	11 / 0	FILL / Silty SAND: brown and dark brown; fine to medium; trace rootlets, ironstone and sandstone gravel. 0.30m-0.40m: asphalt layer		FILL				ES		0.20		
	0.40	FILL / Silty Sandy CLAY: yellow-brown; fine to coarse sand; with cobble-sized sandstone fragments, trace ironstone and sandstone gravel.		FILL	ND	M		ES		0.50 0.70		
	1 / 1.10	Silty Sandy CLAY: pale orange-grey mottled red; fine to coarse sand.		probably RS				ES		1 1.20 1.40		
	10 / 2	Test Pit discontinued at 1.50m depth. Refusal on inferred bedrock.										
	9											

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.1 AHD
COORDINATE: E:317351.5, N:6257122.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP18
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10 / 0	FILL / Silty SAND; fine to medium; trace rootlets and gravel.		FILL		M		* ES		0.20		
	0.60	FILL / Silty Sandy CLAY: yellow-brown and red; trace ironstone and sandstone gravel.		FILL	ND			ES		0.70		
	9 / 1					w=PL				0.90 / 1		
	1.10	Silty CLAY: pale grey mottled yellow and red; with cobble- and boulder-sized sandstone fragments and ironstone gravel.		RS				ES		1.20		
	8 / 2	Test Pit discontinued at 1.40m depth. Refusal at inferred bedrock .								1.40		

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS: *Field Replicate BD6/20241015 sample taken from 0-0.2m

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.2 AHD
COORDINATE: E:317368.2, N:6257111.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP19
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	10 / 0	FILL / Silty SAND: brown ; trace rootlets and ironstone gravel.		FILL	ND	M		ES		0.20		
	0.50	Sandy CLAY: brown; medium plasticity.		RS		w=PL		B		0.50		
		Test Pit discontinued at 0.70m depth. Terminated.								0.70		
	9 / 1											
	8 / 2											

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.1 AHD
COORDINATE: E:317372.4, N:6257120.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP20
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10		FILL / Silty SAND: brown and dark brown; fine to medium; trace rootlets and ironstone gravel.		FILL		M		ES		0.20		
		0.30	FILL / Silty Sandy CLAY: yellow-brown; fine to coarse sand; trace rootlets.		FILL	ND	w=PL		ES		0.50 0.70		
	9	0.80 1	Silty Sandy CLAY: grey and orange ; fine to coarse sand; with cobble- and boulder-sized sandstone fragments, trace sandstone and ironstone gravel.		RS		w=PL		ES		0.90 1 1.10		
			Test Pit discontinued at 1.10m depth. Refusal on inferred bedrock.										
	8	2											

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.4 AHD
COORDINATE: E:317189.9, N:6257094.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP21
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	9	FILL / Silty CLAY: dark brown; low to medium plasticity; with rootlets, with boulder-sized concrete fragment.		FILL	(VC)	w<PL		ES		0.20	DCP9/150	5 10 15
	0.70							ES		0.30		
	1	Silty CLAY: red-brown mottled grey ; high plasticity; with angular to sub angular, ironstone gravel.		RS	St to VSt	w=PL		B/ES		0.70		
										0.90		
								* ES		1		
										1.10		
	8	Test Pit discontinued at 1.30m depth. Target depth reached.								1.30		
	2											
	7											

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS: *Field Replicate BD2/20241014 sample taken from 1.1-1.3m

OPERATOR: A & A Hire Service
LOGGED: NW

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317255.5, N:6257149.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP22
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 2

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	10 / 0	FILL / Silty SAND: brown and dark brown; fine to medium; non-plastic silt; with boulder-sized sandstone fragment, trace building rubble (brick, PVC pipe, terracotta and concrete fragments), trace sandstone gravel, grass and rootlets.		FILL	(MC)	M		ES		0.20	DCP9/150	5 10 15
								B/ES		0.50		
										0.70		
	9 / 1									1		
		FILL / Clayey Silty SAND: dark brown and brown; with cobble- and boulder-sized sandstone fragments, trace sandstone gravel, trace building rubble (concrete, geofabric, rubber, tile, and plastic fragments).		FILL	ND	M		ES		1.70		
	1.60									1.90		
	8 / 2									2		
	2.50	Silty Sandy CLAY: yellow brown mottled dark grey; fine to medium sand; trace rootlets.		ALV		w=PL		ES		2.30		
										2.50		
								ES		2.70		
										2.90		

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (600mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: NW

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Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317255.5, N:6257149.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP22
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 2 of 2

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		[CONT] Silty Sandy CLAY: yellow brown mottled dark grey; fine to medium sand; trace rootlets. 3.10m: wet		ALV	ND	w=PL						
		Test Pit discontinued at 3.20m depth. Target depth reached.										

NOTES: [#]Soil origin is "probable" unless otherwise stated. [*]Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (600mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: NW

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.2 AHD
COORDINATE: E:317317.2, N:6257112.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP23
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10 / 0	FILL / Silty SAND: brown and dark brown; fine to medium; trace rootlets and organic matter, trace ironstone and sandstone gravel.		FILL	(WC)	M		* ES		0.20	DCP9/150	5 10 15
	0.40	FILL / Sandy CLAY: yellow-brown; fine to coarse sand; with cobble-sized sandstone fragments, trace ironstone gravel.		FILL		w=PL		ES		0.50		Refusal 13/95mm
	0.90	Sandy CLAY: pale grey and orange mottled red; medium plasticity.		RS	ND	w=PL		B		0.90 1.00 1.10		
	9 / 1	Test Pit discontinued at 1.20m depth. Refusal at inferred bedrock.						ES		1.20		
	8 / 2											

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.2 AHD
COORDINATE: E:317379.0, N:6257104.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP24
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10 / 0.20	FILL / Silty SAND: brown; trace rootlets and ironstone gravel.		FILL	(MC)	D		ES		0.20	DCP9/150	5 10 15 bouncing
		FILL / Silty CLAY: grey and pale grey; medium to high plasticity; trace ironstone and siltstone gravel.		FILL		w<PL		ES		0.40		
		Test Pit discontinued at 0.50m depth. Terminated on possible redundant buried service.								0.50		

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand tools
METHOD: HAND
REMARKS:

OPERATOR: JC

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

Appendix D

Site Assessment Criteria

1. Introduction

1.1 Guidelines

The following key guidelines were consulted for deriving the site assessment criteria (SAC):

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).
- CRC CARE *Health screening levels for petroleum hydrocarbons in soil and groundwater* (CRC CARE, 2011).

1.2 General

The SAC applied in the current investigation are informed by the CSM which identified human and environmental receptors to potential contamination at the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The following inputs are relevant to the selection and/or derivation of the SAC:

- Land use: tertiary education. Noted to most closely resemble a commercial land use for both staff and students per standard land uses outlined in NEPC (2013). It is noted however that significant variations in the frequency and total exposure of users will vary from this default scenario and therefore any subsequent investigation (if required) may consider adopting more site specific risk parameters:
    - Corresponding to land use category 'D', commercial / industrial such as shops, offices, factories and industrial sites.
- Soil type: clay (based on field observations).

2. Soils

2.1 Health investigation and screening levels

The generic health investigation levels (HIL) and health screening levels (HSL) are considered to be appropriate for the assessment of human health risk via all relevant pathways of exposure associated with contamination at the site. The adopted soil HIL the contaminants of concern are in Table 1.

HSL for vapour intrusion are not considered applicable for the proposed carpark which will have no future enclosed structures. HSL C (open space) per NEPC (2013) is also noted to be non-limiting for a similar scenario with no enclosed structures.

Table 1: Health investigation levels (mg/kg)

Contaminant	HIL-D
Metals	
Arsenic	3000
Cadmium	900
Chromium (VI)	3600
Copper	240 000
Lead	1500
Mercury (inorganic)	730
Nickel	6000
Zinc	400 000
PAH	
B(a)P TEQ	40
Total PAH	4000
Phenols	
Phenol	240 000
Pentachlorophenol	660
OCP	
DDT+DDE+DDD	3600
Aldrin and dieldrin	45
Chlordane	530
Endosulfan	2000
Endrin	100
Heptachlor	50
HCB	80
Methoxychlor	2500
OPP	
Chlorpyrifos	2000
PCB	
PCB	7

The HSL for direct contact derived from CRC CARE (2011) are in Table 3.

Table 3: Health screening levels for direct contact (mg/kg)

Contaminant	DC HSL-D
Benzene	430
Toluene	99 000
Ethylbenzene	27 000
Xylenes	81 000
Naphthalene	11 000
TRH F1	26 000
TRH F2	20 000
TRH F3	27 000
TRH F4	38 000

Notes: TRH F1 is TRH C_6-C_{10} minus BTEX
TRH F2 is TRH >C_{10}-C_{16} minus naphthalene

2.2 Asbestos in soil

The HSL for asbestos in soil are based on likely exposure levels for different scenarios published in NEPC (2013) for the following forms of asbestos:

- Bonded asbestos containing material (ACM); and
- Fibrous asbestos and asbestos fines (AF / FA).

The HSL are in Table 4.

Table 4: Health screening levels for asbestos

Form of asbestos	HSL-D
ACM	0.05%
FA and AF	0.001%
FA and AF and ACM	No visible asbestos for surface soil *

Notes: Surface soils defined as top 10 cm.
* Based on site observations at the sampling points and the analytical results of surface samples.

Where insufficient sample recovery is available the presence or absence of asbestos at a limit of reporting of 0.1 g/kg (AS:4964) has been adopted for this investigation / assessment as an initial screen. Where the subject material has been insufficiently characterised, any asbestos detection will be considered to trigger remediation / management (unless further assessment shows this not to be required).

2.3 Ecological investigation levels

Ecological investigation levels (EIL) and added contaminant limits (ACL), where appropriate, have been derived in NEPC (2013) for arsenic, copper, chromium (III), nickel, lead, zinc, DDT and naphthalene. The adopted EIL, derived using the interactive (excel) calculation spreadsheet on the NEPM toolbox website are shown in Table 6, with inputs into their derivation shown in Table 5. EIL are generally applicable to soils within the top 2 m of the final landform, and would not be applicable to engineered materials (e.g. basecourse) beneath pavements.

Table 5: Inputs to the derivation of the ecological investigation levels

Variable	Input	Rationale
Age of contaminants	"Aged" (>2 years)	Site history review
pH	6	Average of laboratory data
CEC	6 $cmol_c/kg$	
Clay content	10 %	Maximum percentage, based on predominate soil texture
Traffic volumes	high	Site locality
State / Territory	NSW	

Table 6: Ecological investigation levels (mg/kg)

Contaminant	EIL-D
Metals	
Arsenic	160
Copper	190
Nickel	90
Chromium III	680
Lead	1800
Zinc	540
PAH	
Naphthalene	370
OCP	
DDT	640

2.4 Ecological screening levels

Ecological screening levels (ESL) are used to assess the risk of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene to terrestrial ecosystems. ESL are generally applicable to soils within the top 2 m of the final landform, and would not be applicable to engineered materials (e.g. basecourse) beneath pavements. The adopted ESL are shown in Table 7.

Table 7: Ecological screening levels (mg/kg)

Contaminant	Soil Type	ESL-D
Benzene	Fine	95
Toluene	Fine	135
Ethylbenzene	Fine	185
Xylenes	Fine	95
TRH F1	Coarse/ Fine	215*
TRH F2	Coarse/ Fine	170*
TRH F3	Fine	2500
TRH F4	Fine	6600
B(a)P	Fine	1.4

Notes: ESL are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability
TRH F1 is TRH C_6-C_{10} minus BTEX
TRH F2 is TRH >C_{10}-C_{16} including naphthalene

2.5 Management limits

In addition to appropriate consideration and application of the HSL and ESL, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Fire and explosion hazards; and
- Effects on buried infrastructure e.g. penetration of, or damage to, in-ground services.

The adopted management limits are in Table 8.

Table 8: Management limits (mg/kg)

Contaminant	Soil type	ML-D
TRH F1	Fine	800
TRH F2	Fine	1000
TRH F3	Fine	5000
TRH F4	Fine	10 000

Notes: TRH F1 is TRH C_6-C_{10} including BTEX4
TRH F2 is TRH >C_{10}-C_{16} including naphthalene
ML-A-B-C residential, parkland and public open space

3. References

CRC CARE. (2011). *Health screening levels for petroleum hydrocarbons in soil and groundwater.* Parts 1 to 3, Technical Report No. 10: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

Appendix E

Site Management Plan

1. Introduction

This general site management plan (SMP) has been developed to minimise potentially adverse impacts on the environment, and worker and public health as a result of the proposed remediation works.

The Remediation Contractor must have in place a construction environmental management plan (CEMP) (or similar) which is specific to the equipment used for the remediation and the proposed methods to be adopted by the Remediation Contractor. This SMP has been prepared to augment the Remediation Contractor's CEMP and contains general details for aspects of the work, as per reporting requirements for a remediation action plan (RAP) under NSW EPA *Guidelines for Consultants Reporting on Contaminated Land* (NSW EPA, 2020).

Apart from the management principles outlined in this SMP, the Remediation Contractor must also ensure compliance with all relevant environmental legislation and regulations, including (but not limited to) the following:

- Contaminated Land Management Act 1997 NSW (CLM Act);
- Protection of the Environment Operations Act 1997 NSW (POEO Act);
- Protection of the Environment Legislation Amendment Act 2011 NSW;
- Protection of the Environment Operations Amendment (Scheduled Activities and Waste) Regulation 2008 NSW;
- Environmentally Hazardous Chemicals Act 1985 NSW;
- Environmental Offences and Penalties Act 1989 NSW;
- Pesticide Act 1999 NSW and Pesticides Regulation 2017; and
- Work Health and Safety Act 2017 NSW (WHS Act) and Work Health and Safety Regulations 2017 NSW.

2. Roles and responsibilities

2.1 Principal

The Principal is responsible for the environmental performance of the proposed remediation works, including implementation of acceptable environmental controls during remediation works. The Principal will retain the overall responsibility for ensuring this RAP is appropriately implemented. The Principal is to nominate a representative (the Principal's Representative), who is responsible for overseeing the implementation of this RAP. The actual implementation of the RAP will, however, be conducted by the Remediation Contractor on behalf of the Principal.

The Principal is responsible for providing appropriate information to the Remediation Contractor to allow them to safely plan the required works. This includes the asbestos register for the site and this RAP.

The Principal is also responsible for implementing an appropriate communications plan.

2.2 **Remediation contractor**

The Remediation Contractor will be the party responsible for daily implementation of this RAP and shall fulfil the responsibilities of the Remediation Contractor as defined by SafeWork NSW. It is noted that the Remediation Contractor may appoint appropriately qualified sub-contractors or sub-consultants to assist in fulfilling the requirements of the procedures. The Remediation Contractor will appoint a Site Manager.

In addition to the implementation of the RAP it will be the Remediation Contractors responsibility to:

- Obtain / ensure relevant sub-contractors obtain specific related approvals as necessary to implement the earthworks including permits for removal of asbestos-containing material, SafeWork NSW notification etc.;
- Develop or request and review any site plans to manage the works to be conducted;
- Ensure that all remediation works and other related activities are undertaken in accordance with this RAP;
- Maintain all site records related to the implementation of this RAP including but not limited to:
    - Tracking of all movement of soil within the site, on to site and off-site from cradle to grave;
    - Transportation Record: comprising a record of all truckloads of soil (including aggregate) entering the site, including truck identification (e.g. registration number), date, time, source site, load characteristics (e.g. type of material, i.e. quarried aggregate, etc.), approximate volume, use (e.g. general site raising, service trenches, etc.);
    - Disposal dockets: for any soil disposed off-site including transportation records, spoil source, spoil disposal location, receipt provided by the receiving waste facility / site;
    - Imported materials records: records for any soil imported onto the site, including source site, classification reports, inspection records of soil upon receipt at site and transportation records;
    - Records relating to any unexpected finds and contingency plans implemented;
    - Photographic records by all contractors and consultants of the works undertaken within their purview of responsibilities;
    - Surveys pre- and post-installation of geotextile marker layer and clean fill cap (if the capping management strategy is undertaken);
    - Airborne asbestos monitoring records; and
    - Interim / final visual and sampling clearances for any asbestos related works.
- Ensure sufficient information is provided to engage or direct all required parties, including sub-contractors, to implement the requirements of the RAP other than those that are the direct responsibility of the Remediation Contractor;
- Manage the implementation of any recommendation made by those parties in relation to work undertaken in accordance with the RAP;
- Inform, if appropriate, the relevant regulatory authorities of any non-conformances with the procedures and requirements of the RAP in accordance with the procedures outlined in this document;

- Retain records of any contingency actions;
- On completion of the project, to review the RAP records for completeness and update as necessary; and
- Recommend any modification to general documentation which would further improve the environmental outcomes of this RAP.

2.3 Surveyor

The project surveyor will be a registered surveyor engaged by the Remediation Contractor to undertake surveying works as required by this RAP, i.e. for the proposed capping strategy, the depth and location of a borrow pit, extent and level of capped asbestos materials, and finally to validate the nominated minimum thickness capping layer.

2.4 Asbestos contractor

The Asbestos Contractor will be responsible for undertaking all asbestos work involving any asbestos impacted fill and is recommended to hold a Class A licence for the removal of asbestos (issued by SafeWork NSW), on the basis that the asbestos identified at the site to date has included both friable and bonded asbestos.

The Asbestos Contractor can be the same entity as the Remediation Contractor.

2.5 Sub-contractors

All sub-contractors will be inducted onto the site, informed of their responsibilities in relation to this RAP and sign their agreement to abide by the RAP requirements. Where necessary, sub-contractors will also be trained in accordance with the requirements of this document. All sub-contractors must conduct their operations in accordance with the RAP as well as all applicable regulatory requirements.

2.6 Environmental Consultant

The Environmental Consultant will provide advice on implementing the RAP. The Environmental Consultant will be responsible for:

- Undertake any required assessments where applicable (e.g. waste classification, validation);
- Provide advice and recommendations arising from monitoring and/or inspections, including unexpected finds; and
- Notify the Client with any results of assessments, and any observed non-conformances.

2.7 Licenced Asbestos Assessor

A Licenced Asbestos Assessor will be required to be engaged independently of the Asbestos Contractor to undertake the following:

- Review and approve documentation prepared by the Asbestos Contractor;
- Prepare any WHS plans and advice required by the Remediation Contractor;
- Undertake airborne asbestos monitoring;

- Undertake clearance inspections;
- Provide advice and recommendations arising from monitoring and/or inspections; and
- Notify the client with the results of any assessments and any observed non-conformances.

2.8 Site workers

All workers on the site are responsible for observing the requirements of this RAP and other management plans. These responsibilities include the following:

- Being inducted on the site and advised of the general nature of the remediation / environmental issues at the site;
- Being aware of the requirements of this plan;
- Wearing appropriate personal protective equipment (PPE) as required by this plan;
- Only entering restricted areas when permitted; and
- Requesting clarification when unclear of requirements of this or any other plans (e.g. safe work method statements (SWMS)).

3. Water management

3.1 Stormwater

Stormwater must be managed during the remediation works such that potential adverse impacts from surface runoff (e.g. cross contamination, mobilisation of contaminants in soil particles, etc.) are appropriately mitigated. Accordingly, the Remediation Contractor will take appropriate measures which may include:

- Construction, where necessary, of stormwater diversion channels, bunding and linear drainage sumps with catch pits in and around the remediation areas to divert stormwater from the contaminated areas;
- Provision of appropriately located sediment traps including geotextiles; and
- Discharge of excess water in excavations / low points on a regular basis to limit the potential for flooding.

3.2 Dewatering of excavations

Any runoff or seepage water accumulated in site excavations that requires removal must initially be sampled and tested for suspended solids, pH and any contaminants of potential concern (CoPC) as identified by the Environmental Consultant. The options for management of excavation pump-out water, dependent upon the test results, are for disposal of the water as follows:

- Discharge to stormwater with prior approval from Council. Provided the test results comply with relevant ANZG *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018), or any other compliance requirements stipulated by Council. The Environmental Consultant must consider the most appropriate criteria to be used; or

- Discharge to sewer, as industrial trade wastewater, with prior approval from Sydney Water. This option would require the analysis of a larger list of analytes, and compliance with the Sydney Water acceptance standards; or
- Pumping by a liquid waste contractor for removal of the water off-site, in accordance with regulatory requirements.

Note that, depending on the type and scale of the dewatering required, a permit (water use approval) may need to be obtained through NSW Water.

4. Soil management plan

The Remediation Contractor will develop a plan to mitigate cross contamination as part of the CEMP to be implemented throughout the works.

4.1 Stockpiling of contaminated material

Contaminated material shall be excavated and stockpiled at a suitably segregated location(s) away from sensitive areas (e.g. water bodies, drainage lines, stormwater pits, etc.) and ongoing excavations, and in a manner that will not cause nuisance to the neighbouring properties. Soil stockpiles are to be managed as follows:

- An impermeable membrane such as plastic sheeting should be provided at the surface by the Remediation Contractor prior to stockpiling. Plastic sheeting should be taped at joins, as necessary. Alternatively, stockpiles may be placed on suitable hardstand areas. If stockpiled on exposed soils, the underlying soils may be required to be removed as a 'sacrificial' layer, and then validated by the Environmental Consultant;
- All stockpiles of contaminated material shall be surrounded by star pickets and marking tape or other suitable material to clearly delineate their boundaries;
- Stockpiles shall be lightly conditioned by sprinkler or covered by geotextile or similar cover to prevent dust generation (if remaining overnight);
- Stockpiles impacted, or potentially impacted, with asbestos must be covered by geotextile or similar cover to prevent dust generation;
- Measures should be taken by the Remediation Contractor to prevent the migration of stockpile materials (i.e. perimeter bunds, hay bales, silt fences, etc.); and
- A record of stockpile locations (stockpile register), dimensions, descriptions, environmental controls, etc. should be maintained by the Remediation Contractor.

All movement of soil within the site is to be tracked by the Remediation Contractor, from cradle to grave. Copies of tracking records must be provided to the Environmental Consultant.

4.2 Stockpiling imported material

Imported material shall be stockpiled at a suitably segregated location(s) away from sensitive areas (e.g. water bodies, drainage lines, stormwater pits, etc.) and ongoing excavations, and in a manner that will not cause nuisance to the neighbouring properties. Soil stockpiles are to be managed as follows:

- Imported material should not be stockpiled within un-remediated areas of the site. If this is unavoidable an impermeable membrane such as plastic sheeting should be provided at the surface by the Remediation Contractor prior to stockpiling. Plastic sheeting should be taped at joins, as necessary;
- All stockpiles shall be surrounded by star pickets and marking tape or other suitable material to clearly delineate their boundaries;
- Stockpiles shall be lightly conditioned by sprinkler or covered by geotextile or similar cover to prevent dust generation (if remaining overnight); and
- A record of stockpile locations (stockpile register), dimensions, descriptions, environmental controls, etc. should be maintained by the Remediation Contractor.

All movement of soil within the site is to be tracked by the Remediation Contractor, from cradle to grave. Copies of tracking records must be provided to the Environmental Consultant.

4.3 Transport of material off-site and on to site

Transport of contaminated material from the site and imported material to the site shall be via a clearly delineated haul route(s) and this route shall be used exclusively for entry and egress of vehicles used to transport contaminated materials within and away from the site, and onto and within the site. The proposed transport route(s) (to be determined by the Remediation Contractor) will be notified to Council and truck dispatch shall be logged and recorded by the Remediation Contractor for each load leaving or arriving the site. A record of the truck dispatch will be provided to the Environmental Consultant.

All haulage routes for trucks transporting soil, materials, equipment or machinery to and from the site should be selected to meet the following objectives:

- Comply with all road traffic rules;
- Minimise noise, vibration and dust to adjacent premises; and
- Use State roads and minimise use of local roads as far as practicable.

The remediation work will be conducted such that all vehicles:

- Conduct deliveries of soil, materials, equipment or machinery only during the specified hours of remediation;
- Have securely covered loads to prevent any dust or odour emissions during transportation; and
- Exit the site in a forward direction.

In addition, measures will be implemented to ensure no contaminated material is spilled onto public roadways or tracked off-site on vehicle wheels. Roadways will be kept clean throughout the remediation works and will be broomed, if necessary, to achieve a clean environment.

All loads will be securely covered and may be lightly wetted, if required, to ensure that no materials or dust are dropped or deposited outside or within the site. Prior to exiting the site each truck should be inspected by Remediation Contractor personnel and either noted as clean (wheels and chassis) or broomed prior to leaving the site. Any soil spilled onto surrounding streets will be cleaned by mechanical or hand methods, on a daily basis.

Removal of waste materials from the site shall only be carried out contractors holding the appropriate license(s), consent or approvals to dispose the waste materials according to the waste classification and with the appropriate approvals obtained from the EPA, were required.

Materials imported onto the site shall only be carried out contractors holding the appropriate license(s), consent or approvals to transport the materials with the appropriate approvals obtained from the EPA, were required.

All movement of soil within the site is to be tracked by the Remediation Contractor, from cradle to grave. Copies of tracking records must be provided to the Environmental Consultant.

5. Noise and vibration control plan

All equipment and machinery should be operated in an efficient manner to minimise the emission of noise. The use of any plant and/or machinery should not cause unacceptable vibrations to nearby properties and should meet Council requirements.

6. Dust control plan

Dust emissions must be confined within the site boundary as far as is practicable. The following example dust control procedures could be employed to comply with this requirement, as necessary:

- Erection of dust screens around the perimeter of the site (as applicable);
- Securely covering all loads entering or exiting the site;
- Use of water sprays across the site to suppress dust;
- Stockpiles shall be lightly conditioned by sprinkler or covered by geotextile or similar cover to prevent dust generation (if remaining overnight);
- Stockpiles impacted, or potentially impacted, with asbestos must be covered by geotextile or similar cover to prevent dust generation;
- Include wheel wash (if applicable); and
- Keeping excavation and stockpile surfaces moist.

Regular checking of the fugitive dust issues is to be undertaken. Remedial measures are to be undertaken to rectify any cases of excessive dust.

7. Odour control plan

No odours should be detected at any boundary of the site during remediation works by an authorised Council Officer relying solely on sense of smell. The following example procedures could be employed to comply with this requirement as necessary:

- Use of appropriate covering techniques such as plastic sheeting, polythene or geotextile membranes to cover excavation faces or stockpiles;
- Fine spray of water and/or hydrocarbon mitigating agent on impacted areas / stockpiles or loads to lightly condition the material;
- If required, restrict uncovered stockpiles to appropriate sizes to minimise odour generation;
- Ceasing works during periods of inclement weather such as high winds or heavy rain;
- Regular checking of the fugitive dust and odour issues to ensure compliance. Undertake immediate remediation measures to rectify any cases of excessive dust or odour (e.g. use of misting sprays or odour masking agent); and
- Adequate maintenance of equipment and machinery to minimise exhaust emissions.

8. Work health and safety plan

8.1 General

It is the Remediation Contractor's responsibility to devise a SWMS[1] (or series thereof, for various respective tasks) and to implement proper controls that enable the personnel undertaking the remediation to work in a safe environment. This RAP and SMP does not relieve the Remediation Contractor or other contractors of their ultimate responsibility for occupational health and safety of their workforce and to prevent contamination of areas outside the 'remediation' workspace. This RAP and SMP sets out general procedures and the minimum standards and guidelines for remediation that will need to be used in preparing the safe work method statement.

This work health safety plan (WHSP) has been prepared with refence to CRC CARE *Remediation Action Plan: Implementation - Guideline on Health and Safety* (CRC CARE, 2019). The requirements of this WHSP must be incorporated into the Remediation Contractor's SWMS.

All site work must be undertaken in a controlled and safe manner with due regard to potential hazards, training and safe work practices. To attain this the SWMS developed by the Remediation Contractor must comply with policies specified in the Work Health and Safety Regulation 2011.

All appropriate permits, licences and notifications required for the remediation activities must be obtained prior to the commencement of remediation works.

[1] Either a SWMS or construction environmental management plan (CEMP), or other equivalent document incorporating health and safety aspects of the proposed remedial works.

8.2 Site access

Appropriate fencing and signage must be installed around and within the site to prevent unauthorised access and restrict access to remediation areas and/or deep excavations. Access restrictions and administrative arrangements for management of entry of workers or related personnel on site is the responsibility of the Remediation Contractor.

Any existing pits or unstable areas on site that may generate potential safety, or operational risk should be demarcated and taped off, with appropriate rectification action undertaken (e.g. backfilling of pits).

8.3 Personnel and responsibilities

Before undertaking works on site, all personnel will be made aware of the officer responsible for implementing WHS procedures. All personnel must read and understand this WHSP and over-arching SWMS prior to commencing site works and sign a statement to that effect. Contractors employed at the site will be responsible for ensuring that their employees are aware of, and comply with, the requirements of this WHSP and Remediation Contractor's SWMS.

8.4 Contamination hazards

The key risks associated with the soils (fill) at the site includes asbestos, present as bonded and friable asbestos, which has a risk through a exposure pathway of inhalation of dust / fibres.

An outline of required asbestos controls is provided below in Section 8.5.

For other unexpected finds personnel will endeavour, wherever possible, to avoid direct contact with potentially contaminated material. Workers must avoid the potential exposures listed above as far as is practicable. Appropriate personal protective equipment (PPE) must be used to mitigate potential risks.

8.5 Asbestos controls

8.5.1 Licencing

The description of the asbestos identified at the site is considered to be consistent with potentially friable material. The Contractor should hold a SafeWork NSW Class A- Asbestos Removal Licence. The occupational hygienist should hold a NSW SafeWork NSW Licenced Asbestos Assessor (LAA).

The LAA should review the available results and assess if the works should be conducted as friable or bonded removal in accordance with SafeWork NSW requirements.

8.5.2 Notification

SafeWork NSW must be notified a minimum of five days in advance of any asbestos works.

The Asbestos Contractor must, before commencing the licensed asbestos removal work, inform the person with management or control of the workplace that licensed asbestos removal work is to be carried out at the workplace and when the work is to commence.

The person with management or control of the workplace must ensure that their workers, and any other persons at the workplace, and the person who commissioned the asbestos removal work, are informed that asbestos removal work is to be carried out at the workplace and when the work is to commence, before the work commences.

8.5.3 Asbestos removal control plan

The Asbestos Contractor is to prepare an asbestos removal control plan (ARCP) in accordance with regulatory requirements. The plan is to be implemented during all asbestos removal works and is to include, inter alia, the requirements for:

- Fencing and signage for asbestos areas;
- Restriction of access to asbestos works area;
- Personal protective equipment;
- Asbestos remediation equipment;
- Airborne asbestos monitoring;
- Decontamination;
- Asbestos clearance; and
- Management of asbestos waste.

8.6 Physical hazards

The following physical hazards are associated with conditions that may be created during remediation works:

- Heat exposure;
- Excavations;
- Buried services;
- Noise;
- Dust;
- Electrical equipment;
- Heavy equipment and truck operation; and
- Asbestos.

Safe work practices must be employed to manage the physical risks identified above. For the most part these risks can be managed through appropriate demarcation, access controls and the use of appropriate PPE.

8.7 Safe work practices

The appropriate safe work practices should be clearly defined by the Remediation Contractor in their SWMS. As a minimum, all personnel on site will be required to wear the following PPE:

- Steel-capped boots (mandatory);
- High visibility clothing / vest (mandatory);

- Safety glasses or safety goggles with side shields requirements (as necessary);
- Hard hat (as necessary);
- Appropriate respiratory and protective equipment for any works involving asbestos (as necessary); and
- Hearing protection when working in the vicinity of machinery or plant equipment if noise levels exceed exposure standards (as necessary).

Each item of PPE should meet the corresponding relevant Australian Standard(s).

Specific safe work practices will be adopted when working with asbestos, in accordance with (but not limited to) the following codes of practice:

- SafeWork NSW *Code of Practice, How to Manage and Control Asbestos in the Workplace* (SafeWork NSW, 2019a);
- SafeWork *NSW Code of Practice, How to Safely Remove Asbestos* (SafeWork NSW, 2019b);
- WorkCover *NSW Managing Asbestos in or on Soil* (WorkCover NSW, 2014); and
- NOHSC *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Ed* (NOHSC, 2005).

9. Remediation schedule and hours of operation

The remediation works will be conducted within the days and hours specified in the development consent.

10. Response to incidents

The key to effective management of incidents is the timely action taken before any situation reaches a reportable or critical level. Therefore, surveillance activities are extremely important and should be conducted for the measures prescribed herein and any other measures prescribed in any additional environmental management plan developed subsequently. During construction activities on the site, the following inspection or preventative actions should be performed by the Remediation Contractor:

- Regular inspection of works;
- Completion of routine environmental checklists and follow-up of non-compliance situations;
- Maintenance and supervision on-site; and
- An induction process for site personnel involved in the remediation works that includes relevant information on the contamination status of the site, the remediation works being undertaken, worker health and environmental protection requirements and ensures that all site personnel are familiar with the site emergency procedures.

An emergency response plan will be in place for all aspects of site works. Any emergency will be reported immediately to the site office and/or the Site Manager (and Safety Officer), and the appropriate emergency assistance should be sought. The Site Manager should be responsible for initiating an immediate emergency response using the resources available on the site. Where

external assistance is required, the relevant emergency services should be contacted. A table such as that below, containing contact details for key personnel who may be involved in an environmental emergency response should be completed and be readily available to personnel at all times. The table should be completed, and thereafter amended, as required.

The Remediation Contractor will be responsible for ensuring that site personnel are aware of the emergency services available and the appropriate contact details. A site Safety Officer should be contactable, or available, on-site during remediation and development works.

Contact details for key utilities are included in the event of needing to respond to incidents. Blank cells are 'to be confirmed' and should be completed prior to works commencing when all entities are confirmed.

Table 1: Summary of roles and contact details

Role	Personnel / contact	Phone contact details
Principal		
Principal's Representative		
Site Manager		
Remediation Contractor and Builder		
Site Office		
Environmental Consultant		
Consent Authority		
Regulator	NSW EPA (pollution line and general enquiries)	131 555
Utility Provider	Water (Sydney Water Corporation)	13 20 92
Utility Provider	Power (Ausgrid)	13 13 88
Utility Provider	Gas (Jemena Limited)	131 909
Utility Provider	Telecommunications (Telstra Corporation Limited)	13 22 03
Utility Provider	Telecommunications (Optus)	1800 505 777
Utility Provider	Telecommunications (NBN Co Limited)	1800 687 626

11. References

ANZG. (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Canberra, ACT: Australian and New Zealand Governments and Australian state and territory governments.

CRC CARE. (2019). *Remediation Action Plan: Implementation - Guideline on Health and Safety*. National Remediation Framework: CRC for Contamination Assessment and Remediation of the Environment.

NOHSC. (2005). *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Ed*. Canberra, April 2005, NOHSC:3003: National Occupational Health and Safety Commission, Commonwealth of Australia.

NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land*. Contaminated Land Guidelines: NSW Environment Protection Authority.

SafeWork NSW. (2019a). *Code of Practice, How to Manage and Control Asbestos in the Workplace*. August 2019.

SafeWork NSW. (2019b). *Code of Practice, How to Safely Remove Asbestos*. August 2019: SafeWork NSW, NSW Government.

WorkCover NSW. (2014). *Managing Asbestos in or on Soil*. March 2014: WorkCover NSW, NSW Government.

Appendix F

Contingency Plan and Unexpected Finds Protocol

1. General

Where the site conditions are found to be different than that anticipated during the remediation works, the proposed remediation approach may not be appropriate for the contamination encountered. In such cases the Environmental Consultant is to re-assess the contamination and remediation approach. Where necessary the Environmental Consultant will prepare an addendum to, or revision of, this RAP.

2. Contingency plan

This contingency plan has been developed to provide guidance on processes to follow if contamination (or indicators of contamination), other than that included in the remediation strategy, (Section 10) is encountered during the remediation works. Any such finds shall be surveyed and the location documented.

Although the site has been subject to previous investigation(s), there remains a potential for soil contamination to be present between sampled locations. In the event that signs of soil contamination, other than that included in the remediation strategy, are encountered during remediation e.g. evidence of petroleum, or other chemical odours which were not previously identified the following protocols will apply:

- The Site Manager is to be notified and the affected area closed off by the use of barrier tape and warning signs;
- The Environmental Consultant is to be notified to inspect the area and assess the significance of the potential contamination and determine extent of remediation works (if deemed necessary) to be undertaken. An assessment report and management plan detailing this information will be compiled by the Environmental Consultant and provided to the Principal's Representative;
- The assessment results together with a suitable management plan shall be provided by the Principal's Representative to the Consent Authority (if required by the development consent);
- The agreed management / remedial strategy, based on the RAP and relevant guidelines (i.e. WA DoH (2021), for asbestos issues), shall be implemented; and
- All details of the assessment and remedial works are to be included in the site validation report.

3. Unexpected finds protocol

This unexpected finds protocol (UFP) has been developed to provide guidance on processes to follow if any unexpected find is encountered during the remediation or future civil and construction works. Any unexpected finds should be surveyed and the location documented.

All site personnel are to be inducted into their responsibilities under this (UFP), which should be included or referenced in the Remediation Contractors Environmental Management Plan.

All site personnel are required to report unexpected signs of environmental concern to the Site Manager if observed during the course of their works e.g. presence of potential unexploded ordinance, unnatural staining, potential contamination sources (such as buried drums or tanks) or chemical spills.

Should signs of concern be observed, the Site Manager, as soon as practical, will:

- Stop work in the affected area and ensure the area is barricaded to prevent unauthorised access;
- Notify authorities needed to obtain emergency response for any health or environmental concerns (e.g. fire brigade);
- Notify the Principal's Representative of the occurrence;
- Notify any of the authorities that the Remediation Contractor is legally / contractually required to notify (e.g. EPA, Council); and
- Notify the Environmental Consultant.

The Principal's Representative is to notify any of the authorities which the Principal is legally / contractually required to notify (e.g. EPA, Council). Where appropriate the Principals Representative will also implement appropriate community consultation in accordance with a Communications Plan.

The Environmental Consultant will assess the extent and significance of the find and develop an investigation, remediation or management approach using (where possible) the principles and procedures already outlined in the RAP. Where a Site Auditor is involved, the proposed approach will be discussed and agreed with the Site Auditor prior to implementation.

4. References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

WA DoH. (2021). *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia.* WA Department of Health.

Appendix G

Data Quality Objectives

1. Introduction

The objective of the validation plan is to assess whether the remediation, including construction of the capping layer, has been conducted in accordance with the RAP, assess the resultant suitability of the site for the intended land use, and to provide information on any environmental impacts which may have resulted from the works.

The validation assessment will be conducted with reference to the seven step data quality objectives process (DQO) as outlined in NEPC (2013), described below.

2. Data quality objectives

Table 1: Data quality objectives

Step	Summary
1: State the problem	The site requires remediation and validation of remediation in order to render it suitable for the tertiary education land use. The objective of the validation plan is to confirm the successful implementation of this remediation action plan. A conceptual site model (CSM) for the proposed development has been prepared (Section 7).
2: Identify the decisions / goal of the study	The decision is to determine the site is suitable for the proposed land use following remediation of the site. The CSM identifies contamination at the site which posed potentially unacceptable risks to human health. The remediation strategy requires the on-site management of fill with contamination exceeding the SAC/RAC beneath a capping layer. As a contingency asbestos contaminated fill may also be disposed off-site. The decision is therefore to establish whether all of the contaminated fill has been either placed beneath the capping layer or disposed of off-site; and whether the capping layer has been constructed in general accordance with the RAP and whether the site has been remediated in general accordance with the RAP. Otherwise for the contingency strategy, the decision is to establish that remaining soils on-site meet the adopted site assessment criteria (SAC), and therefore do not pose an unacceptable risk to future site users.

Step	Summary
3: Identify the information inputs	Relevant inputs to the decision include: • The CSM identifying CoPC and affected media; • Results analysed for the relevant CoPC using NATA accredited laboratories and methods, where possible; • Field and laboratory QA/QC data to assess the suitability of the environmental data for the validation assessment; • Results compared with the RAC; • Inspections of the marker layer prior to capping works; • Assessments of aggregates, soil, etc imported as part of the capping; • Inspections of the capping; • Review of the survey information for the capping; • If on-site management is undertaken (as is expected)- an enforceable long term environmental management plan (LTEMP) for implementation during use of the land for commercial purposes; and • Details of the proposed development.
4: Define the study boundaries	The lateral boundaries of the site are shown on Drawing 1, Appendix A. The vertical boundaries are to the extent of contamination impact as determined from the site history assessment, site observations and previous investigations used to inform the RAP, and the observations and results recorded during remediation.
5: Develop the analytical approach (or decision rule)	The decision rules are 1. The construction of the capping to meet or exceed the requirements in Section 11. 2. Retained soils outside of capped areas will meet the RAC, with this to initially be screened by assessing against the adopted Tier 1 SAC. 3. Quality control results are to be assessed according to their relative percent difference (RPD) values. For field and laboratory duplicate results, RPDs should generally be below 30 – 50 % (where results are greater than 5 times the laboratory practical quantification limit); for field blanks, results should be at or less than the limits of reporting (NEPC, 2013). The field and laboratory quality assurance assessment is included in Section 15.
6: Specify the performance or acceptance criteria	Baseline condition: The capping has not been constructed in accordance with this RAP (null hypothesis) and / or contaminated soil remains in uncapped areas. Alternative condition: The capping has been constructed in accordance with this RAP (alternative hypothesis) and no contaminated soil is present outside of the capped areas.

Step	Summary
	Unless conclusive information from the collected data is sufficient to reject the null hypothesis, it will be assumed that the baseline condition is true.
7: Optimise the design for obtaining data	Sampling design and procedures to be implemented to optimise data collection for achieving the DQO include the following: • Sampling frequencies in accordance with Sections 12-14; • Analysis for the CoPC at NATA accredited laboratories using NATA endorsed methods, where possible; • Adequately experienced environmental scientists/engineers will conduct field work and sample analysis interpretation; • Visual inspections of the cap construction by the Environmental Consultant in accordance with Section 12.2; and • Registered survey of the capping layer in accordance with Section 12.2.

3. References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

Douglas PARTNERS

GROUNDED EXPERTISE

Report on Contamination Investigation

P1 Carpark Relocation

Western Sydney University, Rydalmere NSW

Prepared for Western Sydney University

Project 227191.00

22 November 2024

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Document History

Details

Project No.	227191.00
Document Title	Report on Contamination Investigation
Site Address	Western Sydney University, Rydalmere NSW
Report Prepared For	Western Sydney University
Filename	227191.00.R.002.Rev0

Status and Review

Status	Prepared by	Reviewed by	Date issued
Revision 0	Zihan Wang | Joel James-Hall	Nerilee Edwards	22 November 2024

Distribution of Copies

Status	Issued to
Revision 0	Western Sydney University

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature	Date
Author	22 November 2024
Reviewer	22 November 2024

FS604853

Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

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Report on Contamination Investigation
P1 Carpark Relocation
Western Sydney University, Rydalmere NSW

1. Introduction

Douglas Partners Pty Ltd (Douglas) has been engaged by Western Sydney University to prepare this Contamination Investigation for the proposed P1 Carpark at Western Sydney University, Rydalmere NSW (hereon referred to as the site, the boundaries of which are indicated on Drawing 1, Appendix A).

The investigation was undertaken in accordance with Douglas' proposal dated 3 October 2024 and acceptance received from Stuart Pullens of Western Sydney University dated 4 October 2024.

The existing P1 Carpark is to be temporarily relocated to the south and south-west, requiring the construction of two temporary carparks identified as the Western and Eastern carparks as shown on Drawing 1, attached. The Western and Eastern carparks will contain 142 and 178 parking spaces, respectively.

Based on the earthworks cut and fill volume plans provided (Ref: Sheet No.02011, Revision T1 dated 8 October 2024 by Taylor Thomson Whitting) the following cut / fill requirements are considered:

- For the Western carpark, the maximum depth of cut proposed ranges from 0.4 m at the south-western end to 2.5 m at the north-eastern end of the footprint; and
- For the Eastern carpark, the maximum depth of cut proposed ranges from 0.5 m to 1.2 m.

It is understood that development of the new carpark areas is being undertaken as part of a review of environmental effects (REF), and therefore this report has been prepared to support the REF to identify any potential contamination risks, and secondly to provide preliminary *in-situ* waste classification of soils (given cut / fill requirements will likely require off-site disposal of surplus soils).

This report must be read in conjunction with all appendices including the 'Notes About this Report' attached at the end of the report.

The following key guidelines were consulted in the preparation of this report:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013); and
- NSW EPA *Guidelines for Consultants Reporting on Contaminated Land* (NSW EPA, 2020).

2. Scope of work

The scope of work for the investigation comprised:

- Review of readily available desktop information sources including:
  - Historical aerial imagery;
  - NSW EPA public registers;
  - Soil, geology and acid sulfate soil risk mapping;
- Review of previous Douglas investigations completed for nearby parts of WSU;
- Set out and service scanning of 24 test locations;
- Excavation of 24 test locations (12 in each of the Western and Eastern carparks respectively), extending into natural soils, prior refusal or a maximum depth of 3.7 m below ground level (bgl); and
- Collection of samples at regular.

3. Site information

Site address	Western Sydney University, Rydalmere NSW
Legal description	Lot 100 D.P. 816829
Area	Western Section – ~4600 m^2 Eastern Section - ~4620 m^2
Zoning	SP2 - Education
Local Council Area	City of Paramatta
Current use	Open space / recreational
Surrounding uses	Surrounding areas (to the south, east and west) – WSU campus (open space, internal roadways, carpark (east), campus buildings (south).

4. Environmental setting

Regional topography	Regional topography generally slopes to the south following Vineyard Creek (east) which in turn drains into Parramatta River (south). Levels are generally lower following Vinyard Creek with localised hilly areas surrounding.
Site topography	Site topography is generally fairy level with levels ranging between RL ~10-12 m AHD. Other portions of the WSU campus to the south rises to ~RL 18-20 m AHD.
Soil landscape	Transitional area between the Birrong fluvial soil landscape (i.e. silty, sandy clays) associated with Vineyard Creek (east) and residual Blacktown soil landscape (typically clays / silty clays). The transitional area is mapped approximately following Fifth

	street with areas north of Fifth Street mapped as fluvial, and areas south as within the Blacktown Group. This boundary is noted to generally correspond with the local topography.
Geology	Transitional area between Ashfield Shale (west) and Hawkesbury Sandstone (east). Alluvial sediments are noted to be mapped further to the east corresponding to the alignment of Vineyard Creek.
Acid sulfate soils (ASS)	The site is not mapped within an area of known ASS risk (DECCW mapping) and is within areas of low probability of occurrence (CSIRO mapping). The site is mapped as within Class 5 (Parramatta LEP), for Class 5 land, development consent is required for works within 500 m of adjacent Class 1, 2, 3, or 4 land that is below 5 m AHD and by which the watertable is likely to be lowered below 1 m AHD.
Surface water and Groundwater	Surface water and groundwater flows are anticipated to generally follow regional topography with local flows discharging to Vineyard Creek (South-East to East) and more generally South towards Parramatta River. Local surface water is likely intercepted by urban stormwater infrastructure. Review of nearby registered groundwater wells (within ~500 m) indicates recorded groundwater levels between ~2.6 to 3.2 m bgl.

5. Site history and public register review

5.1 WSU website

Based on published information on the WSU website[1] the Parramatta South campus previously comprised the female orphan school (circa 1818), prior to being closed and re-opened as the Rydalmere Hospital for the Insane and then the Rydalmere Psychiatric Hospital (1888-1985). Redevelopment as part of WSU occurred through the transfer of the land to WSU and development commencing circa 2000.

[1] https://www.westernsydney.edu.au/uws25/25_year_history/places/parramatta_south accessed November 2024

5.2 Historical Aerials

Historical aerial photographs were obtained from public databases and reviewed. The aerial photographs (Drawings A-G) are included in Appendix C. Based on the historical aerials the following key features were observed for the site, property and surrounding land. Note the georeferencing of the 1943 to 1970 imagery from NSW Spatial Services (as received by Douglas) has a degree of error in the relative position of the current site boundary, and has been considered in the below descriptions:

- **1943 Aerial:** The earliest available aerial reviewed. The site was situated within a larger parcel of land, which appears to have included several buildings to the south of the site. Three rectangular buildings were present within the Eastern carpark and part of a building was present in the west of the Western carpark, with the remainder of the site open space with some roads and tracks. Victoria Road and the railway line had been constructed. The land beyond the larger property appears to have been used for agriculture with some residences.
- **1955 Aerial:** The previous buildings at the Eastern carpark appear to have been demolished. Additional development had occurred within the larger property, mainly to the north of the site, including a small number of buildings and possibly recreation facilities. The land surrounding the larger property still included agricultural land uses, along with an increased amount of residential.
- **1965 Aerial:** A new building had been constructed in the south of the Western carpark. Some areas of potential storage / ground disturbance (potential presence of soil stockpiles) were present in the south-east of the Eastern carpark and central portion of the Western carpark. Additional development had occurred in the larger property, including more buildings to the south. Continued residential development is observed in the surrounding area to the west, the area to the north of Victoria Road appears to have disturbed ground, possibly indicating that it was being redeveloped.
- **1970 Aerial:** The site remained largely unchanged as compared to the previous aerial. The area of potential storage / disturbed ground were no longer apparent. Within the surrounding area, expansion and upgrade to Fifth Street (which runs between the Western and Eastern carparks) had occurred, along with the construction of Bridge Street across Victoria Road. The development works to the north of Victoria Road appears to be complete, and to include an area of residential houses, and areas of potential commercial buildings. The former agricultural land to the south-west were occupied by a single rectangular building with a courtyard.
- **1986 Aerial:** The building in the west of the Western carpark had been demolished. The remainder of the site and surrounding area appear to have remained largely unchanged. A large, potentially commercial / industrial, building had been constructed to the east of the larger property.
- **1994 Aerial:** The site remained largely unchanged since the earlier photograph. Some redevelopment had occurred on the larger property, including demolition of buildings. The surrounding area had some minor road upgrades and residential development to the south and west, and major infrastructure upgrade to Victoria Road and James Ruse Drive to the north and west, with earthworks at the southern embankment of Victoria Road.

- **2004 Aerial:** The building in the Eastern carpark had been demolished. A new building had been constructed, which appears to have been partly located in the west of the Western carpark. The remainder of the site appears to have been turfed open space. Some redevelopment had occurred at the larger property, including demolition and construction of a limited buildings and construction of new carparks to the north, east and south. The surrounding area appears at large similar to the previous aerial.
- **2011 Aerial:** The building partly located in the Western carpark had been demolished, and a portion of the Western carpark appears to be developed as a carpark. No notable changes are observed to the Eastern carpark. Nearby development included construction of a large building to the south and an expanded carpark to the north (the P1 carpark).
- **2020 Aerial:** The site and surrounding area appears to be at large in its present-day condition, with the carpark structures removed from the Western carpark. Nearby development included construction of a large building to the south.

5.3 NSW EPA public registers

A search of NSW EPA public registers was conducted on 15 November 2024 and noted the following:

- No notices under Sections 58 and 60 of the under Section 58 of the Contaminated Land Management Act (CLM Act) relating to the site or wider WSU property were noted.
- There were no Licences listed under Section 308 of the Protection of the Environment Operations Act 1997 (POEO Act) relating to the site or wider WSU property were noted.
- The site and wider WSU property was not a PFAS Investigation Sites listed on the EPA website.

5.4 Discussion with WSU

Based on a discussion with the WSU representative, Douglas understands that fill material was relocated from development elsewhere within WSU to the north-east part of the western carpark, forming a fill mound near Bridge Street, near locations TP7-10 and TP22 (refer Drawing 1, Appendix A). The relocated material is understood to have potentially included material from footpath construction works from Building Eha to the light rail platform (south-east of the current site).

Based on anecdotal evidence from WSU it is considered possible that this material or additional similar material was re-located to the north-east part of the western section (i.e. near TP7-10 and TP22, as shown on Drawing 1, Appendix A). Refer additional discussion in Section 6.2.

6. Previous investigations

6.1 Indigenous centre of excellence (Douglas, 2024)

Douglas recently undertook investigations for the proposed Indigenous Centre of Excellence at the existing carpark to the east of the site (Douglas, 2024)[2]. Review of historical investigations as part of the investigation indicated the following potential contamination sources based on general site history of the area:

- **Fill material:** as part of historical levelling, and development of the land;
- **Use of pesticides:** potential use of pesticides for maintenance of recreational areas / grounds maintenance; and
- **Hazardous building materials (HBM):** HBM may be present as a result of former building and demolition activities.

Intrusive testing identified a general below ground profile of (excluding existing asphalt cover) gravelly sand fill (~0.2 to 0.4 m) underlain by variable compositions of fill (silty sand, sandy clay, clay) up to 1.3 m deep. Fill was underlain by natural silty clay / clay including alluvial and residual soil layers.

No free groundwater was previously observed during excavation of test pits or drilling of boreholes.

6.2 Waste classification report (PCA, 2024)

Phillip Clifton & Associates (PCA) undertook a waste classification of soils from the footpath construction works from Building Eha to the light rail platform (south-east of the current site) (refer to Section 5.4).

Building materials (including visible suspected asbestos fragments) and ash in the clay fill were identified during the works.

Chemical contaminants analysed in the soil samples were generally low excluding some slightly elevated benzo(a)pyrene (up to 2.5 mg/kg) and lead (up to 150 mg/kg) concentrations.

The material was classified as general solid waste – special waste asbestos.

7. Preliminary conceptual site model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e. it enables an assessment of the potential source – pathway – receptor linkages (complete pathways).

[2] Refer to Section 14 for full references

Based on the available information the following potential sources of contamination and associated contaminants of potential concern (CoPC) have been identified.

- **S1:** Fill: General fil of unknown origin across the site, associated with cut / fill and previous development of the area and demolition of previous structures:
  - CoPC: metals, PFAS, TRH, BTEX, PAH, PCB, OCP, phenols and asbestos.
- **S2:** Relocated fill (fill mound in the north-east of the Western carpark): known asbestos contaminated (or additional suspected contaminated) soils understood to have been relocated from elsewhere on the WSU campus:
  - CoPC: asbestos, lead, PAH. Secondary contaminants may also include TRH, BTEX, OCP.
- **S3:** Pesticide usage: historical ground maintenance:
  - CoPC: metals, OCP.
- **S4**: Demolition of previous structures:
  - CoPC: asbestos, lead, synthetic mineral fibres (SMF), PCB.

The following potential human and environmental receptors, along with relevant potential pathways, have been identified.

- Potential human receptors:
  - **HR1:** Current users [tertiary education, recreational];
  - **HR2:** Construction and maintenance workers;
  - **HR3:** End users [tertiary education]; and
  - **HR4:** Adjacent site users [tertiary education].
- Potential environmental receptors:
  - **ER1:** Surface water [Vineyard Creek];
  - **ER2:** Groundwater; and
  - **ER3:** Terrestrial ecosystems.

The following potential pathways between sources and receptors has been identified:

- **P1:** Ingestion and dermal contact;
- **P2:** Inhalation of dust and / or vapours;
- **EP1:** Surface water run-off;
- **EP2:** Leaching of contaminants and vertical migration into groundwater;
- **EP3:** Lateral migration of groundwater providing base flow to water bodies; and
- **EP4:** Inhalation, ingestion and absorption.

Summary of potentially complete exposure pathways

A 'source–pathway–receptor' approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (potential complete pathways). The possible pathways between the above sources (S1 to S3) and receptors are provided in below Table 1.

Table 1: Summary of potentially complete exposure pathways

Source and CoPC	Exposure pathway	Receptor	Risk management action
S1: Fill: metals, PFAS, TRH, BTEX, PAH, PCB, OCP, phenols and asbestos **S2:** Relocated Fill, asbestos, lead, PAH **S3**: Historical pesticide usage, metals, OCP **S4:** Demolition of previous structures, asbestos, lead, SMF, PCB	**P1:** Ingestion and dermal contact **P2:** Inhalation of dust and/or vapours	**HR1:** Current users [tertiary education, recreational) **HR2:** Construction and maintenance workers **HR3:** End users [tertiary education]	Undertake an intrusive investigation of soils to characterise the actual risk and extent of potential contamination within the site. If soil contamination is identified, assess the potential risk to surface and groundwater, and undertake further investigation of additional media is considered warranted.
	HP2: Inhalation of dust and/or vapours	**HR4:** Adjacent site users [tertiary education]	
	EP1: Surface water run-off **EP3:** Lateral migration of groundwater providing base flow to water bodies	**ER1:** Surface water	
	EP2: Leaching of contaminants and vertical migration into groundwater	**ER2:** Groundwater	
	EP4: Inhalation, ingestion and absorption	**ER3:** Terrestrial ecosystems	

8. Sampling and analysis plan

8.1 Data quality objectives

The investigation was devised with reference to the seven-step data quality objectives (DQO) process which is provided in Appendix B, Schedule B2, NEPC (2013).

Table 2: Project data quality objectives

Step	Summary
1: State the problem	The site is proposed for redevelopment for new car parking areas with current uses comprising open space / recreational. As part of a REF an assessment of potential contamination risks and assessment of soil waste classification is required for surplus soils.
2: Identify the decisions / goal of the study	The decisions are to determine: • Are there potentially unacceptable contamination risks to the identified receptors?; and • Can provisional waste classifications be provided to aid in project planning and inform waste disposal / re-use options;
3: Identify the information inputs	Relevant inputs to the decision include: • The CSM, identifying the CoPC and affected media; • Field observations and results, including field screening testing for VOC and asbestos in soil; • Analysis for the relevant CoPC using NATA accredited laboratories and methods, where possible; and • Field and laboratory QA / QC data to assess the suitability of the environmental data for the validation assessment.
4: Define the study boundaries	The lateral boundaries of the site are shown on Drawing 1, Appendix A. The vertical boundaries are to the extent of potential contamination impact (currently limited to the depth of investigation).
5: Develop the analytical approach (or decision rule)	The decision rule is to compare all analytical results with the SAC (Appendix D, based on NEPC (2013)). Initial comparisons will be with individual results then, where required and appropriate, summary statistics (including mean, standard deviation and 95% upper confidence limit (UCL) of the arithmetic mean (95% UCL)) to assess potential risks posed by the site contamination. Quality control results are to be assessed according to their relative percent difference (RPD) values. For field duplicates, triplicates and laboratory results, RPD values should generally be below 30 (organics) -50 (inorganics) %; for field blanks and rinsates, results should be at or less than the limits of reporting (NEPC, 2013).
6: Specify the performance or acceptance criteria	Baseline condition: Contaminants at the site exceed the human health and environmental SAC and pose a potentially unacceptable risk to receptors (null hypothesis). Alternative condition: Contaminants at the site comply with the human health and environmental SAC and as such, do not pose a potentially unacceptable risk to receptors (alternative hypothesis). Unless conclusive information from the collected data is sufficient to reject the null hypothesis, it is assumed that the baseline condition is true. The statistical assessment will only be able to be applied to certain data-sets in accordance with NEPC (2013) and NSW EPA (2022), such as those obtained via

Step	Summary
	systematic sampling. Identification of areas for targeted sampling will be via professional judgement and errors will not be able to have a probability assigned to them. Re-use of material on-site will consider comparison against the SAC as above.
7: Optimise the design for obtaining data	As the purpose of the investigation is to assess the contamination status of the site, the sampling program is reliant on professional judgement to identify and sample the potentially affected areas. Further details regarding the proposed sampling plan are presented in Section 8.2.

8.2 Soil sampling and analysis rationale

NSW EPA *Contaminated Sites, Sampling Design Guidelines* (NSW EPA, 2022) recommends a minimum of ~12 systematic test locations for an area of ~4500 m^2. Given the similar areas of each subsection (~4600 m^2) of the site a total of 12 test locations were sampled from each respective area. Test locations are shown on Drawing 1, in Appendix A.

Test locations were excavated using an excavator with samples collected at approximate 0.5 m intervals or changes in strata. Additional bulk samples were collected in fill for field screening of soils for potential asbestos containing materials. Four of the sampled test locations (two per area) were also sampled as part of the concurrent geotechnical investigation.

The general sampling methods are described in the field work methodology in Appendix E.

Samples were selected for analysis based upon field observations and screening results, and to provide lateral and vertical coverage of the site.

9. Site assessment criteria

The site assessment criteria (SAC) applied in the current investigation are informed by the CSM (Section 5) which identified human and environmental receptors to potential contamination on the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels from Schedule B1 of NEPC (2013).

The investigation and screening levels applied in the current investigation comprise levels adopted for a generic commercial land use scenario, considered to be protective for a tertiary education land use, i.e. students and staff.

The derivation of the SAC is in Appendix D, and the adopted SAC are listed on the summary analytical results tables in Appendix F.

It its noted that ecological criteria have also been considered for assessing the potential re-use of materials.

10. Results

10.1 Field work results

10.1.1 General observations

At the time of investigation, the site comprised open space within the larger WSU campus, adjacent to roads entering the WSU campus divided by Fifth Street.

The Western carpark comprised grassed areas adjacent to an existing sports oval, with the north-east areas slightly elevated above the surrounding areas as part of an embankment rising to Bridge Street.

The Eastern carpark similarly comprised an open grassed area with a gentle rise in site levels towards the southern extent of this area.

10.2 Test pit results

The detailed test pit logs are attached in Appendix F. Notes defining classification methods and terms used to describe the soils and rocks are also attached.

The ground profile encountered within the proposed Western and Eastern carpark footprints is summarised in the following sub-sections.

Potential asbestos containing materials and building debris were observed as discussed below. No other visual or olfactory evidence (e.g. staining, odours, free phase product) was recorded during the investigations to suggest the presence of chemical contamination within the soils.

The PID screening recorded values of less than 1 ppm suggesting the absence, or very low concentrations, of VOC in the samples tested.

10.2.1 Proposed western carpark

The ground profile recorded within the proposed Western carpark footprint (TP1-10 and TP21-22) is summarised as follows:

- **FILL** – apparently variably compacted and of varying composition, including silty clay, silty sand, clayey silty sand, sandy clay, silty sandy clay and clayey sandy silt, with minor proportions of building rubble (brick, tile, terracotta, plastic, concrete and timber fragments, steel pipes and rods, and trace amounts of potential asbestos-containing material and fragments of geofabric), with minor proportions of gravel-, cobble- and boulder-sized sandstone fragments in the eastern part of the footprint, to depths ranging from 0.5 m to 3.0 m, thickening to the north-east. Deeper fill and increased frequency of inclusions were noted in test locations within the raised fill mound, i.e. at TP 7-10 and TP22; overlying;
- **ALLUVIUM** – a discontinuous stratum that underlies the fill near the north-eastern end of the footprint only, of predominantly medium to high plasticity silty clay and silty sandy clay to terminations depths ranging from 1.3 m to 3.7 m, deepening to the north-east; or
- **RESIDUAL SOIL** – a discontinuous stratum that underlies the fill over most of the site, of varying composition including silty clay, silty sandy clay and sandy clay of medium to high plasticity, to termination depths ranging from 1.1 m to 2.4 m.

Bedrock was not encountered in any test pit, nor was free groundwater observed in the test pits during excavation.

10.2.2 Proposed eastern carpark

The ground profile recorded within the proposed Eastern carpark footprint (TP11-20 and TP23-24) is summarised as follows:

- **FILL / Silty SAND** – apparently moderately to well compacted, fine to medium, with trace proportions of rootlets and gravel to depths ranging from 0.2 m to 0.6 m; overlying
- **Fill / Silty Sandy CLAY** – apparently moderately compacted with minor proportions of cobble- and boulder-sized sandstone fragments, inclusions of boulder-sized concrete fragments and trace proportions of gravel, rootlets and ceramic pipe fragments to depths ranging from 0.4 m to 1.1 m; overlying
- **RESIDUAL SOIL** – a generally continuous stratum (absent at TP13 only) of varying composition including silty clay, silty sandy clay and sandy clay of medium to high plasticity, with minor proportions of gravel-, cobble- and boulder-sized sandstone to depths ranging from 0.6 m to 1.6 m.

Test pits refused on apparent bedrock at depths between 1-1.6 m bgl.

Free groundwater was not observed in the test pits during excavation.

10.2.3 Asbestos in soil

Asbestos in soil screening was undertaken at test locations with suspected materials and / or signs of potential asbestos containing material (ACM) (e.g. building demolition materials), with weights of screened samples recorded on Table G2, Appendix G. No potential ACM was recorded in the samples subject to screening.

Potential ACM was, however, recorded and sampled directly from excavated fill in the following locations:

- TP8 – as a fragment of potential ACM (PACM1) at 0.5 m deep. Potential ACM was not recorded in the 10 L sample subject to the field screening test from this horizon.
- TP12 - as a fragment of potential ACM (PACM2) at 0.4 m deep. Potential ACM was not recorded in the 10 L sample subject to the field screening test from this horizon.

Refer further discussion in Section 11.1 regarding laboratory analysis of asbestos samples.

10.3 Laboratory analytical results

The results of laboratory analysis are summarised in the following tables in Appendix G:

- Table G1: Summary of results of soil analysis;
- Table G2: Summary of asbestos results; and
- Table G3: Preliminary waste classification of soils.

The laboratory certificates of analysis together with the chain of custody and sample receipt information are provided in Appendix H.

10.4 Data quality assurance and quality control

The data quality assurance and quality control (QA / QC) results are provided in Appendix I. Based on the results of the field QA and field and laboratory QC, and evaluation against the data quality indicators (DQI) it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

11. Discussion

11.1 Soils

The analytical results for chemical analytes in all samples were below the SAC with the exception of benzo(a)pyrene [B(a)P] ranging between 1.6 – 3.6 mg/kg (ecological screening level [ESL] 0.7 mg/kg).

It is noted that the B(a)P ESL is a low reliability value. Higher reliability screening levels have been published in CRC CARE *Risk-based Management and Remediation Guidance for Benzo(a)pyrene* (CRC CARE, 2017). The high reliability value of 172 mg/kg (95% upper confidence limit, ranging between 57 mg/kg to 371 mg/kg) for fresh B(a)P (commercial and industrial land use) suggests that the concentrations of B(a)P do not present an unacceptable risk to site ecology. Further the CSM does not identify significant terrestrial receptors on-site which may be impacted by the slightly elevated levels.

Asbestos has been detected by the laboratory as follows:

- TP8/0.5-0.7 and 1.1-1.3 (as asbestos fines / fibrous asbestos [AF/FA]). TP8/1.1-1.3 is noted to exceed the HSL for AF/FA, 0.5-0.7 was recorded as a concentration below the health screening level (HSL);
- TP22/2.3-2.5 (as both ACM > 7 mm and AF/FA). AF/FA results were within the HSL; and
- PACM1 (TP8) and PACM2 (TP12) were both confirmed to contain asbestos.

Drawing 2, Appendix A summarises the results of the asbestos field screening and laboratory results. Indicative areas have been shown based on available data risk as follows:

- Orange shaded areas – asbestos detected and presence of building demolition materials have been identified in the fill. Notably this includes the raised mound in the north-eastern part of the western section of the site which included fill of up to 3m (and refuse in fill in one test pit at 2.4 m);
- Blue shaded areas – risk of potential asbestos based on the presence of building demolition materials identified in the fill; and
- Remaining areas – no obvious indicators of asbestos identified in the test pits.

The shaded portions are indicative only and will further delineation for the purposes of waste classification / site management (refer Section 11.2 below regarding waste classification) may be required, or more conservative assumptions adopted.

11.2 Preliminary waste classification

The following Table 4 presents the results of the six-step procedure outlined in NSW EPA (2014) for determining the type of waste and the waste classification. This process applies to the fill at the site.

Table 3: Six step classification procedure

No.	Item	Comment	Rationale
1.	Is the waste special waste?	Yes	Asbestos has been detected by field observation (suspected) and confirmed analysis at the following locations: TP8, TP12 and TP22. (orange shaded areas on Drawing 2, Appendix A).
		Possibly	Fill with no ACM observed may not contain asbestos (potentially including fill in unshaded areas on Drawing 2, Appendix A). Further assessment would be required to assess the waste classification with respect to asbestos.
2.	Is the waste liquid waste?	No	The fill comprised a soil matrix.
3.	Is the waste "pre-classified"?	No	The fill is not pre-classified with reference to NSW EPA (2014). The natural soil, if classified as VENM, is pre-classified as general solid waste (non-putrescible).
4.	Does the waste possess hazardous waste characteristics?	No	The fill was not observed to contain or considered at risk to contain explosives, gases, flammable solids, oxidising agents, organic peroxides, toxic substances, corrosive substances, coal tar, batteries, lead paint or dangerous goods containers.
5.	Determining a wastes classification using chemical assessment.	Conducted	Refer to attached Table G3.
6.	Is the waste putrescible or non-putrescible? [1]	Non-putrescible	No putrescible materials were identified in the observed fill.

Notes:
1. Wastes that are generally not classified as putrescible include soils, timber, garden trimmings, agricultural, forestry and crop materials, and natural fibrous organic and vegetative materials (NSW EPA, 2014).

The field and laboratory data quality assurance and quality control results for the samples have been reviewed and are considered to be acceptable. The laboratory certificate/s is / are attached.

As shown in the attached Table G3, all contaminant concentrations for the analysed fill samples were below the contaminant thresholds (CT1) for Waste Classification, except for the following:

- Lead ranging between 130 mg/kg and 670 mg/kg (noted within SCC1 – 1500 mg/kg); and
- B(a)P ranging between 1.1 mg/kg and 3.6 mg/kg (noted within SCC1 – 10 mg/kg).

Toxicity characteristics leaching procedure (TCLP) tests were conducted for the analytes exceeding the CT1 thresholds on representative "worst case" samples. The specific contaminant concentration (SCC) and TCLP concentrations for those samples were below the contaminant thresholds SCC1 and TCLP1 for general solid waste, respectively.

Based on the analysis (and discussion of asbestos results in Section 11.1) the fill soils a preliminary waste classifications for planning purposes is considered to be general solid waste (non-putrescible) – special waste asbestos. Further assessment for asbestos may be able to classify some of the fill from the site as general solid waste (non-putrescible).

Assessment of natural soils did not identify any concentrations of analytes suggestive of potential chemical residues present in the natural material, and no indicators of acid sulfate soils (e.g. odours) were identified. It is considered likely that the underlying natural soils may be classifiable as Virgin Excavated Natural Material, however this will require further assessment (e.g. visual at minimum) following removal of overburden.

12. Revised conceptual site model

The data collected for this DSI has generally confirmed that certain potential contaminant sources outlined in the CSM outlined in Section 5 pose a potentially complete pathway to the identified receptor(s) whilst others do not.

General conclusions regarding the potential sources are as follows:

- Source 1 – fill. CoPC are considered limited to PAH (as benzo(a)pyrene) and asbestos. CoPC of concern for waste classification of soils additional includes lead;
- Source 2 – Relocated fill (fill mound in the north-east of the Western carpark): CoPC are considered similar to Source 1. A higher risk of asbestos is generally identified with this source based on the current results, including positive identification of asbestos in fill within this area;
- Source 3 – historical pesticide usage. No significant concentration of CoPC identified to indicate potentially unacceptable risk from this source; and
- Source 4 – historical buildings. No distinct localised fill in the footprints / surrounding areas of former structures has been identified. Generally, the risk posed by this source is considered to be included as part of Source 1.

No significant risks to ecological receptors have been identified. Based on the magnitude of the soil results and type of contaminants generally identified (e.g. lead, B(a)P) it is considered that there is not current a need to conduct further groundwater assessment, and therefore the identified ecology pathway linkages to surface water / groundwater are not considered significant.

No contaminants have been identified which are considered likely to pose a risk to surface water or groundwater.

No other sources of contamination have been identified as a result of the testing results. Table 6 provides a revised CSM based on the above conclusions.

Table 4: Summary of potentially complete exposure pathways

Source and CoPC	Exposure pathway	Receptor	Risk management action
S1: Fill: asbestos **S2:** Relocated Fill, asbestos	**HP2:** Inhalation of dust	**HR1:** Current users [tertiary education, recreational) **HR2:** Construction and maintenance workers **HR3:** End users [tertiary education]	Development and implementation of an asbestos management plan (AMP), to manage known/ suspected asbestos and additional finds.
	HP2: Inhalation of dust	**HR4:** Adjacent site users [tertiary education]	

13. Conclusions and recommendations

Based on the results of the investigation it is generally considered that the identified contamination risks are manageable for the proposed development.

Asbestos has been detected in soil in two areas (orange shaded on Drawing 2, Appendix A), namely:

- The northern portion of the Western carpark: several detections in fill within a mound reportedly formed from fill relocated from other areas of the WSU; and
- One detection in the north-west of the Eastern carpark.

Note the presence of fill containing building debris, which can be indicative of the presence of asbestos, was recorded outside of the above two areas. Notably areas shaded blue on Drawing 2 indicate where building demolition materials were identified in fill in the test pits, indicating a moderate to high risk of unidentified asbestos. Generally, asbestos is by its nature heterogenous and additional asbestos could be present in fill in other areas of the site.

For the purposes of the proposed development the following is recommended to manage the contamination risks:

- Either conduct further detailed asbestos assessment to characterise asbestos across the site (including delineation of current known extents), or assume that all fill is impacted by asbestos subject to further management as part of an asbestos management plan (AMP). If off-site disposal of fill is proposed, the pits could also be used to collect data to supplement the current provisional in situ waste classification;

- Development of an asbestos management plan (AMP) to detail requirements for excavation, removal and validation of the known asbestos in soil, and to provide an additional finds protocol to manage risks in other areas of the site;
- Implementation of the AMP, including appropriate management of spoil during works; and
- If asbestos is to be contained on site, development and implementation of a long term environmental management plan.

14. References

CRC CARE. (2017). *Risk-based Management and Remediation Guidance for Benzo(a)pyrene*. Technical Report no. 39: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.

Douglas. (2024). *Report on Detailed Site Investigation*. 171 Victoria Road, Parramatta NSW. Dated June 2024 (reference: 227190.01.R.001.Rev2) (Douglas, 2024).

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land*. Contaminated Land Guidelines: NSW Environment Protection Authority.

NSW EPA. (2022). *Contaminated Sites, Sampling Design Guidelines*. NSW Environment Protection Authority.

PCA. (2024). *Waste Classification on In-situ Sandy Clay Fill Soils, Light Rail Footpath Construction Area*. North East Area of the Western Sydney University, Parramatta South Campus, Victoria Road, Paramatta NSW. Dated July 2024 (reference: PCA8037-2024_WASTECLASSLET01_26Jul24) (PCA, 2024).

15. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report (or services) for this project at Western Sydney University, Rydalmere NSW in line with Douglas' proposal dated 3 October 2024 and acceptance received from Stuart Pullens of Western Sydney University dated 4 October 2024. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of Western Sydney University for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and / or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and / or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and / or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

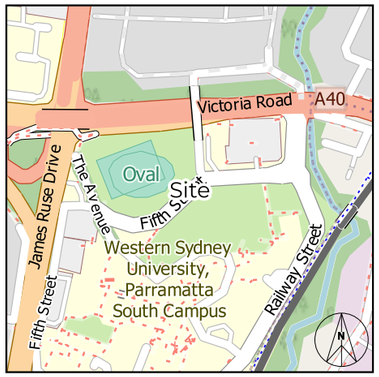
Asbestos has been detected by observation and laboratory analysis in fill materials at the test locations sampled and analysed. Building demolition materials, such as brick, tile, terracotta, plastic, concrete and timber fragments, steel pipes and rods were observed in previous below-ground fill, and these are considered as indicative of the possible presence of additional hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. It is therefore considered possible that additional HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that additional asbestos is not present.

Appendix A

Drawings





SITE LOCATION

NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from "Metromap" dated 23/07/2024,
2. Features shown are approximate only.

LEGEND

- Site Boundary
- Raised fill mound (within the site)
- Environmental Test Pit
- Geotechnical / Environmental Test Pit

Douglas PARTNERS

CLIENT: Western Sydney University		
OFFICE: Sydney	DRAWN BY: ZW	
SCALE: 1:1000 @A3	DATE: 6/11/2024	

TITLE: **Site and Test Location Plan**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

N

PROJECT:	227191.00
DRAWING No:	1
REVISION:	0

DP.QGIS.A3LandscapeDrawingLayout.Rev3 - \\dpsydnas02\Projects\227191.00 - WESTERN SYDNEY UNI PARRAMATTA CARPARK P1\7.0 Drawings\7.3 QGIS\227191.00.qgz





SITE LOCATION

NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from "Metromap" dated 23/07/2024,
2. Features shown are approximate only.

LEGEND

- Site Boundary
- Environmental Test Pit
- Geotechnical / Environmental Test Pit
- Asbestos detected and building demolition materials in fill within testpits
- Building demolition materials identified in fill within testpits

Unshaded areas no asbestos or building demolition materials identified in fill within test pits

Shaded extents are indicative only and will require further delineation / testing as discussion with the report.

Refer further detail provided within report

HSL - health screening level (HSL D)

Douglas PARTNERS

CLIENT:	Western Sydney University		
OFFICE:	Sydney	DRAWN BY:	ZW
SCALE:	1:1000 @A3	DATE:	6/11/2024

TITLE: **Summary asbestos results**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

N

PROJECT:	227191.00
DRAWING No:	2
REVISION:	0

DP.QGIS.A3LandscapeDrawingLayout.Rev3 - P:\227191.00 - WESTERN SYDNEY UNI PARRAMATTA CARPARK P1\7.0 Drawings\7.3 QGIS\227191.00.qgz

Appendix B

About This Report

About this Report

November 2023

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

continued next page

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Appendix C

Site History



NOTE:
1. Basemap sourced from 'Spatial NSW'
2. Features shown are approximate only.

LEGEND

Approximate Site Boundary

Douglas PARTNERS

CLIENT: Western Sydney University		
OFFICE: Sydney	DRAWN BY: ZW	
SCALE: 1:1500 @A3	DATE: 18/11/2024	

TITLE: **1943 Historical Aerial**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

N

PROJECT:	227191.00
DRAWING No:	A
REVISION:	0



NOTE:
1. Basemap sourced from 'Spatial NSW'
2. Features shown are approximate only.

LEGEND

Approximate Site Boundary

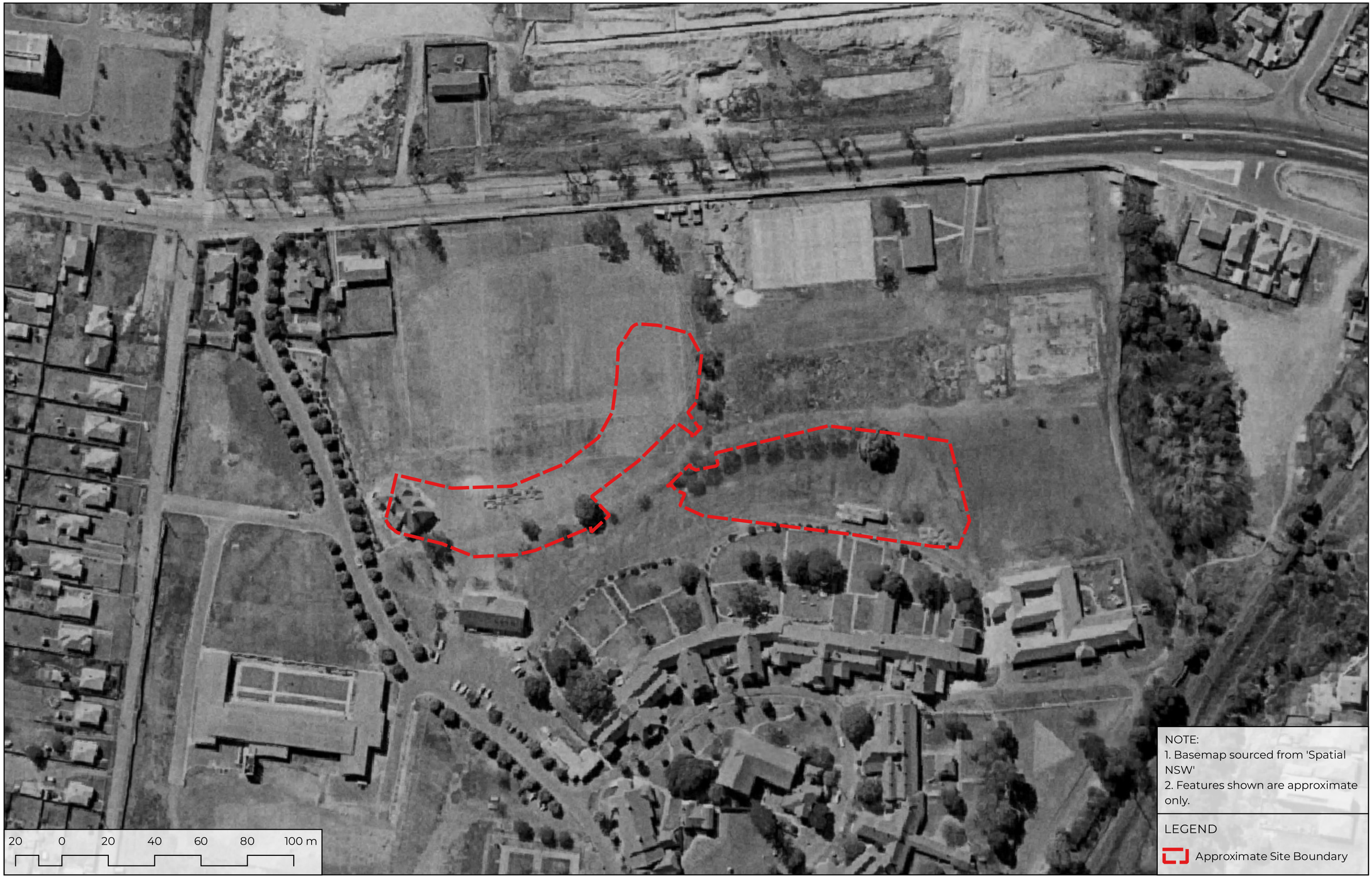
Douglas PARTNERS

CLIENT: Western Sydney University		
OFFICE: Sydney	DRAWN BY: ZW	
SCALE: 1:1500 @A3	DATE: 18/11/2024	

TITLE: **1955 Historical Aerial**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

N

PROJECT:	227191.00
DRAWING No:	B
REVISION:	0



NOTE:
1. Basemap sourced from 'Spatial NSW'
2. Features shown are approximate only.

LEGEND

Approximate Site Boundary

Douglas PARTNERS

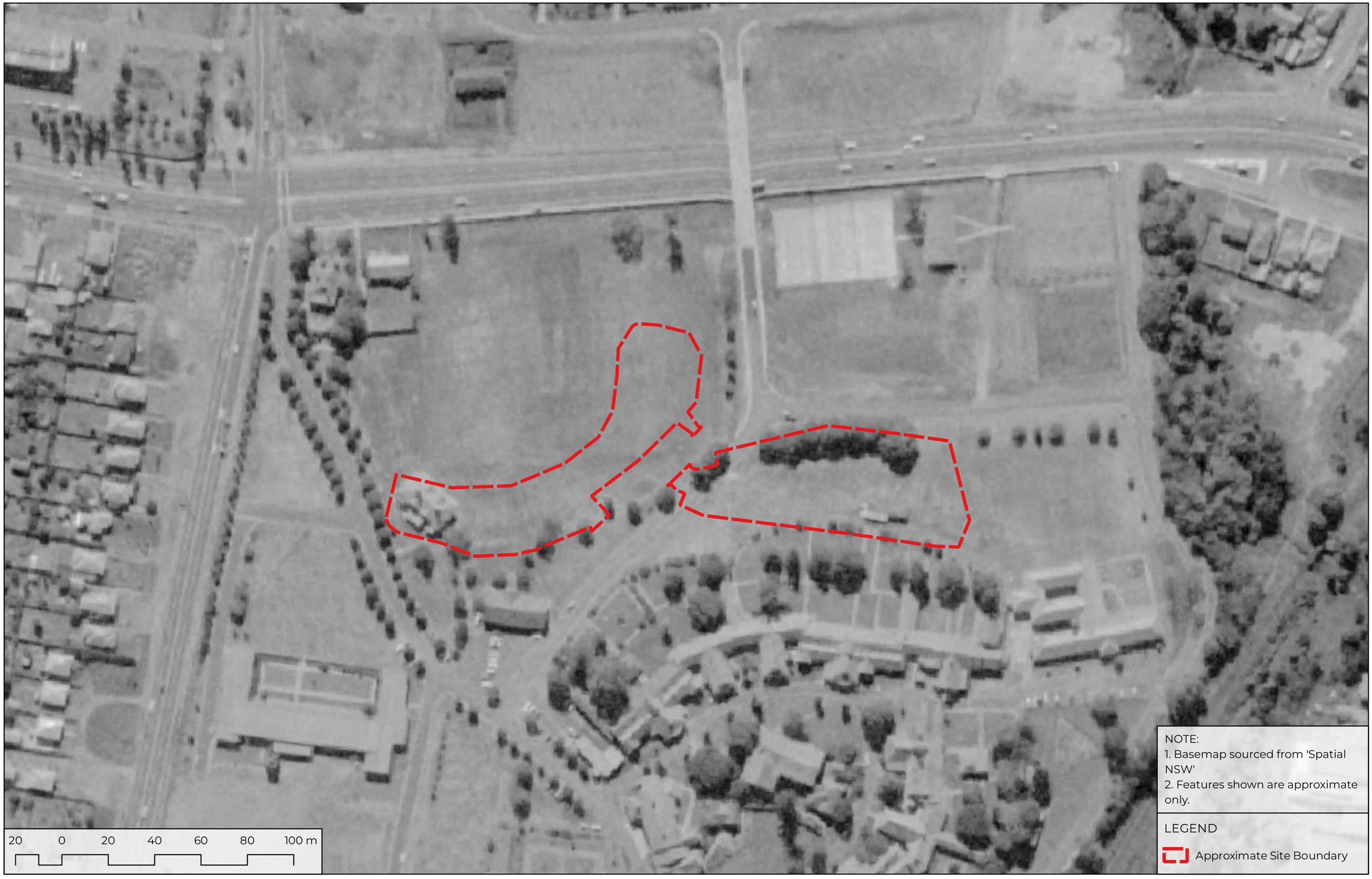
CLIENT: Western Sydney University		
OFFICE: Sydney	DRAWN BY: ZW	
SCALE: 1:1500 @A3	DATE: 18/11/2024	

TITLE: **1965 Historical Aerial**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

N

PROJECT:	227191.00
DRAWING No:	C
REVISION:	0

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NOTE:
1. Basemap sourced from 'Spatial NSW'
2. Features shown are approximate only.

LEGEND

Approximate Site Boundary

Douglas PARTNERS

CLIENT: Western Sydney University		
OFFICE: Sydney	DRAWN BY: ZW	
SCALE: 1:1500 @A3	DATE: 18/11/2024	

TITLE: **1970 Historical Aerial**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

N

PROJECT:	227191.00
DRAWING No:	D
REVISION:	0



NOTE:
1. Basemap sourced from 'Spatial NSW'
2. Features shown are approximate only.

LEGEND

Approximate Site Boundary

Douglas PARTNERS

CLIENT: Western Sydney University		
OFFICE: Sydney	DRAWN BY: ZW	
SCALE: 1:1500 @A3	DATE: 18/11/2024	

TITLE: **1986 Historical Aerial**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

N

PROJECT:	227191.00
DRAWING No:	E
REVISION:	0



NOTE:
1. Basemap sourced from 'Spatial NSW'
2. Features shown are approximate only.

LEGEND

Approximate Site Boundary

Douglas PARTNERS

CLIENT:	Western Sydney University		
OFFICE:	Sydney	DRAWN BY:	ZW
SCALE: 1:1500 @A3		DATE: 18/11/2024	

TITLE: **1994 Historical Aerial**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

N

PROJECT:	227191.00
DRAWING No:	F
REVISION:	0



NOTE:
1. Basemap sourced from 'Spatial NSW'
2. Features shown are approximate only.

LEGEND

Approximate Site Boundary

Douglas PARTNERS

CLIENT: Western Sydney University		
OFFICE: Sydney	DRAWN BY: ZW	
SCALE: 1:1500 @A3	DATE: 18/11/2024	

TITLE: **2004 Historical Aerial**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

N

PROJECT:	227191.00
DRAWING No:	G
REVISION:	0

20 0 20 40 60 80 100 m

NOTE:
1. Basemap sourced from 'Metromaps'
2. Features shown are approximate only.

LEGEND

Approximate Site Boundary

Douglas PARTNERS

CLIENT: Western Sydney University		
OFFICE: Sydney	DRAWN BY: ZW	
SCALE: 1:1500 @A3	DATE: 18/11/2024	

TITLE: **2011 Historical Aerial**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

N

PROJECT:	227191.00
DRAWING No:	H
REVISION:	0

20 0 20 40 60 80 100 m

NOTE:
1. Basemap sourced from 'Metromaps'
2. Features shown are approximate only.

LEGEND

Approximate Site Boundary

Douglas PARTNERS

CLIENT: Western Sydney University		
OFFICE: Sydney	DRAWN BY: ZW	
SCALE: 1:1500 @A3	DATE: 18/11/2024	

TITLE: **2020 Historical Aerial**
Proposed Carpark P1 Relocation
Western Sydney University, Parramatta South Campus, NSW

N

PROJECT:	227191.00
DRAWING No:	I
REVISION:	0

Appendix D

Site Assessment Criteria

1. Introduction

1.1 Guidelines

The following key guidelines were consulted for deriving the site assessment criteria (SAC):

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).
- CRC CARE *Health screening levels for petroleum hydrocarbons in soil and groundwater* (CRC CARE, 2011).

1.2 General

The SAC applied in the current investigation are informed by the CSM which identified human and environmental receptors to potential contamination at the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The following inputs are relevant to the selection and / or derivation of the SAC:

- Land use: tertiary education. Noted to most closely resemble a commercial land use for both staff and students per standard land uses outlined in NEPC (2013). It is noted however that significant variations in the frequency and total exposure of users will vary from this default scenario and therefore any subsequent investigation (if required) may consider adopting more site specific risk parameters.
  - Corresponding to land use category 'D', commercial / industrial such as shops, offices, factories and industrial sites.
- Soil type: clay (based on field observations).

2. Soils

2.1 Health investigation and screening levels

The generic health investigation levels (HIL) and health screening levels (HSL) are considered to be appropriate for the assessment of human health risk via all relevant pathways of exposure associated with contamination at the site. The adopted soil HIL and HSL for the contaminants of concern are in Table 1 and Table 2.

Table 1: Health investigation levels (mg/kg)

Contaminant	HIL-D
Metals	
Arsenic	3000
Cadmium	900
Chromium (VI)	3600

Contaminant	HIL-D
Copper	240 000
Lead	1500
Mercury (inorganic)	730
Nickel	6000
Zinc	400 000
PAH	
B(a)P TEQ	40
Total PAH	4000
Phenols	
Phenol	240 000
Pentachlorophenol	660
OCP	
DDT+DDE+DDD	3600
Aldrin and dieldrin	45
Chlordane	530
Endosulfan	2000
Endrin	100
Heptachlor	50
HCB	80
Methoxychlor	2500
OPP	
Chlorpyrifos	2000
PCB	
PCB	7

Table 2: Health screening levels (mg/kg)

Contaminant	HSL-D	HSL-D	HSL-D	HSL-D
CLAY	**0 m to <1 m**	**1 m to <2 m**	**2 m to <4 m**	**4 m+**
Benzene	4	6	9	20
Toluene	NL	NL	NL	NL
Ethylbenzene	NL	NL	NL	NL
Xylenes	NL	NL	NL	NL
Naphthalene	NL	NL	NL	NL

Contaminant	HSL-D	HSL-D	HSL-D	HSL-D
TRH F1	310	480	NL	NL
TRH F2	NL	NL	NL	NL

Notes: TRH F1 is TRH C_6-C_{10} minus BTEX
TRH F2 is TRH >C_{10}-C_{16} minus naphthalene
The soil saturation concentration (Csat) is defined as the soil concentration at which the porewater phase cannot dissolve any more of an individual chemical. The soil vapour that is in equilibrium with the porewater will be at its maximum. If the derived soil HSL exceeds Csat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would results in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'

The HSL for direct contact derived from CRC CARE (2011) are in Table 3.

Table 3: Health screening levels for direct contact (mg/kg)

Contaminant	DC HSL-D
Benzene	430
Toluene	99 000
Ethylbenzene	27 000
Xylenes	81 000
Naphthalene	11 000
TRH F1	26 000
TRH F2	20 000
TRH F3	27 000
TRH F4	38 000

Notes: TRH F1 is TRH C_6-C_{10} minus BTEX
TRH F2 is TRH >C_{10}-C_{16} minus naphthalene

2.2 Asbestos in soil

The HSL for asbestos in soil are based on likely exposure levels for different scenarios published in NEPC (2013) for the following forms of asbestos:

- Bonded asbestos containing material (ACM); and
- Fibrous asbestos and asbestos fines (AF / FA).

The HSL are in Table 4.

Table 4: Health screening levels for asbestos

Form of asbestos	HSL-D
ACM	0.05%
FA and AF	0.001%
FA and AF and ACM	No visible asbestos for surface soil *

Notes: Surface soils defined as top 10 cm.
* Based on site observations at the sampling points and the analytical results of surface samples.

Where insufficient sample recovery is available the presence or absence of asbestos at a limit of reporting of 0.1 g/kg (AS:4964) has been adopted for this investigation / assessment as an initial screen.

2.3 Ecological investigation levels

Ecological investigation levels (EIL) and added contaminant limits (ACL), where appropriate, have been derived in NEPC (2013) for arsenic, copper, chromium (III), nickel, lead, zinc, DDT and naphthalene. The adopted EIL, derived using the interactive (excel) calculation spreadsheet on the NEPM toolbox website are shown in Table 6, with inputs into their derivation shown in Table 5.

Table 5: Inputs to the derivation of the ecological investigation levels

Variable	Input	Rationale
Age of contaminants	"Aged" (>2 years)	Site history review
pH	6	Average of laboratory data
CEC	6 $cmol_c/kg$	
Clay content	10 %	Maximum percentage, based on predominate soil texture
Traffic volumes	high	Site locality
State / Territory	NSW	

Table 6: Ecological investigation levels (mg/kg)

Contaminant	EIL-D
Metals	
Arsenic	160
Copper	190
Nickel	90
Chromium III	680
Lead	1800
Zinc	540
PAH	
Naphthalene	370
OCP	
DDT	640

2.4 Ecological screening levels

Ecological screening levels (ESL) are used to assess the risk of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene to terrestrial ecosystems. The adopted ESL are shown in Table 7.

Table 7: Ecological screening levels (mg/kg)

Contaminant	Soil Type	ESL-D
Benzene	Fine	95
Toluene	Fine	135
Ethylbenzene	Fine	185
Xylenes	Fine	95
TRH F1	Coarse/ Fine	215*
TRH F2	Coarse/ Fine	170*
TRH F3	Fine	2500
TRH F4	Fine	6600
B(a)P	Fine	1.4

Notes: ESL are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability
TRH F1 is TRH C_6-C_{10} minus BTEX
TRH F2 is TRH >C_{10}-C_{16} including naphthalene

2.5 Management limits

In addition to appropriate consideration and application of the HSL and ESL, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Fire and explosion hazards;
- Effects on buried infrastructure e.g. penetration of, or damage to, in-ground services.

The adopted management limits are in Table 8.

Table 8: Management limits (mg/kg)

Contaminant	Soil type	ML-D
TRH F1	Fine	800
TRH F2	Fine	1000
TRH F3	Fine	5000
TRH F4	Fine	10 000

Notes: TRH F1 is TRH C_6-C_{10} including BTEX
TRH F2 is TRH >C_{10}-C_{16} including naphthalene
ML-A-B-C residential, parkland and public open space

3. References

CRC CARE. (2011). *Health screening levels for petroleum hydrocarbons in soil and groundwater.* Parts 1 to 3, Technical Report No. 10: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

Appendix E

Fieldwork Methodology

1. Guidelines

The following key guidelines were consulted for the field work methodology:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).

2. Soil sampling

Soil sampling is carried out in accordance with Douglas' standard operating procedures. The general sampling and sample management procedures comprise:

- Collect soil samples directly from the excavator bucket at the nominated sample depth;
- Collect near surface samples using hand tools;
- Place samples into laboratory-prepared glass jars with Teflon lined lids, capping immediately and minimising headspace within the sample jar;
- Collect replicate samples in zip-lock bags for photoionisation detector (PID) screening;
- Collect ~500 ml samples in zip-lock bags for fibrous asbestos and asbestos fines (AF /FA) analysis;
- Collect bulk (~10 L) soil samples for asbestos-containing material (ACM) field sieve test;
- Wear a new disposable nitrile glove for each sample point thereby minimising potential for cross-contamination;
- Collect 10% replicate samples for quality control (QC) purposes;
- Label sample containers with individual and unique identification details, including project number, sample location and sample depth (where applicable);
- Place samples into a cooled, insulated and sealed container for transport to the laboratory; and
- Use chain of custody documentation.

2.1 Field testing

Field testing is carried out in accordance with Douglas' standard operating procedures. The general sampling and sample management procedures comprise:

PID Field Test

- Calibrate the PID with isobutylene gas at 100 ppm and with fresh air prior to commencement of each successive day's field work;
- Allow the headspace in the PID zip-lock bag samples to equilibrate; and
- Screen using the PID.

Assessment of Subsurface ACM

- Collect at least one bulk (~10 L) soil sample per metre of fill from each test pit;

- Weigh each bulk sample;
- Screen each bulk sample through a ≤7 mm aperture sieve;
- Weigh all retrieved potential ACM fragments; and
- Calculate the asbestos concentration (% w/w) in soil as per the procedure described in NEPC (2013).

3. References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

Appendix F

Fieldwork Results

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.0 AHD
COORDINATE: E:317154.3, N:6257099.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP1
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[^] / DENSITY.[^]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO			FILL / Silty CLAY: dark brown; low to medium plasticity; with roots, trace igneous gravel and building rubble (tile, plastic and concrete fragments) .		FILL		D		ES		0.20		
			0.60m: metal pipe, possible redundant water main						ES		0.50		
											0.70		
	8	0.90	Silty CLAY: orange-brown mottled grey; medium to high plasticity; trace ironstone gravel.		RS possibly ALV	ND	w=PL		ES		1.00		
		1									1.20		
									* ES		1.50		
	7	2	Test Pit discontinued at 1.80m depth. Target depth reached.								1.70		
	6												

NOTES: [#] Soil origin is "probable" unless otherwise stated. [^] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS: *Field Replicate BD1/20241014 sample taken from 1.5-1.7m

OPERATOR: A & A Hire Service
LOGGED: NW

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 8.8 AHD
COORDINATE: E:317170.9, N:6257104.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP2
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	8.8 / 0.00	FILL / Silty CLAY: dark brown; low to medium plasticity; with rootlets.		FILL		D		ES		0.20		
		From 0.20m: with red-brown possibly reworked natural										
	0.50 / 8.3	Silty CLAY: yellow-brown and dark grey; medium to high plasticity.		RS	ND	w=PL		ES		0.70		
	1 / 7.8									0.90		
								ES		1.10		
		Test Pit discontinued at 1.30m depth. Target depth reached.								1.30		
	2 / 6.8											

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service
LOGGED: NW

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.6 AHD
COORDINATE: E:317208.8, N:6257100.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP3
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	9 / 0	FILL / Silty CLAY: dark brown ; low to medium plasticity; with rootlets.		FILL		D		ES		0.20		
		0.30m: with igneous gravel and gravel-sized concrete fragments, trace terracotta						ES		0.40		
	0.60									0.60		
	9 / 1	Silty CLAY: red-brown; medium to high plasticity; with angular to subangular ironstone gravel.		RS	ND	w=PL		ES		0.70		
										0.90		
	1									1.00		
								ES		1.20		
		Test Pit discontinued at 1.20m depth. Target depth reached.										
	8 / 2											
	7											

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: NW

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.9 AHD
COORDINATE: E:317220.7, N:6257096.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP4
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO		FILL / Silty SAND: brown to dark brown; fine to medium; trace rootlets, roots and gravel.		FILL		ND		ES		0.20		
	0.40	Silty CLAY: orange-brown, mottled red and grey; medium to high plasticity; with fine to medium sand, trace angular to subangular ironstone gravel.		RS	ND	w=PL		ES		0.50		
	9 / 1	1.00m-1.10m: boulder-sized sandstone fragments						ES		0.70 / 1.00		
		Test Pit discontinued at 1.10m depth. Target depth reached.								1.10		
	8 / 2											
	7											

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.4 AHD
COORDINATE: E:317224.2, N:6257111.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP5
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[^]	DENSITY.[^]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	9 / 0.40	FILL / Silty SAND: dark brown; fine to medium; trace rootlets, roots, gravel and cobble-sized sandstone fragments.		FILL					ES		0.20		
		FILL / Silty Sandy CLAY: orange-brown; trace ironstone gravel and cobble-sized sandstone fragments, possibly reworked natural soil. 0.70m: trace charcoal		FILL		ND	ND		ES		0.50 0.70		
	8 / 1.00	Silty Sandy CLAY: pale grey and orange mottled red ; trace angular to sub-angular ironstone gravel.		RS					ES		1 1.10		
									* ES		1.30 1.50		
	7 / 2	Test Pit discontinued at 1.70m depth. Target depth reached.									1.70		

NOTES: [#] Soil origin is "probable" unless otherwise stated. [^] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS: *Field Replicate BD3/20241014 sample taken from 1.5-1.7m

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.1 AHD
COORDINATE: E:317236.2, N:6257122.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP6
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	9	0.00	FILL / Clayey Silty SAND: brown and dark brown grading to yellow-brown with depth; fine to medium; trace gravel and rootlets.		FILL	ND	ND		ES		0.20		
		0.50	FILL / Sandy CLAY: red-orange; fine to medium sand; with cobble- and boulder-sized sandstone fragments and ironstone gravel.		FILL	ND	w=PL		ES		0.50 0.70		
	8	1									1		
		1.20	Silty Sandy CLAY: pale grey mottled red; fine to medium sand.		possibly RS				ES		1.30 1.50		
	7	2	Test Pit discontinued at 1.60m depth. Target depth reached.										

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.3 AHD
COORDINATE: E:317247.5, N:6257136.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP7
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	9	0.00	FILL / Silty SAND: dark brown and brown; fine to coarse; trace rootlets and building rubble (brick, timber, concrete, plastic fragments).		FILL		ND		ES		0.20		
		0.70	FILL / Sandy CLAY: yellow and red mottled grey; fine to coarse sand; trace ironstone and sandstone gravel, trace timber fragments.		FILL				ES		0.70 0.90		
	8	1				ND					1		
		1.30	Sandy CLAY: pale grey stained red; fine to coarse sand; with sandstone and ironstone gravel.		RS		w=PL		ES		1.30 1.50		
	7	2									2		
									ES		2.20 2.40		
			Test Pit discontinued at 2.40m depth. Target depth reached.										

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (600mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317263.5, N:6257142.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP8
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10		FILL / Silty SAND: brown and dark brown; with gravel, trace building rubble (brick, plastic, concrete and potential asbestos-containing material fragments).		FILL		M		ES		0.20		
									ES		0.50		
											0.70		
		1.00	FILL / Silty Sandy CLAY: grey brown and brown; with gravel, cobble and boulder-sized fragments of concrete, sandstone and igneous rock.								1		
	9		1.20m: geofabric with fine to coarse sand			ND			ES		1.10		
					FILL		ND				1.30		
			1.60m: dark brown-grey										
									ES		1.70		
		1.90	FILL / Silty SAND: dark brown to dark grey; trace building rubble (brick, concrete and plastic fragments).								1.90		
	2				FILL		M		ES		2.00		
											2.20		
	8	2.30	Silty Sandy CLAY: yellow-grey and grey-brown.		ALV		ND		ES		2.40		
			Test Pit discontinued at 2.60m depth. Target depth reached.								2.60		

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (600mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317247.8, N:6257164.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP9
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 2

CONDITIONS ENCOUNTERED								SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	10	FILL / Silty SAND: dark brown and brown; fine to medium; with clay and ironstone gravel, with cobble and boulder-sized fragments of sandstone, trace building rubble (brick and PVC pipe).		FILL				ES		0.20		
	0.20	FILL / Silty Sandy CLAY: brown; trace sandstone gravel and building rubble (brick and timber fragments).						ES		0.50		
										0.70		
				FILL				ES		0.90		
	1									1		
	9									1.10		
	1.60	FILL / Clayey Sandy SILT: dark brown ; low plasticity; fine sand; trace sandstone gravel and building rubble (timber and brick fragments).						ES		1.50		
										1.60		
								ES		1.80		
	2									2.00		
	8			FILL								
								ES		2.80		

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317247.8, N:6257164.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP9
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 2 of 2

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	3.00	Silty Sandy CLAY: grey-brown and yellow-brown.		ALV				ES		3.20 3.40		
		Test Pit discontinued at 3.70m depth. Target depth reached.										

NOTES: [#]Soil origin is "probable" unless otherwise stated. [*]Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 11.0 AHD
COORDINATE: E:317264.0, N:6257166.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP10
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		FILL / Silty SAND: brown and dark brown; trace rootlets and igneous gravel.		FILL				ES		0.20		
	0.50	FILL / Clayey Silty SAND: brown; with sandstone gravel and building rubble (brick, concrete, plastic and timber fragments), trace rootlets .						ES		0.60 0.80		
	10 1	1.00m-1.20m: boulder-sized fragment of asphalt (possible buried pavement surface)		FILL	ND	D to M		ES		1 1.30		
	1.90	FILL / Silty CLAY: dark grey and grey-brown; with boulder-sized sandstone fragments, trace rootlets, timber, gravel, and inclusions of orange-brown clay.		FILL		w=PL possibly		ES		1.50 2.00		
	9 2	2.30m: metal rod(large)								2.20		
		Test Pit discontinued at 2.40m depth. Refusal on boulder-sized fragment .										

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.5 AHD
COORDINATE: E:317276.6, N:6257108.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP11
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10	FILL / Clayey Silty SAND: dark brown and brown; trace rootlets.		FILL				ES		0.20		
	0.40	Silty Sandy CLAY: yellow-brown and orange-brown; trace gravel.		possibly ALV	ND	ND		ES		0.50 0.70		
	1.00	Silty CLAY: pale grey mottled red and yellow; with ironstone and sandstone gravel, with cobble-sized sandstone fragments.		RS				ES		1 1.10		
	9	Test Pit discontinued at 1.30m depth. Refusal on inferred bedrock.								1.30		
	2											
	8											

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317290.0, N:6257115.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP12
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10	FILL / Silty SAND: brown ; trace sandstone gravel, rootlets and building rubble (brick and potential asbestos-containing material fragments).		FILL		M		ES		0.20		
	0.50	FILL / Silty Sandy CLAY: yellow-brown; with gravel-, cobble- and boulder-sized sandstone fragments, trace ironstone gravel.		FILL	ND			ES		0.50 0.70		
	1.00 / 9	Silty CLAY: pale grey mottled red and orange-brown.		probably RS		w=PL		ES		1 1.10 1.30		
	8 / 2	Test Pit discontinued at 1.40m depth. Refusal on inferred bedrock.										

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.9 AHD
COORDINATE: E:317298.7, N:6257101.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP13
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	0.40	FILL / Silty SAND: brown and dark brown; fine to medium; trace rootlets, trace sandstone and ironstone gravel.		FILL	ND	D to M		ES		0.20		
		FILL / Silty Sandy CLAY: yellow-brown and red-brown; fine to coarse sand; with cobble-sized sandstone fragments, trace ironstone and sandstone gravel, trace rootlets. 0.80m: ceramic pipe		FILL		w=PL		ES		0.50 0.70		
	10 / 1	Test Pit discontinued at 1.00m depth. Refusal on inferred bedrock.										
	9 / 2											
	8											

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.1 AHD
COORDINATE: E:317301.9, N:6257120.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP14
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10 / 0	FILL / Silty SAND: brown and dark brown; trace rootlets, ironstone gravel and building rubble (brick fragments).		FILL				* ES		0.20		
	0.40	FILL / Silty Sandy CLAY: yellow-brown; with cobble-sized sandstone fragments, trace ironstone and sandstone gravel.		FILL	ND	ND		ES		0.50 0.70		
	9 / 1.00	Silty Sandy CLAY: pale grey mottled red and orange-brown.		possibly RS				ES		1 1.10 1.30		
	8 / 2	Test Pit discontinued at 1.50m depth. Refusal on inferred bedrock.										

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 11.1 AHD
COORDINATE: E:317328.3, N:6257102.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP15
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	11		FILL / Silty SAND: brown and dark brown; fine to medium; trace rootlets, ironstone and sandstone gravel.		FILL		M		ES		0.20		
		0.40	FILL / Silty Sandy CLAY: yellow-brown; with cobble-sized sandstone fragments, trace ironstone and sandstone gravel.		FILL	ND	ND		ES		0.50		
											0.70		
		1									1		
	10	1.10	Sandy CLAY: pale grey ; fine to coarse sand.		probably RS possibly FILL								
			1.40m: with boulder-sized sandstone fragments						ES		1.20		
											1.40		
	9	2	Test Pit discontinued at 1.60m depth. Refusal on inferred bedrock .										

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.0 AHD
COORDINATE: E:317330.5, N:6257123.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP16
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10	0.00	FILL / Silty SAND: dark brown; trace ironstone and sandstone gravel.		FILL				ES		0.20		
			0.30m: clay band, fine to medium										
		0.40	FILL / Silty Sandy CLAY: yellow-brown; fine to coarse sand.		FILL	ND	M		ES		0.50		
											0.70		
		0.90	Silty CLAY: pale grey and orange mottled red; with boulder-sized sandstone fragments and ironstone gravel.		probably RS				ES		1.00		
	9	1									1.20		
			Test Pit discontinued at 1.40m depth. Refusal on inferred bedrock.										
	8	2											

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 11.3 AHD
COORDINATE: E:317362.1, N:6257094.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP17
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	11 / 0	FILL / Silty SAND: brown and dark brown; fine to medium; trace rootlets, ironstone and sandstone gravel. 0.30m-0.40m: asphalt layer		FILL				ES		0.20		
	0.40	FILL / Silty Sandy CLAY: yellow-brown; fine to coarse sand; with cobble-sized sandstone fragments, trace ironstone and sandstone gravel.		FILL	ND	M		ES		0.50 0.70		
	1 / 1.10	Silty Sandy CLAY: pale orange-grey mottled red; fine to coarse sand.		probably RS				ES		1 1.20 1.40		
	10 / 2	Test Pit discontinued at 1.50m depth. Refusal on inferred bedrock.										
	9											

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.1 AHD
COORDINATE: E:317351.5, N:6257122.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP18
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10 / 0	FILL / Silty SAND; fine to medium; trace rootlets and gravel.		FILL		M		* ES		0.20		
	0.60	FILL / Silty Sandy CLAY: yellow-brown and red; trace ironstone and sandstone gravel.		FILL	ND			ES		0.70		
	9 / 1					w=PL				0.90 / 1		
	1.10	Silty CLAY: pale grey mottled yellow and red; with cobble- and boulder-sized sandstone fragments and ironstone gravel.		RS				ES		1.20		
	8 / 2	Test Pit discontinued at 1.40m depth. Refusal at inferred bedrock .								1.40		

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS: *Field Replicate BD6/20241015 sample taken from 0-0.2m

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.2 AHD
COORDINATE: E:317368.2, N:6257111.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP19
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	10 / 0	FILL / Silty SAND: brown ; trace rootlets and ironstone gravel.		FILL	ND	M		ES		0.20		
	0.50	Sandy CLAY: brown; medium plasticity.		RS		w=PL		B		0.50		
		Test Pit discontinued at 0.70m depth. Terminated.								0.70		
	9 / 1											
	8 / 2											

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.1 AHD
COORDINATE: E:317372.4, N:6257120.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP20
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10		FILL / Silty SAND: brown and dark brown; fine to medium; trace rootlets and ironstone gravel.		FILL		M		ES		0.20		
		0.30	FILL / Silty Sandy CLAY: yellow-brown; fine to coarse sand; trace rootlets.		FILL	ND	w=PL		ES		0.50 0.70		
	9	0.80 1	Silty Sandy CLAY: grey and orange ; fine to coarse sand; with cobble- and boulder-sized sandstone fragments, trace sandstone and ironstone gravel.		RS		w=PL		ES		0.90 1 1.10		
			Test Pit discontinued at 1.10m depth. Refusal on inferred bedrock.										
	8	2											

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

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TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 9.4 AHD
COORDINATE: E:317189.9, N:6257094.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP21
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	9	FILL / Silty CLAY: dark brown; low to medium plasticity; with rootlets, with boulder-sized concrete fragment.		FILL	(VC)	w<PL		ES		0.20	DCP9/150	5 10 15
	0.70							ES		0.30		
	1	Silty CLAY: red-brown mottled grey ; high plasticity; with angular to sub angular, ironstone gravel.		RS	St to VSt	w=PL		B/ES		0.70		
										0.90		
								* ES		1		
										1.10		
	8	Test Pit discontinued at 1.30m depth. Target depth reached.								1.30		
	2											
	7											

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS: *Field Replicate BD2/20241014 sample taken from 1.1-1.3m

OPERATOR: A & A Hire Service
LOGGED: NW

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317255.5, N:6257149.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP22
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 1 of 2

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
14/10/24 NFGWO	10 / 0	FILL / Silty SAND: brown and dark brown; fine to medium; non-plastic silt; with boulder-sized sandstone fragment, trace building rubble (brick, PVC pipe, terracotta and concrete fragments), trace sandstone gravel, grass and rootlets.		FILL	(MC)	M		ES		0.20	DCP9/150	5 10 15
								B/ES		0.50		
										0.70		
	9 / 1									1		
		FILL / Clayey Silty SAND: dark brown and brown; with cobble- and boulder-sized sandstone fragments, trace sandstone gravel, trace building rubble (concrete, geofabric, rubber, tile, and plastic fragments).		FILL	ND	M		ES		1.70		
	1.60									1.90		
	8 / 2									2		
	2.50	Silty Sandy CLAY: yellow brown mottled dark grey; fine to medium sand; trace rootlets.		ALV		w=PL		ES		2.30		
										2.50		
								ES		2.70		
										2.90		

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (600mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: NW

Generated with CORE-GS by Geroc - Soil Log

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.3 AHD
COORDINATE: E:317255.5, N:6257149.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP22
PROJECT No: 227191.00
DATE: 14/10/24
SHEET: 2 of 2

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	7 / 4 / 6 / 5 / 5	[CONT] Silty Sandy CLAY: yellow brown mottled dark grey; fine to medium sand; trace rootlets. 3.10m: wet		ALV	ND	w=PL						
		Test Pit discontinued at 3.20m depth. Target depth reached.										

NOTES: [#]Soil origin is "probable" unless otherwise stated. [*]Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (600mm wide)
REMARKS:

OPERATOR: A & A Hire Service

LOGGED: NW

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

Douglas PARTNERS

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.2 AHD
COORDINATE: E:317317.2, N:6257112.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP23
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10 / 0	FILL / Silty SAND: brown and dark brown; fine to medium; trace rootlets and organic matter, trace ironstone and sandstone gravel.		FILL	(WC)	M		* ES		0.20	DCP9/150	5 10 15
	0.40	FILL / Sandy CLAY: yellow-brown; fine to coarse sand; with cobble-sized sandstone fragments, trace ironstone gravel.		FILL		w=PL		ES		0.50		Refusal 13/95mm
	0.90	Sandy CLAY: pale grey and orange mottled red; medium plasticity.		RS	ND	w=PL		B		0.90 1.00 1.10		
	9 / 1	Test Pit discontinued at 1.20m depth. Refusal at inferred bedrock.						ES		1.20		
	8 / 2											

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 6T excavator
METHOD: TB (300mm wide)
REMARKS:

OPERATOR: A & A Hire Service
LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

TEST PIT LOG

CLIENT: Western Sydney University
PROJECT: P1 Carpark Relocation
LOCATION: Parramatta South Campus, Parramatta NSW

SURFACE LEVEL: 10.2 AHD
COORDINATE: E:317379.0, N:6257104.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP24
PROJECT No: 227191.00
DATE: 15/10/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
15/10/24 NFGWO	10 / 0.20	FILL / Silty SAND: brown; trace rootlets and ironstone gravel.		FILL	(MC)	D		ES		0.20	DCP9/150	5 10 15 bouncing
		FILL / Silty CLAY: grey and pale grey; medium to high plasticity; trace ironstone and siltstone gravel.		FILL		w<PL		ES		0.40		
		Test Pit discontinued at 0.50m depth. Terminated on possible redundant buried service.								0.50		

NOTES: (#) Soil origin is "probable" unless otherwise stated. (*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand tools
METHOD: HAND
REMARKS:

OPERATOR: JC

LOGGED: JC

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Soil Log

Terminology, Symbols and Abbreviations

November 2023

Introduction to Terminology, Symbols and Abbreviations

Douglas Partners' reports, investigation logs, and other correspondence may use terminology which has quantitative or qualitative connotations. To remove ambiguity or uncertainty surrounding the use of such terms, the following sets of notes pages may be attached Douglas Partners' reports, depending on the work performed and conditions encountered:

- Soil Descriptions;
- Rock Descriptions; and
- Sampling, insitu testing, and drilling methodologies

In addition to these pages, the following notes generally apply to most documents.

Abbreviation Codes

Site conditions may also be presented in a number of different formats, such as investigation logs, field mapping, or as a written summary. In some of these formats textual or symbolic terminology may be presented using textual abbreviation codes or graphic symbols, and, where commonly used, these are listed alongside the terminology definition. For ease of identification in these note pages, textual codes are presented in these notes in the following style XW. Code usage conforms with the following guidelines:

- Textual codes are case insensitive, although herein they are generally presented in upper case; and
- Textual codes are contextual (i.e. the same or similar combinations of characters may be used in different contexts with different meanings (for example `PL` is used for plastic limit in the context of soil moisture condition, as well as in `PL(A)` for point load test result in the testing results column)).

Data Integrity Codes

Subsurface investigation data recorded by Douglas Partners is generally managed in a highly structured database environment, where records "span" between a top and bottom depth interval. Depth interval "gaps" between records are considered to introduce ambiguity, and, where appropriate, our practice guidelines may require contiguous data sets. Recording meaningful data is not always appropriate (for example assigning a "strength" to a concrete pavement) and the following codes may be used to maintain contiguity in such circumstances.

Term	Description	Abbreviation Code
Core loss	No core recovery	KL
Unknown	Information was not available to allow classification of the property. For example, when auguring in loose, saturated sand auger cuttings may not be returned.	UK
No data	Information required to allow classification of the property was not available. For example if drilling is commenced from the base of a hole predrilled by others	ND
Not Applicable	Derivation of the properties not appropriate or beyond the scope of the investigation. For example providing a description of the strength of a concrete pavement	NA

Graphic Symbols

Douglas Partners' logs contain a "graphic" column which provides a pictorial representation of the basic composition of the material. The symbols used are directly representing the material name stated in the adjacent "Description of Strata" column, and as such no specific graphic symbology legend has been provided in these notes.

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Soil Descriptions

Terminology
Symbols
Abbreviations

March 2024

Introduction

All materials which are not considered to be "in-situ rock" are described in general accordance with the soil description model of AS 1726-2017 Part 6.1.3, and can be broken down into the following description structure:



The "classification" comprises a two character "group symbol" providing a general summary of dominant soil characteristics. The "name" summarises the particle sizes within the soil which most influence its behaviour. The detailed description presents more information about composition, condition, structure, and origin of the soil.

Classification, naming and description of soils require the relative proportion of particles of different sizes within the whole soil mixture to be considered.

Particle size designation and Behaviour Model

Solid particles within a soil are differentiated on the basis of size.

The engineering behaviour properties of a soil can subsequently be modelled to be either "fine grained" (also known as "cohesive" behaviour) or "coarse grained" ("non cohesive" behaviour), depending on the relative proportion of fine or coarse fractions in the soil mixture.

Particle Size Designation	Particle Size (mm)	Behaviour Model	
		Behaviour	Approximate Dry Mass
Boulder	>200	Excluded from particle behaviour model as "oversize"	
Cobble	63 - 200		
Gravel[1]	2.36 - 63	Coarse	>65%
Sand[1]	0.075 - 2.36		
Silt	0.002 - 0.075	Fine	>35%
Clay	<0.002		

[1] – refer grain size subdivision descriptions below

The behaviour model boundaries defined above are not precise, and the material behaviour should be assumed from the name given to the material (which considers the particle fraction which dominates the behaviour, refer "component proportions" below), rather than strict observance of the proportions of particle sizes. For example, if a material is named a "Sandy CLAY", this is indicative that the material exhibits fine grained behaviour, even if the dry mass of coarse grained material may exceed 65%.

Component proportions

The relative proportion of the dry mass of each particle size fraction is assessed to be a "primary", "secondary", or "minor" component of the soil mixture, depending on its influence over the soil behaviour.

Component Proportion Designation	Definition[1]	Relative Proportion	
		In Fine Grained Soil	In Coarse Grained Soil
Primary	The component (particle size designation, refer above) which dominates the engineering behaviour of the soil	The clay/silt component with the greater proportion	The sand/gravel component with the greater proportion
Secondary	Any component which is not the primary, but is significant to the engineering properties of the soil	Any component with greater than 30% proportion	Any granular component with greater than 30%; or Any fine component with greater than 12%
Minor[2]	Present in the soil, but not significant to its engineering properties	All other components	All other components

[1] As defined in AS1726-2017 6.1.4.4

[2] In the detailed material description, minor components are split into two further sub-categories. Refer "identification of minor components" below.

Composite Materials

In certain situations, a lithology description may describe more than one material, for example, collectively describing a layer of interbedded sand and clay. In such a scenario, the two materials would be described independently, with the names preceded or followed by a statement describing the arrangement by which the materials co-exist. For example, "INTERBEDDED Silty CLAY AND SAND".

Soil Descriptions

Classification

The soil classification comprises a two character group symbol. The first character identifies the primary component. The second character identifies either the grading or presence of fines in a coarse grained soil, or the plasticity in a fine grained soil. Refer AS1726-2017 6.1.6 for further clarification.

Soil Name

For most soils, the name is derived with the primary component included as the noun (in upper case), preceded by any secondary components stated in an adjective form. In this way, the soil name also describes the general composition and indicates the dominant behaviour of the material.

Component [1]	Prominence in Soil Name
Primary	Noun (eg "CLAY")
Secondary	Adjective modifier (eg "Sandy")
Minor	No influence

[1] – for determination of component proportions, refer component proportions on previous page

For materials which cannot be disaggregated, or which are not comprised of rock or mineral fragments, the names "ORGANIC MATTER" or "ARTIFICIAL MATERIAL" may be used, in accordance with AS1726-2017 Table 14.

Commercial or colloquial names are not used for the soil name where a component derived name is possible (for example "Gravelly SAND" rather than "CRACKER DUST").

Materials of "fill" or "topsoil" origin are generally assigned a name derived from the primary/secondary component (where appropriate). In log descriptions this is preceded by uppercase "FILL" or "TOPSOIL". Origin uncertainty is indicated in the description by the characters (?), with the degree of uncertainty described (using the terms "probably" or "possibly" in the origin column, or at the end of the description).

Identification of minor components

Minor components are identified in the soil description immediately following the soil name. The minor component fraction is usually preceded with a term indicating the relative proportion of the component.

Minor Component Proportion Term	Relative Proportion	
	In Fine Grained Soil	In Coarse Grained Soil
With	All fractions: 15-30%	Clay/silt: 5-12% sand/gravel: 15-30%
Trace	All fractions: 0-15%	Clay/silt: 0-5% sand/gravel: 0-15%

The terms "with" and "trace" generally apply only to gravel or fine particle fractions. Where cobbles/boulders are encountered in minor proportions (generally less than about 12%) the term "occasional" may be used. This term describes the sporadic distribution of the material within the confines of the investigation excavation only, and there may be considerable variation in proportion over a wider area which is difficult to factually characterise due to the relative size of the particles and the investigation methods.

Soil Composition

Plasticity

Descriptive Term	Laboratory liquid limit range	
	Silt	Clay
Non-plastic materials	Not applicable	Not applicable
Low plasticity	≤50	≤35
Medium plasticity	Not applicable	>35 and ≤50
High plasticity	>50	>50

Note, Plasticity descriptions generally describe the plasticity behaviour of the whole of the fine grained soil, not individual fine grained fractions.

Grain Size

Type		Particle size (mm)
Gravel	Coarse	19 - 63
	Medium	6.7 - 19
	Fine	2.36 – 6.7
Sand	Coarse	0.6 - 2.36
	Medium	0.21 - 0.6
	Fine	0.075 - 0.21

Grading

Grading Term	Particle size (mm)
Well	A good representation of all particle sizes
Poorly	An excess or deficiency of particular sizes within the specified range
Uniformly	Essentially of one size
Gap	A deficiency of a particular size or size range within the total range

Note, AS1726-2017 provides terminology for additional attributes not listed here.

Soil Condition

Moisture

The moisture condition of soils is assessed relative to the plastic limit for fine grained soils, while for coarse grained soils it is assessed based on the appearance and feel of the material. The moisture condition of a material is considered to be independent of stratigraphy (although commonly these are related), and this data is presented in its own column on logs.

Applicability	Term	Tactile Assessment	Abbreviation code
Fine	Dry of plastic limit	Hard and friable or powdery	w<PL
	Near plastic limit	Can be moulded	w=PL
	Wet of plastic limit	Water residue remains on hands when handling	w>PL
	Near liquid limit	"oozes" when agitated	w=LL
	Wet of liquid limit	"oozes"	w>LL
Coarse	Dry	Non-cohesive and free running	D
	Moist	Feels cool, darkened in colour, particles may stick together	M
	Wet	Feels cool, darkened in colour, particles may stick together, free water forms when handling	W

The abbreviation code NDF, meaning "not-assessable due to drilling fluid use" may also be used.

Note, observations relating to free ground water or drilling fluids are provided independent of soil moisture condition.

Consistency/Density/Compaction/Cementation/Extremely Weathered Material

These concepts give an indication of how the material may respond to applied forces (when considered in conjunction with other attributes of the soil). This behaviour can vary independent of the composition of the material, and on logs these are described in an independent column and are generally mutually exclusive (i.e it is inappropriate to describe both consistency and compaction at the same time). The method by which the behaviour is described depends on the behaviour model and other characteristics of the soil as follows:

- In fine grained soils, the "consistency" describes the ease with which the soil can be remoulded, and is generally correlated against the materials undrained shear strength;
- In granular materials, the relative density describes how tightly packed the particles are, and is generally correlated against the density index;
- In anthropogenically modified materials, the compaction of the material is described qualitatively;
- In cemented soils (both natural and anthropogenic), the cemented "strength" is described qualitatively, relative to the difficulty with which the material is disaggregated; and
- In soils of extremely weathered material origin, the engineering behaviour may be governed by relic rock features, and expected behaviour needs to be assessed based the overall material description.

Quantitative engineering performance of these materials may be determined by laboratory testing or estimated by correlated field tests (for example penetration or shear vane testing). In some cases, performance may be assessed by tactile or other subjective methods, in which case investigation logs will show the estimated value enclosed in round brackets, for example (VS).

Consistency (fine grained soils)

Consistency Term	Tactile Assessment	Undrained Shear Strength (kPa)	Abbreviation Code
Very soft	Extrudes between fingers when squeezed	<12	VS
Soft	Mouldable with light finger pressure	>12 - ≤25	S
Firm	Mouldable with strong finger pressure	>25 - ≤50	F
Stiff	Cannot be moulded by fingers	>50 - ≤100	St
Very stiff	Indented by thumbnail	>100 - ≤200	VSt
Hard	Indented by thumbnail with difficulty	>200	H
Friable	Easily crumbled or broken into small pieces by hand	-	Fr

Relative Density (coarse grained soils)

Relative Density Term	Density Index	Abbreviation Code
Very loose	<15	VL
Loose	>15 - ≤35	L
Medium dense	>35 - ≤65	MD
Dense	>65 - ≤85	D
Very dense	>85	VD

Note, tactile assessment of relative density is difficult, and generally requires penetration testing, hence a tactile assessment guide is not provided

Compaction (anthropogenically modified soil)

Compaction Term	Abbreviation Code
Well compacted	WC
Poorly compacted	PC
Moderately compacted	MC
Variably compacted	VC

Cementation (natural and anthropogenic)

Cementation Term	Abbreviation Code
Moderately cemented	MOD
Weakly cemented	WEK

Extremely Weathered Material

AS1726-2017 considers weathered material to be soil if the unconfined compressive strength is less than 0.6 MPa (i.e. less than very low strength rock). These materials may be identified as "extremely weathered material" in reports and by the abbreviation code XWM on log sheets. This identification is not correlated to any specific qualitative or quantitative behaviour, and the engineering properties of this material must therefore be assessed according to engineering principles with reference to any relic rock structure, fabric, or texture described in the description.

Soil Origin

Term	Description	Abbreviation Code
Residual	Derived from in-situ weathering of the underlying rock	RS
Extremely weathered material	Formed from in-situ weathering of geological formations. Has strength of less than 'very low' as per as1726 but retains the structure or fabric of the parent rock.	XWM
Alluvial	Deposited by streams and rivers	ALV
Fluvial	Deposited by channel fill and overbank (natural levee, crevasse splay or flood basin)	FLV
Estuarine	Deposited in coastal estuaries	EST
Marine	Deposited in a marine environment	MAR
Lacustrine	Deposited in freshwater lakes	LAC
Aeolian	Carried and deposited by wind	AEO
Colluvial	Soil and rock debris transported down slopes by gravity	COL
Slopewash	Thin layers of soil and rock debris gradually and slowly deposited by gravity and possibly water	SW
Topsoil	Mantle of surface soil, often with high levels of organic material	TOP
Fill	Any material which has been moved by man	FILL
Littoral	Deposited on the lake or seashore	LIT
Unidentifiable	Not able to be identified	UID

Cobbles and Boulders

The presence of particles considered to be "oversize" may be described using one of the following strategies:

- Oversize encountered in a minor proportion (when considered relative to the wider area) are noted in the soil description; or
- Where a significant proportion of oversize is encountered, the cobbles/boulders are described independent of the soil description, in a similar manner to composite soils (described above) but qualified with "MIXTURE OF".

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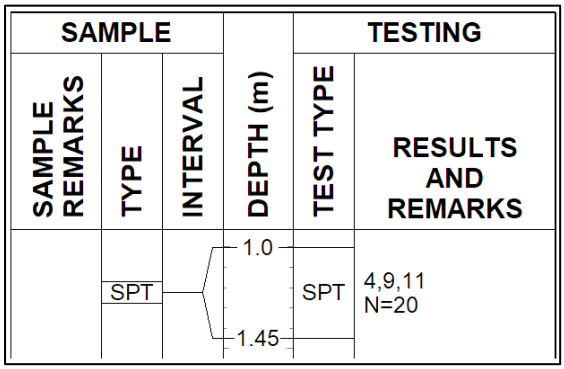
Sampling, Testing and Excavation Methodology

Terminology
Symbols
Abbreviations

March 2024

Sampling and Testing

A record of samples retained, and field testing performed is usually shown on a Douglas Partners' log with samples appearing to the left of a depth scale, and selected field and laboratory testing (including results, where relevant) appearing to the right of the scale, as illustrated below:



Sampling

The type or intended purpose for which a sample was taken is indicated by the following abbreviation codes.

Sample Type	Code
Auger sample	A
Acid Sulfate sample	ASS
Bulk sample	B
Core sample	C
Disturbed sample	D
Environmental sample	ES
Gas sample	G
Piston sample	P
Sample from SPT test	SPT
Undisturbed tube sample	U[1]
Water sample	W
Material Sample	MT
Core sample for unconfined compressive strength testing	UCS

[1] – numeric suffixes indicate tube diameter/width in mm

The above codes only indicate that a sample was retained, and not that testing was scheduled or performed.

Field and Laboratory Testing

A record that field and laboratory testing was performed is indicated by the following abbreviation codes.

Test Type	Code
Pocket penetrometer (kPa)	PP
Photo ionisation detector (ppm)	PID
Standard Penetration Test x/y =x blows for y mm penetration HB = hammer bouncing HW = fell under weight of hammer	SPT
Shear vane (kPa)	V
Unconfined compressive strength, (MPa)	UCS

Field and laboratory testing (continued)

Test Type	Code
Point load test, (MPa), axial (A), diametric (D), irregular (I)	PLT(_)
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150

Groundwater Observations

▷	seepage/inflow
▽	standing or observed water level
NFGWO	no free groundwater observed
OBS	observations obscured by drilling fluids

Drilling or Excavation Methods/Tools

The drilling/excavation methods used to perform the investigation may be shown either in a dedicated column down the left-hand edge of the log, or stated in the log footer. In some circumstances abbreviation codes may be used.

Method	Abbreviation Code
Direct Push	DP
Solid flight auger. Suffixes: /T = tungsten carbide tip, /V = v-shaped tip	AD[1]
Air Track	AT
Diatube	DT[1]
Hand auger	HA[1]
Hand tools (unspecified)	HAND
Existing exposure	X
Hollow flight auger	HSA[1]
HQ coring	HQ3
HMLC series coring	HMLC
NMLC series coring	NMLC
NQ coring	NQ3
PQ coring	PQ3
Predrilled	PD
Push tube	PT[1]
Ripping tyne/ripper	R
Rock roller	RR[1]
Rock breaker/hydraulic hammer	EH
Sonic drilling	SON[1]
Mud/blade bucket	MB[1]
Toothed bucket	TB[1]
Vibrocore	VC[1]
Vacuum excavation	VE
Wash bore (unspecified bit type)	WB[1]

[1] – numeric suffixes indicate tool diameter/width in mm

Douglas PARTNERS

Appendix G

Summary Results

Table G1. Summary soil results

			Priority metals								Priority PAH				TRH >C10-C16				
			Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene [b]	Benzo(a)pyrene (B(a)P)	Benzo(a)pyrene TEQ (B(a)P TEQ)	Total PAH	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)
		PQL	4	0.4	1	1	1	0.1	1	1	1	0.05	0.5	0.05	50	25	50	100	100
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP1	0 - 0.2 m	14/10/24	6	<0.4	19	13	340	0.5	7	130	<1	1.1	1.6	15	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP1	0.5 - 0.7 m	14/10/24	10	<0.4	23	6	73	<0.1	4	27	<1	0.2	<0.5	1.7	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP1	1.5 - 1.7 m	14/10/24	5	<0.4	10	4	12	<0.1	5	11	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
BD1/20241014	1.5 - 1.7 m	15/10/24	6	<0.4	16	5	11	<0.1	7	12	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP2	0 - 0.2 m	14/10/24	7	<0.4	14	13	58	<0.1	5	29	<1	0.57	0.8	7.2	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP3	0 - 0.2 m	14/10/24	5	<0.4	13	19	97	0.1	7	46	<1	3.6	5.3	47	<50	<25	<50	260	100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP3	0.4 - 0.6 m	14/10/24	7	<0.4	18	8	49	<0.1	3	29	<1	1.1	1.6	12	<50	<25	<50	200	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP4	0 - 0.2 m	14/10/24	<4	<0.4	5	20	24	<0.1	3	84	<1	0.07	<0.5	0.07	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP5	0 - 0.2 m	14/10/24	6	<0.4	15	23	36	0.1	10	60	<1	0.2	<0.5	1.6	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP5	0.5 - 0.7 m	14/10/24	17	<0.4	34	4	21	<0.1	2	4	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP5	1.5 - 1.7 m	14/10/24	6	<0.4	8	3	8	<0.1	<1	2	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
TP6	0 - 0.2 m	14/10/24	5	<0.4	15	15	70	<0.1	4	46	<1	0.6	0.8	6.6	<50	<25	<50	110	140
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP6	0.5 - 0.7 m	14/10/24	5	<0.4	12	2	13	<0.1	2	5	<1	0.06	<0.5	0.2	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP7	0 - 0.2 m	14/10/24	5	<0.4	12	17	32	<0.1	5	57	<1	0.65	0.8	6	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP7	0.7 - 9 m	14/10/24	11	<0.4	26	2	15	<0.1	4	7	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP8	0.5 - 0.7 m	15/10/24	7	<0.4	12	41	220	0.4	6	270	<1	0.55	0.7	5.8	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP8	1.1 - 1.3 m	15/10/24	8	0.5	67	99	670	0.8	11	400	<1	1.6	2.3	17	<50	<25	<50	160	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
TP8	2 - 2.2 m	15/10/24	7	<0.4	20	10	57	<0.1	3	34	<1	0.2	<0.5	1.5	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	NL 215	NL -	- 2,500	- 6,600
TP9	0 - 0.2 m	14/10/24	11	<0.4	31	16	45	0.2	12	43	<1	0.2	<0.5	2.2	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP9	0.5 - 0.7 m	14/10/24	9	<0.4	21	17	53	0.1	9	47	<1	0.5	0.6	4.5	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP9	0.9 - 1.1 m	14/10/24	<4	<0.4	8	17	44	<0.1	5	37	<1	0.55	0.7	7.7	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP9	1.8 - 2 m	14/10/24	<4	<0.4	6	7	25	<0.1	2	26	<1	2.7	4.8	45	<50	<25	<50	300	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
TP10	0 - 0.2 m	15/10/24	<4	<0.4	12	15	40	0.2	7	56	<1	0.08	<0.5	0.3	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP10	1.3 - 1.5 m	15/10/24	7	<0.4	14	14	44	<0.1	8	60	<1	1	1.4	15	<50	<25	<50	170	<100

Table G1. Summary soil results

			Priority metals								Priority PAH				TRH >C10-C16				
			Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene [b]	Benzo(a)pyrene (B(a)P)	Benzo(a)pyrene TEQ (B(a)P TEQ)	Total PAH	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)
		PQL	4	0.4	1	1	1	0.1	1	1	1	0.05	0.5	0.05	50	25	50	100	100
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
TP10	2 - 2.2 m	15/10/24	9	<0.4	17	11	42	<0.1	9	63	<1	1.1	1.6	15	<50	<25	<50	120	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	NL 215	NL -	- 2,500	- 6,600
TP11	0 - 0.2 m	15/10/24	<4	<0.4	7	12	64	0.2	5	33	<1	0.2	<0.5	1.6	<50	<25	<50	<100	150
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP12	0 - 0.2 m	15/10/24	7	<0.4	16	5	25	<0.1	3	11	<1	0.1	<0.5	1.4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP12	0.5 - 0.7 m	15/10/24	14	<0.4	30	1	11	<0.1	2	3	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP13	0 - 0.2 m	15/10/24	12	<0.4	19	13	98	0.2	7	130	<1	0.61	0.8	7.8	<50	<25	<50	110	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP13	0.5 - 0.7 m	15/10/24	11	<0.4	30	<1	19	<0.1	2	4	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP14	0 - 0.2 m	15/10/24	11	<0.4	24	11	17	<0.1	2	10	<1	0.3	<0.5	6.3	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
BD5/20241015	0 - 0.2 m	14/10/24	7	<0.4	20	<1	12	<0.1	1	3	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP15	0 - 0.2 m	15/10/24	4	<0.4	12	4	19	<0.1	4	15	<1	0.07	<0.5	0.4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP16	0 - 0.2 m	15/10/24	<4	<0.4	17	12	58	0.1	6	48	<1	0.5	0.7	6.4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP16	0.5 - 0.7 m	15/10/24	9	<0.4	23	<1	11	<0.1	3	4	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP17	0.5 - 0.7 m	15/10/24	9	<0.4	14	<1	15	<0.1	<1	3	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP17	0 - 0.2 m	15/10/24	6	<0.4	19	5	31	<0.1	3	18	<1	0.4	<0.5	4.6	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP18	0.7 - 0.9 m	15/10/24	11	<0.4	21	<1	11	<0.1	<1	1	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP18	0 - 0.2 m	15/10/24	7	<0.4	16	8	45	<0.1	3	74	<1	0.09	<0.5	0.7	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
BD6/20241015	0 - 0.2 m	15/10/24	4	<0.4	12	5	27	<0.1	3	17	<1	0.56	0.7	7.5	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP19	0 - 0.2 m	15/10/24	6	<0.4	17	12	100	0.1	4	43	<1	0.3	<0.5	3.4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP20	0.5 - 0.7 m	15/10/24	9	<0.4	18	<1	11	<0.1	1	2	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP20	0 - 0.2 m	15/10/24	7	<0.4	27	11	120	0.1	3	41	<1	0.5	0.6	4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP21	1.1 - 1.3 m	14/10/02	15	<0.4	24	8	19	<0.1	1	5	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	480 215	NL -	- 2,500	- 6,600
BD2/20241014	1.1 - 1.3 m	14/10/24	15	<0.4	22	8	16	<0.1	1	7	<1	<0.05	<0.5	<0.05	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP22	0.5 - 0.7 m	14/10/24	11	<0.4	25	130	310	0.4	11	230	<1	1.2	1.8	13	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP22	2.3 - 2.5 m	14/10/24	8	0.5	17	26	110	0.2	8	130	<1	0.2	<0.5	2.4	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	NL 215	NL -	- 2,500	- 6,600

Table G1. Summary soil results

			Priority metals								Priority PAH				TRH >C10-C16				
			Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene [b]	Benzo(a)pyrene (B(a)P)	Benzo(a)pyrene TEQ (B(a)P TEQ)	Total PAH	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)
		PQL	4	0.4	1	1	1	0.1	1	1	1	0.05	0.5	0.05	50	25	50	100	100
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP23	0 - 0.2 m	14/10/24	6	<0.4	32	6	56	<0.1	3	29	<1	0.1	<0.5	1.6	<50	<25	<50	<100	<100
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP24	0 - 0.2 m	15/10/24	8	<0.4	20	15	130	0.1	5	49	<1	0.5	0.6	5.2	<50	<25	<50	140	130
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	NL 370	- 1.4	40 -	4,000 -	- 170	310 215	NL -	- 2,500	- 6,600
TP13 - [TRIPLICATE]	0.5 - 0.7 m	15/10/24	10	<0.4	23	<1	20	<0.1	1	5	-	-	-	-	-	-	-	-	-
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	- -	- -	- -	- -	- -	- -	- -	- -	- -
TP23 - [TRIPLICATE]	0 - 0.2 m	14/10/24	<4	<0.4	11	7	48	<0.1	3	30	-	-	-	-	-	-	-	-	-
			3,000 160	900 -	3,600 680	240,000 190	1,500 1,800	730 -	6,000 90	400,000 540	- -	- -	- -	- -	- -	- -	- -	- -	- -

Lab result

HIL/HSL value EIL/ESL/EGV value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance **Red** = EGV-indirect exceedance HSL 0-<1 Exceedance

Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Not limiting NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level EGV = Environmental Guideline Value ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample

b Naphthalene reported as highest detection from the BTEXN or PAH suite, or if both results <PQL as lowest PQL

c EIL criteria applies to DDT only

Site Assessment Criteria (SAC):

SAC based on generic land use thresholds for Commercial/ industrial D

Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

HIL	HIL-D (NEPC, 2013 or HEPA, 2020 (PFAS only))	EGV	EGV, all land uses, direct exposure (HEPA, 2020)
HSL (vapour ir	HSL-D (NEPC, 2013)	ESL	Commercial and Industrial (NEPC, 2013)
DC	Direct contact HSL D Commercial/Industrial (CRC CARE, 2011)	ML	Commercial and Industrial (NEPC, 2013)

Table G1. Summary soil results

			BTEX				Priority phenols	Priority OCP	Priority OPP	PCB
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Total Phenolics	Total Positive OCP	Total Positive OPP	Total PCB
		PQL	0.2	0.5	1	1	5	0.1	0.1	0.1
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP1	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP1	0.5 - 0.7 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP1	1.5 - 1.7 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			6 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
BD1/20241014	1.5 - 1.7 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP2	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP3	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP3	0.4 - 0.6 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP4	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP5	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP5	0.5 - 0.7 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP5	1.5 - 1.7 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			6 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP6	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP6	0.5 - 0.7 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP7	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP7	0.7 - 9 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP8	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP8	1.1 - 1.3 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			6 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP8	2 - 2.2 m	15/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			9 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP9	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP9	0.5 - 0.7 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP9	0.9 - 1.1 m	14/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP9	1.8 - 2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			6 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP10	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP10	1.3 - 1.5 m	15/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1

Table G1. Summary soil results

			BTEX				Priority phenols	Priority OCP	Priority OPP	PCB
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Total Phenolics	Total Positive OCP	Total Positive OPP	Total PCB
		PQL	0.2	0.5	1	1	5	0.1	0.1	0.1
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			6 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP10	2 - 2.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			9 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP11	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP12	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP12	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP13	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP13	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	<5	<0.1	<0.1	<0.1
			4 95	NL 135	NL 185	NL 95	660 -	45 640	2,000 -	7 -
TP14	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
BD5/20241015	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP15	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP16	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP16	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP17	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP17	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP18	0.7 - 0.9 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP18	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
BD6/20241015	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP19	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP20	0.5 - 0.7 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP20	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP21	1.1 - 1.3 m	14/10/02	<0.2	<0.5	<1	<1	-	-	-	-
			6 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
BD2/20241014	1.1 - 1.3 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP22	0.5 - 0.7 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP22	2.3 - 2.5 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			9 95	NL 135	NL 185	NL 95	- -	- -	- -	- -

Table G1. Summary soil results

			BTEX				Priority phenols	Priority OCP	Priority OPP	PCB
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Total Phenolics	Total Positive OCP	Total Positive OPP	Total PCB
		PQL	0.2	0.5	1	1	5	0.1	0.1	0.1
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP23	0 - 0.2 m	14/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP24	0 - 0.2 m	15/10/24	<0.2	<0.5	<1	<1	-	-	-	-
			4 95	NL 135	NL 185	NL 95	- -	- -	- -	- -
TP13 - [TRIPLICATE]	0.5 - 0.7 m	15/10/24	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -
TP23 - [TRIPLICATE]	0 - 0.2 m	14/10/24	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -

Lab result

HIL/HSL value EIL/ESL/EGV value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance **Red** = EGV-indirect exceedance HSL 0-<1 Exceedance

Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Not limiting NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level EGV = Environmental Guideline Value ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample

b Naphthalene reported as highest detection from the BTEXN or PAH suite, or if both results <PQL as lowest PQL

c EIL criteria applies to DDT only

Site Assessment Criteria (SAC):

SAC based on generic land use thresholds for Commercial/ industrial D

Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

HIL	HIL-D (NEPC, 2013 or HEPA, 2020 (PFAS only))	EGV
HSL (vapour ir	HSL-D (NEPC, 2013)	ESL
DC	Direct contact HSL D Commercial/Industrial (CRC CARE, 2011)	ML

Table G2. Summary Asbestos Results

Asbestos Content in Fibre Cement Sheet	15	**%**	(assumed)

Health Screening Levels	0.05	**% w/w**	Bonded ACM (Commercial D)	**HSL D**
	0.001	**% w/w**	AF/FA	

Test Location	Sample Depth (m)	Date	Field Screening							Laboratory Analysis			
			Approximate Sample Volume (L)	Weight of Sample (g)	Number of Fragments	Condition of Fragments	Size Range of Fragments (mm)	Weight of Retained ACM (g)	Bonded ACM in Soil (% w/w)#	Asbestos ID	ACM >7mm Estimation (g)	FA and AF Estimation (g)	FA and AF Estimation (% w/w)
TP1	0-0.2	14/10/2024	10	16329	0	-	-	-	**< 0.00**	NAD	-	-	<0.001
TP1	0.5-0.7	14/10/2024	10	15922	0	-	-	-	**< 0.00**	NAD	-	-	<0.001
TP2	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP3	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP3	0.4-0.6	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP4	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP5	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP5	0.5-0.7	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP6	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP6	0.5-0.7	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP7	0-0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP7	0.7-0.9	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	-
TP8	0-0.2	15/10/2024	10	14681	0	-	-	-	**< 0.00**	-	-	-	-
TP8	0.5-0.7	15/10/2024	10	14872	0	-	-	-	**< 0.00**	**Detected**	-	0.0027	<0.001
PACM1 (TP8)	0.5	15/10/2024	-	-	-	-	-	-	-	**Detected**	48 **	-	-
TP8	1.1-1.3	15/10/2024	10	13990	0	-	-	-	**< 0.00**	**Detected**	-	0.0141	**0.0019**
TP8	1.7-1.9	15/10/2024	10	14381	0	-	-	-	**< 0.00**	-	-	-	-
TP9	0 - 0.2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP9	0.5 - 0.7	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP9	0.9 - 1.1	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP9	1.8 - 2	14/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP10	0 - 0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP10	1.3 - 1.5	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP10	2 - 2.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP11	0 - 0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP12	0 - 0.2	15/10/2024	10	15608	0	-	-	-	**< 0.00**	NAD	-	-	<0.001
PACM2 (TP12)	0.4	15/10/2024	-	-	-	-	-	-	**-**	**Detected**	120 **	-	-
TP12	0.5-0.7	15/10/2024	10	14943	0	-	-	-	**< 0.00**	NAD			
TP13	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP13	0.5-0.7	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP14	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP15	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP16	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP16	0.5-0.7	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	-
TP17	0.5-0.7	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	-
TP17	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001

Douglas PARTNERS

Table G2. Summary Asbestos Results

Asbestos Content in Fibre Cement Sheet	15	**%**	(assumed)

Health Screening Levels	0.05	**% w/w**	Bonded ACM (Commercial D)	**HSL D**
	0.001	**% w/w**	AF/FA	

Test Location	Sample Depth (m)	Date	Field Screening							Laboratory Analysis			
			Approximate Sample Volume (L)	Weight of Sample (g)	Number of Fragments	Condition of Fragments	Size Range of Fragments (mm)	Weight of Retained ACM (g)	Bonded ACM in Soil (% w/w)#	Asbestos ID	ACM >7mm Estimation (g)	FA and AF Estimation (g)	FA and AF Estimation (% w/w)
TP18	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP18	0.7-0.9	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP19	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP20	0-0.2	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP20	0.5-0.7	15/10/2024	-	-	-	-	-	-	**-**	NAD	-	-	<0.001
TP22	0-0.2	15/10/2024	10	15136	0	-	-	-	**< 0.00**	-	-	-	-
TP22	0.5-0.7	15/10/2024	10	14766	0	-	-	-	**< 0.00**	NAD	-	-	<0.001
TP22	1.7-1.9	15/10/2024	10	15980	0	-	-	-	**< 0.00**	-	-	-	-
TP22	2.3-2.5	15/10/2024	-	-	-	-	-	-	-	**Detected**	0.2736	0.0054	<0.001
TP23	0-0.2	14/10/2024	-	-	-	-	-	-	-	NAD	-	-	<0.001
TP24	0-0.2	15/10/2024	-	-	-	-	-	-	-	NAD	-	-	<0.001

NOTES:

NT	Not Tested (Some asbestos fragments were collected but not tested)
*	Table 7 of Schedule B(1) - National Environmental Protection (Assessment of Site Contamination) Measure 1999 as ammened 2013
**	Laboratory weighed material sample fragments

Table G3: Preliminary waste classification of soils

			Metals							TRH		BTEX				PAH			Phenols
Sample ID	Depth	Sample Date	Total Arsenic	Cadmium	Total Chromium	Lead	TCLP Lead	Mercury (inorganic)	Nickel	TRH C6 - C9	TRH C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes	Benzo(a)pyrene (B(a)P)	TCLP Benzo(a)pyrene (B(a)P)	Total PAH	Total Phenolics
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg
PQL			4	0.4	1	1	0.03	0.1	1	25	50	0.2	0.5	1	1	0.05	0.0001	0.05	5
CT1			100	20	100	100	-	4	40	-	10,000	10	288	600	1000	0.8	-	200	288
SCC1			500	100	1,900	1,500	-	50	1,050	-	10,000	18	518	1,080	1,800	10	-	200	518
TCLP1			-	-	-	-	5	-	-	-	-	-	-	-	-	-	0.04	-	-
CT2			400	80	400	400	-	16	160	-	40,000	40	1,152	2,400	4,000	3.2	-	800	1,152
SCC2			2,000	400	7,600	6,000	-	200	4,200	-	40,000	72	2,073	4,320	7,200	23	-	800	2,073
TCLP2			-	-	-	-	20	-	-	-	-	-	-	-	-	-	0.16	-	-
TP1	0 - 0.2 m	14/10/24	6	<0.4	19	340	0.1	0.5	7	<25	<50	<0.2	<0.5	<1	<1	1.1	-	15	-
TP1	0.5 - 0.7 m	14/10/24	10	<0.4	23	73	-	<0.1	4	<25	<50	<0.2	<0.5	<1	<1	0.2	-	1.7	<5
TP1	1.5 - 1.7 m	14/10/24	5	<0.4	10	12	-	<0.1	5	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
BD1/20241014	0 m	15/10/24	6	<0.4	16	11	-	<0.1	7	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP2	0 - 0.2 m	14/10/24	7	<0.4	14	58	-	<0.1	5	<25	<50	<0.2	<0.5	<1	<1	0.57	-	7.2	-
TP3	0 - 0.2 m	14/10/24	5	<0.4	13	97	-	0.1	7	<25	300	<0.2	<0.5	<1	<1	3.6	<0.0001	47	<5
TP3	0.4 - 0.6 m	14/10/24	7	<0.4	18	49	-	<0.1	3	<25	240	<0.2	<0.5	<1	<1	1.1	-	12	-
TP4	0 - 0.2 m	14/10/24	<4	<0.4	5	24	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.07	-	0.07	-
TP5	0 - 0.2 m	14/10/24	6	<0.4	15	36	-	0.1	10	<25	<50	<0.2	<0.5	<1	<1	0.2	-	1.6	-
TP5	0.5 - 0.7 m	14/10/24	17	<0.4	34	21	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	<5
TP5	1.5 - 1.7 m	14/10/24	6	<0.4	8	8	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP6	0 - 0.2 m	14/10/24	5	<0.4	15	70	-	<0.1	4	<25	150	<0.2	<0.5	<1	<1	0.6	-	6.6	-
TP6	0.5 - 0.7 m	14/10/24	5	<0.4	12	13	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	0.06	-	0.2	<5
TP7	0 - 0.2 m	14/10/24	5	<0.4	12	32	-	<0.1	5	<25	<50	<0.2	<0.5	<1	<1	0.65	-	6	-
TP7	0.7 - 9 m	14/10/24	11	<0.4	26	15	-	<0.1	4	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP8	0.5 - 0.7 m	15/10/24	7	<0.4	12	220	-	0.4	6	<25	<50	<0.2	<0.5	<1	<1	0.55	-	5.8	<5
TP8	1.1 - 1.3 m	15/10/24	8	0.5	67	670	0.63	0.8	11	<25	110	<0.2	<0.5	<1	<1	1.6	<0.0001	17	-
TP8	2 - 2.2 m	15/10/24	7	<0.4	20	57	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.2	-	1.5	<5
PACM1(TP8)	0.5	15/10/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP9	0 - 0.2 m	14/10/24	11	<0.4	31	45	-	0.2	12	<25	<50	<0.2	<0.5	<1	<1	0.2	-	2.2	-
TP9	0.5 - 0.7 m	14/10/24	9	<0.4	21	53	-	0.1	9	<25	<50	<0.2	<0.5	<1	<1	0.5	-	4.5	<5
TP9	0.9 - 1.1 m	14/10/24	<4	<0.4	8	44	-	<0.1	5	<25	<50	<0.2	<0.5	<1	<1	0.55	-	7.7	<5
TP9	1.8 - 2 m	14/10/24	<4	<0.4	6	25	-	<0.1	2	<25	330	<0.2	<0.5	<1	<1	2.7	<0.0001	45	-
TP10	0 - 0.2 m	15/10/24	<4	<0.4	12	40	-	0.2	7	<25	<50	<0.2	<0.5	<1	<1	0.08	-	0.3	-
TP10	1.3 - 1.5 m	15/10/24	7	<0.4	14	44	-	<0.1	8	<25	110	<0.2	<0.5	<1	<1	1	-	15	<5
TP10	2 - 2.2 m	15/10/24	9	<0.4	17	42	-	<0.1	9	<25	<50	<0.2	<0.5	<1	<1	1.1	-	15	-
TP11	0 - 0.2 m	15/10/24	<4	<0.4	7	64	-	0.2	5	<25	140	<0.2	<0.5	<1	<1	0.2	-	1.6	-
TP12	0 - 0.2 m	15/10/24	7	<0.4	16	25	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.1	-	1.4	-
PACM2(TP12)	0.4	15/10/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Douglas PARTNERS

Table G3: Preliminary waste classification of soils

			Metals							TRH		BTEX				PAH			Phenols
Sample ID	Depth	Sample Date	Total Arsenic	Cadmium	Total Chromium	Lead	TCLP Lead	Mercury (inorganic)	Nickel	TRH C6 - C9	TRH C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes	Benzo(a)pyrene (B(a)P)	TCLP Benzo(a)pyrene (B(a)P)	Total PAH	Total Phenolics
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg
PQL			4	0.4	1	1	0.03	0.1	1	25	50	0.2	0.5	1	1	0.05	0.0001	0.05	5
CT1			100	20	100	100	-	4	40	-	10,000	10	288	600	1000	0.8	-	200	288
SCC1			500	100	1,900	1,500	-	50	1,050	-	10,000	18	518	1,080	1,800	10	-	200	518
TCLP1			-	-	-	-	5	-	-	-	-	-	-	-	-	-	0.04	-	-
CT2			400	80	400	400	-	16	160	-	40,000	40	1,152	2,400	4,000	3.2	-	800	1,152
SCC2			2,000	400	7,600	6,000	-	200	4,200	-	40,000	72	2,073	4,320	7,200	23	-	800	2,073
TCLP2			-	-	-	-	20	-	-	-	-	-	-	-	-	-	0.16	-	-
TP12	0.5 - 0.7 m	15/10/24	14	<0.4	30	11	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP13	0 - 0.2 m	15/10/24	12	<0.4	19	98	-	0.2	7	<25	<50	<0.2	<0.5	<1	<1	0.61	-	7.8	-
TP13	0.5 - 0.7 m	15/10/24	11	<0.4	30	19	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	<5
TP14	0 - 0.2 m	15/10/24	11	<0.4	24	17	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	0.3	-	6.3	-
BD5/20241015	0 m	14/10/24	7	<0.4	20	12	-	<0.1	1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP15	0 - 0.2 m	15/10/24	4	<0.4	12	19	-	<0.1	4	<25	<50	<0.2	<0.5	<1	<1	0.07	-	0.4	-
TP16	0 - 0.2 m	15/10/24	<4	<0.4	17	58	-	0.1	6	<25	<50	<0.2	<0.5	<1	<1	0.5	-	6.4	-
TP16	0.5 - 0.7 m	15/10/24	9	<0.4	23	11	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP17	0.5 - 0.7 m	15/10/24	9	<0.4	14	15	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP17	0 - 0.2 m	15/10/24	6	<0.4	19	31	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.4	-	4.6	-
TP18	0.7 - 0.9 m	15/10/24	11	<0.4	21	11	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP18	0 - 0.2 m	15/10/24	7	<0.4	16	45	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.09	-	0.7	-
BD6/20241015	0 m	15/10/24	4	<0.4	12	27	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.56	-	7.5	-
TP19	0 - 0.2 m	15/10/24	6	<0.4	17	100	-	0.1	4	<25	<50	<0.2	<0.5	<1	<1	0.3	-	3.4	-
TP20	0.5 - 0.7 m	15/10/24	9	<0.4	18	11	-	<0.1	1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP20	0 - 0.2 m	15/10/24	7	<0.4	27	120	-	0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.5	-	4	-
TP21	1.1 - 1.3 m	14/10/02	15	<0.4	24	19	-	<0.1	1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
BD2/20241014	0 m	14/10/24	15	<0.4	22	16	-	<0.1	1	<25	<50	<0.2	<0.5	<1	<1	<0.05	-	<0.05	-
TP22	0.5 - 0.7 m	14/10/24	11	<0.4	25	310	0.37	0.4	11	<25	<50	<0.2	<0.5	<1	<1	1.2	-	13	-
TP22	2.3 - 2.5 m	14/10/24	8	0.5	17	110	-	0.2	8	<25	<50	<0.2	<0.5	<1	<1	0.2	-	2.4	-
TP23	0 - 0.2 m	14/10/24	6	<0.4	32	56	-	<0.1	3	<25	<50	<0.2	<0.5	<1	<1	0.1	-	1.6	-
TP24	0 - 0.2 m	15/10/24	8	<0.4	20	130	0.05	0.1	5	<25	250	<0.2	<0.5	<1	<1	0.5	-	5.2	-
TP13 - [TRIPLICATE]	0.5 - 0.7 m	15/10/24	10	<0.4	23	20	-	<0.1	1	-	-	-	-	-	-	-	-	-	-
TP23 - [TRIPLICATE]	0 - 0.2 m	14/10/24	<4	<0.4	11	48	-	<0.1	3	-	-	-	-	-	-	-	-	-	-

CT1 exceedance TCLP1 and/or SCC1 exceedance CT2 exceedance TCLP2 and/or SCC2 exceedance Asbestos detection

- = Not tested, no criteria or not applicable NAD = no asbestos detected

Notes:

a	QA/QC replicate of sample listed directly below the primary sample
b	Total chromium used as initial screen for chromium(VI).
c	TRH used as an initial screen for total petroleum hydrocarbons
d	Criteria for scheduled chemicals used as an initial screen
e	Criteria for Chlorpyrifos used as initial screen
f	NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste
PQL	Practical quantitation limit

CT1	Maximum values of specific contaminant concentration (SCC) for classification without TCLP: General solid waste
SCC1	Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
TCLP1	Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
CT2	Maximum values of specific contaminant concentration (SCC) for classification without TCLP: Restricted solid waste
SCC2	Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: Restricted solid waste
TCLP2	Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: Restricted solid waste

Table G3: Preliminary waste classification of soils

			OCP	OPP	PCB	Asbestos			
Sample ID	Depth	Sample Date	Total Analysed OCP	Total Analysed OPP	Total PCB	Asbestos Identification	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation
Units			mg/kg	mg/kg	mg/kg	-	g	g	%(w/w)
PQL			0.1	0.1	0.1				0.001
CT1			-	4	<50	-	-	-	-
SCC1			-	7.5	<50	-	-	-	-
TCLP1			-	-	-	-	-	-	-
CT2			-	16	<50	-	-	-	-
SCC2			-	30	<50	-	-	-	-
TCLP2			-	-	-	-	-	-	-
TP1	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP1	0.5 - 0.7 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP1	1.5 - 1.7 m	14/10/24	-	-	-	-	-	-	-
BD1/20241014	0 m	15/10/24	-	-	-	-	-	-	-
TP2	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP3	0 - 0.2 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP3	0.4 - 0.6 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP4	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP5	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP5	0.5 - 0.7 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP5	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP5	0.5 - 0.7 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP5	1.5 - 1.7 m	14/10/24	-	-	-	-	-	-	-
TP6	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP6	0.5 - 0.7 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP7	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP7	0.7 - 9 m	14/10/24	-	-	-	NAD	-	-	-
TP8	0.5 - 0.7 m	15/10/24	<0.1	<0.1	<0.1	Detected	–	0.0027	<0.001
TP8	1.1 - 1.3 m	15/10/24	-	-	-	Detected	–	0.0141	0.0019
TP8	2 - 2.2 m	15/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
PACM1(TP8)	0.5	15/10/24	-	-	-	Detected	-	-	-
TP9	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP9	0.5 - 0.7 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP9	0.9 - 1.1 m	14/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP9	1.8 - 2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP10	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP10	1.3 - 1.5 m	15/10/24	<0.1	0.1	<0.1	NAD	–	–	<0.001
TP10	2 - 2.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP11	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP12	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
PACM2(TP12)	0.4	15/10/24	-	-	-	Detected	-	-	-

Table G3: Preliminary waste classification of soils

			OCP	OPP	PCB	Asbestos			
Sample ID	Depth	Sample Date	Total Analysed OCP	Total Analysed OPP	Total PCB	Asbestos Identification	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation
Units			mg/kg	mg/kg	mg/kg	-	g	g	%(w/w)
PQL			0.1	0.1	0.1				0.001
CT1			-	4	<50	-	-	-	-
SCC1			-	7.5	<50	-	-	-	-
TCLP1			-	-	-	-	-	-	-
CT2			-	16	<50	-	-	-	-
SCC2			-	30	<50	-	-	-	-
TCLP2			-	-	-	-	-	-	-
TP12	0.5 - 0.7 m	15/10/24	-	-	-	NAD	-	-	-
TP13	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP13	0.5 - 0.7 m	15/10/24	<0.1	<0.1	<0.1	NAD	–	–	<0.001
TP14	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
BD5/20241015	0 m	14/10/24	-	-	-	-	-	-	-
TP15	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP16	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP16	0.5 - 0.7 m	15/10/24	-	-	-	NAD	-	-	-
TP17	0.5 - 0.7 m	15/10/24	-	-	-	NAD	-	-	-
TP17	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP17	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP18	0.7 - 0.9 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP18	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
BD6/20241015	0 m	15/10/24	-	-	-	-	-	-	-
TP19	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP20	0.5 - 0.7 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP20	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP21	1.1 - 1.3 m	14/10/02	-	-	-	-	-	-	-
BD2/20241014	0 m	14/10/24	-	-	-	-	-	-	-
TP22	0.5 - 0.7 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP22	2.3 - 2.5 m	14/10/24	-	-	-	Detected	0.2736	0.0054	<0.001
TP23	0 - 0.2 m	14/10/24	-	-	-	NAD	–	–	<0.001
TP24	0 - 0.2 m	15/10/24	-	-	-	NAD	–	–	<0.001
TP13 - [TRIPLICATE]	0.5 - 0.7 m	15/10/24	-	-	-	-	-	-	-
TP23 - [TRIPLICATE]	0 - 0.2 m	14/10/24	-	-	-	-	-	-	-

CT1 exceedance TCLP1 and/or SCC1 exceedance CT2 exceedance TCLP2 and/or SCC2 exceedance Asbestos detection

- = Not tested, no criteria or not applicable NAD = no asbestos detected

Notes:

a	QA/QC replicate of sample listed directly below the primary sample
b	Total chromium used as initial screen for chromium(VI).
c	TRH used as an initial screen for total petroleum hydrocarbons
d	Criteria for scheduled chemicals used as an initial screen
e	Criteria for Chlorpyrifos used as initial screen
f	NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste
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SCC2	Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: Restricted solid waste
TCLP2	Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: Restricted solid waste

Appendix H

Laboratory Documentation

Envirolab Services Pty Ltd
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CERTIFICATE OF ANALYSIS 364214

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel James-Hall
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**227191.00, Rydalmere**
Number of Samples	90 Soil, 2 Material
Date samples received	16/10/2024
Date completed instructions received	17/10/2024

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	25/10/2024
Date of Issue	25/10/2024

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Analysed by Asbestos Approved Analyst: Nyovan Moonean
Authorised by Asbestos Approved Signatory: Nyovan Moonean

Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Jenny He, Senior Chemist
Nyovan Moonean, Asbestos Approved Identifier/Counter
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		364214-1	364214-2	364214-4	364214-5	364214-8
Your Reference	UNITS	TP1	TP1	TP1	TP2	TP3
Depth		0-0.2	0.5-0.7	1.5-1.7	0-0.2	0-0.2
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
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	%	97	102	98	102	98

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		364214-9	364214-12	364214-15	364214-16	364214-18
Your Reference	UNITS	TP3	TP4	TP5	TP5	TP5
Depth		0.4-0.6	0-0.2	0-0.2	0.5-0.7	1.5-1.7
Date Sampled		14/10/24	14/10/24	14/10/2024	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
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	%	100	101	102	99	98

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		364214-19	364214-20	364214-22	364214-23	364214-27
Your Reference	UNITS	TP6	TP6	TP7	TP7	TP8
Depth		0-0.2	0.5-0.7	0-0.2	0.7-9	0.5-0.7
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
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	%	99	98	103	96	101

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		364214-28	364214-30	364214-32	364214-33	364214-34
Your Reference	UNITS	TP8	TP8	TP9	TP9	TP9
Depth		1.1-1.3	2-2.2	0-0.2	0.5-0.7	0.9-1.1
Date Sampled		15/10/24	15/10/24	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	21/10/2024	21/10/2024	21/10/2024	22/10/2024	22/10/2024
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	%	100	99	101	87	104

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		364214-36	364214-39	364214-41	364214-42	364214-43
Your Reference	UNITS	TP9	TP10	TP10	TP10	TP11
Depth		1.8-2	0-0.2	1.3-1.5	2-2.2	0-0.2
Date Sampled		14/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	107	112	105	111

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		364214-46	364214-47	364214-49	364214-50	364214-51
Your Reference	UNITS	TP12	TP12	TP13	TP13	TP14
Depth		0-0.2	0.5-0.7	0-0.2	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	103	110	109	112

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		364214-54	364214-57	364214-58	364214-60	364214-62
Your Reference	UNITS	TP15	TP16	TP16	TP17	TP17
Depth		0-0.2	0-0.2	0.5-0.7	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/2024	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	100	106	105	105

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		364214-63	364214-65	364214-66	364214-67	364214-69
Your Reference	UNITS	TP18	TP18	TP19	TP20	TP20
Depth		0.7-0.9	0-0.2	0-0.2	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	%	96	104	97	105	103

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		364214-72	364214-74	364214-76	364214-78	364214-81
Your Reference	UNITS	TP21	TP22	TP22	TP23	TP24
Depth		1.1-1.3	0.5-0.7	2.3-2.5	0-0.2	0-0.2
Date Sampled		14/10/02	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	%	95	109	107	103	110

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		364214-83	364214-84	364214-86	364214-92
Your Reference	UNITS	BD1/20241014	BD2/20241014	BD5/20241015	BD6/20241015
Depth		-	-	-	-
Date Sampled		15/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	104	95	112	114

svTRH (C10-C40) in Soil						
Our Reference		364214-1	364214-2	364214-4	364214-5	364214-8
Your Reference	UNITS	TP1	TP1	TP1	TP2	TP3
Depth		0-0.2	0.5-0.7	1.5-1.7	0-0.2	0-0.2
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	170
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	130
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	300
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	260
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	360
Surrogate o-Terphenyl	%	87	96	93	92	94

svTRH (C10-C40) in Soil						
Our Reference		364214-9	364214-12	364214-15	364214-16	364214-18
Your Reference	UNITS	TP3	TP4	TP5	TP5	TP5
Depth		0.4-0.6	0-0.2	0-0.2	0.5-0.7	1.5-1.7
Date Sampled		14/10/24	14/10/24	14/10/2024	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	140	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	240	<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	200	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	200	<50	<50	<50	<50
Surrogate o-Terphenyl	%	93	94	84	97	94

svTRH (C10-C40) in Soil						
Our Reference		364214-19	364214-20	364214-22	364214-23	364214-27
Your Reference	UNITS	TP6	TP6	TP7	TP7	TP8
Depth		0-0.2	0.5-0.7	0-0.2	0.7-9	0.5-0.7
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	150	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	150	<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	110	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	140	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	250	<50	<50	<50	<50
Surrogate o-Terphenyl	%	94	91	89	95	85

svTRH (C10-C40) in Soil						
Our Reference		364214-28	364214-30	364214-32	364214-33	364214-34
Your Reference	UNITS	TP8	TP8	TP9	TP9	TP9
Depth		1.1-1.3	2-2.2	0-0.2	0.5-0.7	0.9-1.1
Date Sampled		15/10/24	15/10/24	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	110	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	110	<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	160	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	160	<50	<50	<50	<50
Surrogate o-Terphenyl	%	81	94	100	82	81

svTRH (C10-C40) in Soil						
Our Reference		364214-36	364214-39	364214-41	364214-42	364214-43
Your Reference	UNITS	TP9	TP10	TP10	TP10	TP11
Depth		1.8-2	0-0.2	1.3-1.5	2-2.2	0-0.2
Date Sampled		14/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	180	<100	110	<100	<100
TRH C_{29} - C_{36}	mg/kg	150	<100	<100	<100	140
Total +ve TRH (C10-C36)	mg/kg	330	<50	110	<50	140
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	300	<100	170	120	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	150
Total +ve TRH (>C10-C40)	mg/kg	300	<50	170	120	150
Surrogate o-Terphenyl	%	102	94	83	84	83

svTRH (C10-C40) in Soil						
Our Reference		364214-46	364214-47	364214-49	364214-50	364214-51
Your Reference	UNITS	TP12	TP12	TP13	TP13	TP14
Depth		0-0.2	0.5-0.7	0-0.2	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	110	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	110	<50	<50
Surrogate o-Terphenyl	%	95	104	97	97	97

svTRH (C10-C40) in Soil						
Our Reference		364214-54	364214-57	364214-58	364214-60	364214-62
Your Reference	UNITS	TP15	TP16	TP16	TP17	TP17
Depth		0-0.2	0-0.2	0.5-0.7	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/2024	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	%	96	97	94	97	80

svTRH (C10-C40) in Soil						
Our Reference		364214-63	364214-65	364214-66	364214-67	364214-69
Your Reference	UNITS	TP18	TP18	TP19	TP20	TP20
Depth		0.7-0.9	0-0.2	0-0.2	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	%	94	83	82	94	82

svTRH (C10-C40) in Soil						
Our Reference		364214-72	364214-74	364214-76	364214-78	364214-81
Your Reference	UNITS	TP21	TP22	TP22	TP23	TP24
Depth		1.1-1.3	0.5-0.7	2.3-2.5	0-0.2	0-0.2
Date Sampled		14/10/02	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	120
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	130
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	250
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	140
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	130
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	270
Surrogate o-Terphenyl	%	93	79	90	92	83

svTRH (C10-C40) in Soil					
Our Reference		364214-83	364214-84	364214-86	364214-92
Your Reference	UNITS	BD1/20241014	BD2/20241014	BD5/20241015	BD6/20241015
Depth		-	-	-	-
Date Sampled		15/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	21/10/2024	21/10/2024	21/10/2024	22/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	77	75	82

PAHs in Soil						
Our Reference		364214-1	364214-2	364214-4	364214-5	364214-8
Your Reference	UNITS	TP1	TP1	TP1	TP2	TP3
Depth		0-0.2	0.5-0.7	1.5-1.7	0-0.2	0-0.2
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Acenaphthylene	mg/kg	0.3	<0.1	<0.1	0.2	1.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Phenanthrene	mg/kg	2.2	0.2	<0.1	0.9	6.7
Anthracene	mg/kg	0.6	<0.1	<0.1	0.3	1.6
Fluoranthene	mg/kg	2.8	0.3	<0.1	1.4	8.7
Pyrene	mg/kg	2.8	0.3	<0.1	1.2	8.1
Benzo(a)anthracene	mg/kg	1.3	0.1	<0.1	0.7	4.0
Chrysene	mg/kg	1.3	0.2	<0.1	0.6	3.3
Benzo(b,j+k)fluoranthene	mg/kg	2	0.2	<0.2	0.8	5.4
Benzo(a)pyrene	mg/kg	1.1	0.2	<0.05	0.57	3.6
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.1	<0.1	0.3	1.7
Dibenzo(a,h)anthracene	mg/kg	0.2	<0.1	<0.1	<0.1	0.6
Benzo(g,h,i)perylene	mg/kg	0.7	0.1	<0.1	0.3	2.2
Total +ve PAH's	mg/kg	15	1.7	<0.05	7.2	47
Benzo(a)pyrene TEQ calc (zero)	mg/kg	1.6	<0.5	<0.5	0.8	5.3
Benzo(a)pyrene TEQ calc(half)	mg/kg	1.6	<0.5	<0.5	0.8	5.3
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.6	<0.5	<0.5	0.9	5.3
Surrogate p-Terphenyl-d14	%	90	104	86	91	102

PAHs in Soil						
Our Reference		364214-9	364214-12	364214-15	364214-16	364214-18
Your Reference	UNITS	TP3	TP4	TP5	TP5	TP5
Depth		0.4-0.6	0-0.2	0-0.2	0.5-0.7	1.5-1.7
Date Sampled		14/10/24	14/10/24	14/10/2024	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.3	<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	1.6	<0.1	0.1	<0.1	<0.1
Anthracene	mg/kg	0.5	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.7	<0.1	0.2	<0.1	<0.1
Pyrene	mg/kg	2.4	<0.1	0.3	<0.1	<0.1
Benzo(a)anthracene	mg/kg	1.1	<0.1	0.1	<0.1	<0.1
Chrysene	mg/kg	1.0	<0.1	0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	2	<0.2	0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	1.1	0.07	0.2	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<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	0.6	<0.1	0.2	<0.1	<0.1
Total +ve PAH's	mg/kg	12	0.07	1.6	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	1.6	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	1.6	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.6	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	95	86	91	105	91

PAHs in Soil						
Our Reference		364214-19	364214-20	364214-22	364214-23	364214-27
Your Reference	UNITS	TP6	TP6	TP7	TP7	TP8
Depth		0-0.2	0.5-0.7	0-0.2	0.7-9	0.5-0.7
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	0.6	<0.1	0.4	<0.1	0.4
Anthracene	mg/kg	0.2	<0.1	0.2	<0.1	0.1
Fluoranthene	mg/kg	1.2	<0.1	1	<0.1	1.1
Pyrene	mg/kg	1.2	0.1	1.0	<0.1	1
Benzo(a)anthracene	mg/kg	0.6	<0.1	0.6	<0.1	0.5
Chrysene	mg/kg	0.6	<0.1	0.6	<0.1	0.5
Benzo(b,j+k)fluoranthene	mg/kg	0.9	<0.2	0.9	<0.2	0.9
Benzo(a)pyrene	mg/kg	0.60	0.06	0.65	<0.05	0.55
Indeno(1,2,3-c,d)pyrene	mg/kg	0.3	<0.1	0.3	<0.1	0.3
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.4	<0.1	0.4	<0.1	0.4
Total +ve PAH's	mg/kg	6.6	0.2	6.0	<0.05	5.8
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.8	<0.5	0.8	<0.5	0.7
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.8	<0.5	0.9	<0.5	0.8
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.9	<0.5	0.9	<0.5	0.8
Surrogate p-Terphenyl-d14	%	93	99	91	81	97

PAHs in Soil						
Our Reference		364214-28	364214-30	364214-32	364214-33	364214-34
Your Reference	UNITS	TP8	TP8	TP9	TP9	TP9
Depth		1.1-1.3	2-2.2	0-0.2	0.5-0.7	0.9-1.1
Date Sampled		15/10/24	15/10/24	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.3	<0.1	<0.1	<0.1	0.2
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	1.3	0.1	0.1	0.3	1.3
Anthracene	mg/kg	0.4	<0.1	<0.1	<0.1	0.2
Fluoranthene	mg/kg	3.0	0.3	0.4	0.8	1.4
Pyrene	mg/kg	2.9	0.3	0.4	0.8	1.4
Benzo(a)anthracene	mg/kg	1.5	0.1	0.2	0.4	0.6
Chrysene	mg/kg	1.5	0.1	0.2	0.4	0.6
Benzo(b,j+k)fluoranthene	mg/kg	2.4	0.2	0.4	0.7	0.9
Benzo(a)pyrene	mg/kg	1.6	0.2	0.2	0.5	0.55
Indeno(1,2,3-c,d)pyrene	mg/kg	0.8	0.1	0.1	0.3	0.3
Dibenzo(a,h)anthracene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	1	0.1	0.2	0.4	0.4
Total +ve PAH's	mg/kg	17	1.5	2.2	4.5	7.7
Benzo(a)pyrene TEQ calc (zero)	mg/kg	2.3	<0.5	<0.5	0.6	0.7
Benzo(a)pyrene TEQ calc(half)	mg/kg	2.3	<0.5	<0.5	0.7	0.8
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	2.3	<0.5	<0.5	0.7	0.8
Surrogate p-Terphenyl-d14	%	94	98	104	100	94

PAHs in Soil						
Our Reference		364214-36	364214-39	364214-41	364214-42	364214-43
Your Reference	UNITS	TP9	TP10	TP10	TP10	TP11
Depth		1.8-2	0-0.2	1.3-1.5	2-2.2	0-0.2
Date Sampled		14/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.2	<0.1	0.3	0.3	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Phenanthrene	mg/kg	2.0	<0.1	2.4	1.8	<0.1
Anthracene	mg/kg	0.8	<0.1	0.5	0.6	<0.1
Fluoranthene	mg/kg	8.6	0.1	2.6	2.7	0.2
Pyrene	mg/kg	9.8	0.1	2.5	2.6	0.3
Benzo(a)anthracene	mg/kg	5.0	<0.1	1.3	1.3	0.2
Chrysene	mg/kg	4.4	<0.1	1.1	1.2	0.2
Benzo(b,j+k)fluoranthene	mg/kg	5.8	<0.2	2	2	0.3
Benzo(a)pyrene	mg/kg	2.7	0.08	1.0	1.1	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	2.2	<0.1	0.5	0.5	0.1
Dibenzo(a,h)anthracene	mg/kg	0.8	<0.1	<0.1	0.2	<0.1
Benzo(g,h,i)perylene	mg/kg	2.9	<0.1	0.6	0.7	0.1
Total +ve PAH's	mg/kg	45	0.3	15	15	1.6
Benzo(a)pyrene TEQ calc (zero)	mg/kg	4.8	<0.5	1.4	1.6	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	4.8	<0.5	1.4	1.6	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	4.8	<0.5	1.5	1.6	<0.5
Surrogate p-Terphenyl-d14	%	95	93	101	94	100

PAHs in Soil						
Our Reference		364214-46	364214-47	364214-49	364214-50	364214-51
Your Reference	UNITS	TP12	TP12	TP13	TP13	TP14
Depth		0-0.2	0.5-0.7	0-0.2	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.2	<0.1	0.2
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	1.1	<0.1	0.9
Anthracene	mg/kg	<0.1	<0.1	0.3	<0.1	0.3
Fluoranthene	mg/kg	0.2	<0.1	1.4	<0.1	1.2
Pyrene	mg/kg	0.3	<0.1	1.4	<0.1	1.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	0.6	<0.1	0.5
Chrysene	mg/kg	0.1	<0.1	0.6	<0.1	0.5
Benzo(b,j+k)fluoranthene	mg/kg	0.3	<0.2	0.9	<0.2	0.7
Benzo(a)pyrene	mg/kg	0.1	<0.05	0.61	<0.05	0.3
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.3	<0.1	0.2
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	0.4	<0.1	0.3
Total +ve PAH's	mg/kg	1.4	<0.05	7.8	<0.05	6.3
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	0.8	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	0.9	<0.5	0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	0.9	<0.5	0.6
Surrogate p-Terphenyl-d14	%	96	97	97	103	93

PAHs in Soil						
Our Reference		364214-54	364214-57	364214-58	364214-60	364214-62
Your Reference	UNITS	TP15	TP16	TP16	TP17	TP17
Depth		0-0.2	0-0.2	0.5-0.7	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/2024	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	0.6	<0.1	<0.1	0.5
Anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	0.2
Fluoranthene	mg/kg	0.1	1.3	<0.1	<0.1	0.8
Pyrene	mg/kg	0.1	1.2	<0.1	<0.1	0.8
Benzo(a)anthracene	mg/kg	<0.1	0.6	<0.1	<0.1	0.4
Chrysene	mg/kg	<0.1	0.5	<0.1	<0.1	0.4
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.8	<0.2	<0.2	0.6
Benzo(a)pyrene	mg/kg	0.07	0.5	<0.05	<0.05	0.4
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.3	<0.1	<0.1	0.2
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	0.3	<0.1	<0.1	0.3
Total +ve PAH's	mg/kg	0.4	6.4	<0.05	<0.05	4.6
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	0.7	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	0.7	<0.5	<0.5	0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	0.8	<0.5	<0.5	0.6
Surrogate p-Terphenyl-d14	%	93	93	93	92	94

PAHs in Soil						
Our Reference		364214-63	364214-65	364214-66	364214-67	364214-69
Your Reference	UNITS	TP18	TP18	TP19	TP20	TP20
Depth		0.7-0.9	0-0.2	0-0.2	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	0.3	<0.1	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.2	0.6	<0.1	0.6
Pyrene	mg/kg	<0.1	0.2	0.6	<0.1	0.6
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.3	<0.1	0.4
Chrysene	mg/kg	<0.1	0.1	0.3	<0.1	0.5
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.5	<0.2	0.8
Benzo(a)pyrene	mg/kg	<0.05	0.09	0.3	<0.05	0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.2	<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	0.3	<0.1	0.3
Total +ve PAH's	mg/kg	<0.05	0.70	3.4	<0.05	4.0
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	0.6
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	0.5	<0.5	0.7
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	0.6	<0.5	0.7
Surrogate p-Terphenyl-d14	%	92	92	92	86	90

PAHs in Soil						
Our Reference		364214-72	364214-74	364214-76	364214-78	364214-81
Your Reference	UNITS	TP21	TP22	TP22	TP23	TP24
Depth		1.1-1.3	0.5-0.7	2.3-2.5	0-0.2	0-0.2
Date Sampled		14/10/02	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.2	<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	1.1	0.2	0.2	0.6
Anthracene	mg/kg	<0.1	0.4	<0.1	<0.1	0.2
Fluoranthene	mg/kg	<0.1	2.4	0.4	0.3	0.9
Pyrene	mg/kg	<0.1	2.3	0.4	0.3	0.9
Benzo(a)anthracene	mg/kg	<0.1	1.2	0.2	0.2	0.5
Chrysene	mg/kg	<0.1	1.1	0.2	0.2	0.5
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	2	0.4	0.2	0.7
Benzo(a)pyrene	mg/kg	<0.05	1.2	0.2	0.1	0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.6	0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.8	0.2	0.1	0.3
Total +ve PAH's	mg/kg	<0.05	13	2.4	1.6	5.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	1.8	<0.5	<0.5	0.6
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	1.8	<0.5	<0.5	0.7
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	1.8	<0.5	<0.5	0.7
Surrogate p-Terphenyl-d14	%	97	93	90	89	88

PAHs in Soil					
Our Reference		364214-83	364214-84	364214-86	364214-92
Your Reference	UNITS	BD1/20241014	BD2/20241014	BD5/20241015	BD6/20241015
Depth		-	-	-	-
Date Sampled		15/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	0.2
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	1.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	0.3
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	1.3
Pyrene	mg/kg	<0.1	<0.1	<0.1	1.3
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.5
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.6
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.8
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.56
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.3
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	0.4
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	7.5
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	0.7
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	0.8
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	0.8
Surrogate p-Terphenyl-d14	%	86	86	88	84

Organochlorine Pesticides in soil						
Our Reference		364214-2	364214-8	364214-16	364214-20	364214-27
Your Reference	UNITS	TP1	TP3	TP5	TP6	TP8
Depth		0.5-0.7	0-0.2	0.5-0.7	0.5-0.7	0.5-0.7
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	102	99	106	98	94

Organochlorine Pesticides in soil						
Our Reference		364214-30	364214-33	364214-34	364214-41	364214-50
Your Reference	UNITS	TP8	TP9	TP9	TP10	TP13
Depth		2-2.2	0.5-0.7	0.9-1.1	1.3-1.5	0.5-0.7
Date Sampled		15/10/24	14/10/24	14/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	100	99	102	102	107

Organophosphorus Pesticides in Soil						
Our Reference		364214-2	364214-8	364214-16	364214-20	364214-27
Your Reference	UNITS	TP1	TP3	TP5	TP6	TP8
Depth		0.5-0.7	0-0.2	0.5-0.7	0.5-0.7	0.5-0.7
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	%	102	99	106	98	94

Organophosphorus Pesticides in Soil						
Our Reference		364214-30	364214-33	364214-34	364214-41	364214-50
Your Reference	UNITS	TP8	TP9	TP9	TP10	TP13
Depth		2-2.2	0.5-0.7	0.9-1.1	1.3-1.5	0.5-0.7
Date Sampled		15/10/24	14/10/24	14/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	%	100	99	102	102	107

PCBs in Soil						
Our Reference		364214-2	364214-8	364214-16	364214-20	364214-27
Your Reference	UNITS	TP1	TP3	TP5	TP6	TP8
Depth		0.5-0.7	0-0.2	0.5-0.7	0.5-0.7	0.5-0.7
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	%	101	97	100	95	93

PCBs in Soil						
Our Reference		364214-30	364214-33	364214-34	364214-41	364214-50
Your Reference	UNITS	TP8	TP9	TP9	TP10	TP13
Depth		2-2.2	0.5-0.7	0.9-1.1	1.3-1.5	0.5-0.7
Date Sampled		15/10/24	14/10/24	14/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
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	%	95	96	97	95	102

Misc Soil - Inorg						
Our Reference		364214-2	364214-8	364214-16	364214-20	364214-27
Your Reference	UNITS	TP1	TP3	TP5	TP6	TP8
Depth		0.5-0.7	0-0.2	0.5-0.7	0.5-0.7	0.5-0.7
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		364214-30	364214-33	364214-34	364214-41	364214-50
Your Reference	UNITS	TP8	TP9	TP9	TP10	TP13
Depth		2-2.2	0.5-0.7	0.9-1.1	1.3-1.5	0.5-0.7
Date Sampled		15/10/24	14/10/24	14/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Acid Extractable metals in soil						
Our Reference		364214-1	364214-2	364214-4	364214-5	364214-8
Your Reference	UNITS	TP1	TP1	TP1	TP2	TP3
Depth		0-0.2	0.5-0.7	1.5-1.7	0-0.2	0-0.2
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Arsenic	mg/kg	6	10	5	7	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	19	23	10	14	13
Copper	mg/kg	13	6	4	13	19
Lead	mg/kg	340	73	12	58	97
Mercury	mg/kg	0.5	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	7	4	5	5	7
Zinc	mg/kg	130	27	11	29	46

Acid Extractable metals in soil						
Our Reference		364214-9	364214-12	364214-15	364214-16	364214-18
Your Reference	UNITS	TP3	TP4	TP5	TP5	TP5
Depth		0.4-0.6	0-0.2	0-0.2	0.5-0.7	1.5-1.7
Date Sampled		14/10/24	14/10/24	14/10/2024	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Arsenic	mg/kg	7	<4	6	17	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	5	15	34	8
Copper	mg/kg	8	20	23	4	3
Lead	mg/kg	49	24	36	21	8
Mercury	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Nickel	mg/kg	3	3	10	2	<1
Zinc	mg/kg	29	84	60	4	2

Acid Extractable metals in soil						
Our Reference		364214-19	364214-20	364214-22	364214-23	364214-27
Your Reference	UNITS	TP6	TP6	TP7	TP7	TP8
Depth		0-0.2	0.5-0.7	0-0.2	0.7-9	0.5-0.7
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Arsenic	mg/kg	5	5	5	11	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	12	12	26	12
Copper	mg/kg	15	2	17	2	41
Lead	mg/kg	70	13	32	15	220
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
Nickel	mg/kg	4	2	5	4	6
Zinc	mg/kg	46	5	57	7	270

Acid Extractable metals in soil						
Our Reference		364214-28	364214-30	364214-32	364214-33	364214-34
Your Reference	UNITS	TP8	TP8	TP9	TP9	TP9
Depth		1.1-1.3	2-2.2	0-0.2	0.5-0.7	0.9-1.1
Date Sampled		15/10/24	15/10/24	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Arsenic	mg/kg	8	7	11	9	<4
Cadmium	mg/kg	0.5	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	67	20	31	21	8
Copper	mg/kg	99	10	16	17	17
Lead	mg/kg	670	57	45	53	44
Mercury	mg/kg	0.8	<0.1	0.2	0.1	<0.1
Nickel	mg/kg	11	3	12	9	5
Zinc	mg/kg	400	34	43	47	37

Acid Extractable metals in soil						
Our Reference		364214-36	364214-39	364214-41	364214-42	364214-43
Your Reference	UNITS	TP9	TP10	TP10	TP10	TP11
Depth		1.8-2	0-0.2	1.3-1.5	2-2.2	0-0.2
Date Sampled		14/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Arsenic	mg/kg	<4	<4	7	9	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	12	14	17	7
Copper	mg/kg	7	15	14	11	12
Lead	mg/kg	25	40	44	42	64
Mercury	mg/kg	<0.1	0.2	<0.1	<0.1	0.2
Nickel	mg/kg	2	7	8	9	5
Zinc	mg/kg	26	56	60	63	33

Acid Extractable metals in soil						
Our Reference		364214-46	364214-47	364214-49	364214-50	364214-51
Your Reference	UNITS	TP12	TP12	TP13	TP13	TP14
Depth		0-0.2	0.5-0.7	0-0.2	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Arsenic	mg/kg	7	14	12	11	11
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	30	19	30	24
Copper	mg/kg	5	1	13	<1	11
Lead	mg/kg	25	11	98	19	17
Mercury	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Nickel	mg/kg	3	2	7	2	2
Zinc	mg/kg	11	3	130	4	10

Acid Extractable metals in soil						
Our Reference		364214-54	364214-57	364214-58	364214-60	364214-62
Your Reference	UNITS	TP15	TP16	TP16	TP17	TP17
Depth		0-0.2	0-0.2	0.5-0.7	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/2024	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Arsenic	mg/kg	4	<4	9	9	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	17	23	14	19
Copper	mg/kg	4	12	<1	<1	5
Lead	mg/kg	19	58	11	15	31
Mercury	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	6	3	<1	3
Zinc	mg/kg	15	48	4	3	18

Acid Extractable metals in soil						
Our Reference		364214-63	364214-65	364214-66	364214-67	364214-69
Your Reference	UNITS	TP18	TP18	TP19	TP20	TP20
Depth		0.7-0.9	0-0.2	0-0.2	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Arsenic	mg/kg	11	7	6	9	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	21	16	17	18	27
Copper	mg/kg	<1	8	12	<1	11
Lead	mg/kg	11	45	100	11	120
Mercury	mg/kg	<0.1	<0.1	0.1	<0.1	0.1
Nickel	mg/kg	<1	3	4	1	3
Zinc	mg/kg	1	74	43	2	41

Acid Extractable metals in soil						
Our Reference		364214-72	364214-74	364214-76	364214-78	364214-81
Your Reference	UNITS	TP21	TP22	TP22	TP23	TP24
Depth		1.1-1.3	0.5-0.7	2.3-2.5	0-0.2	0-0.2
Date Sampled		14/10/02	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Arsenic	mg/kg	15	11	8	6	8
Cadmium	mg/kg	<0.4	<0.4	0.5	<0.4	<0.4
Chromium	mg/kg	24	25	17	32	20
Copper	mg/kg	8	130	26	6	15
Lead	mg/kg	19	310	110	56	130
Mercury	mg/kg	<0.1	0.4	0.2	<0.1	0.1
Nickel	mg/kg	1	11	8	3	5
Zinc	mg/kg	5	230	130	29	49

Acid Extractable metals in soil						
Our Reference		364214-83	364214-84	364214-86	364214-92	364214-93
Your Reference	UNITS	BD1/20241014	BD2/20241014	BD5/20241015	BD6/20241015	TP13 - [TRIPLICATE]
Depth		-	-	-	-	0.5-0.7
Date Sampled		15/10/24	14/10/24	14/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Arsenic	mg/kg	6	15	7	4	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	22	20	12	23
Copper	mg/kg	5	8	<1	5	<1
Lead	mg/kg	11	16	12	27	20
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	1	1	3	1
Zinc	mg/kg	12	7	3	17	5

Acid Extractable metals in soil		
Our Reference		364214-94
Your Reference	UNITS	TP23 - [TRIPLICATE]
Depth		0-0.2
Date Sampled		14/10/24
Type of sample		Soil
Date prepared	-	22/10/2024
Date analysed	-	22/10/2024
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	11
Copper	mg/kg	7
Lead	mg/kg	48
Mercury	mg/kg	<0.1
Nickel	mg/kg	3
Zinc	mg/kg	30

Moisture						
Our Reference		364214-1	364214-2	364214-4	364214-5	364214-8
Your Reference	UNITS	TP1	TP1	TP1	TP2	TP3
Depth		0-0.2	0.5-0.7	1.5-1.7	0-0.2	0-0.2
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Moisture	%	12	12	16	13	8.3

Moisture						
Our Reference		364214-9	364214-12	364214-15	364214-16	364214-18
Your Reference	UNITS	TP3	TP4	TP5	TP5	TP5
Depth		0.4-0.6	0-0.2	0-0.2	0.5-0.7	1.5-1.7
Date Sampled		14/10/24	14/10/24	14/10/2024	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Moisture	%	9.6	5.7	11	19	13

Moisture						
Our Reference		364214-19	364214-20	364214-22	364214-23	364214-27
Your Reference	UNITS	TP6	TP6	TP7	TP7	TP8
Depth		0-0.2	0.5-0.7	0-0.2	0.7-9	0.5-0.7
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Moisture	%	12	10	12	19	11

Moisture						
Our Reference		364214-28	364214-30	364214-32	364214-33	364214-34
Your Reference	UNITS	TP8	TP8	TP9	TP9	TP9
Depth		1.1-1.3	2-2.2	0-0.2	0.5-0.7	0.9-1.1
Date Sampled		15/10/24	15/10/24	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Moisture	%	12	15	16	15	14

Moisture						
Our Reference		364214-36	364214-39	364214-41	364214-42	364214-43
Your Reference	UNITS	TP9	TP10	TP10	TP10	TP11
Depth		1.8-2	0-0.2	1.3-1.5	2-2.2	0-0.2
Date Sampled		14/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Moisture	%	13	13	14	16	9.1

Moisture						
Our Reference		364214-46	364214-47	364214-49	364214-50	364214-51
Your Reference	UNITS	TP12	TP12	TP13	TP13	TP14
Depth		0-0.2	0.5-0.7	0-0.2	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Moisture	%	10	16	13	18	9.3

Moisture						
Our Reference		364214-54	364214-57	364214-58	364214-60	364214-62
Your Reference	UNITS	TP15	TP16	TP16	TP17	TP17
Depth		0-0.2	0-0.2	0.5-0.7	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/2024	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Moisture	%	9.6	13	12	18	13

Moisture						
Our Reference		364214-63	364214-65	364214-66	364214-67	364214-69
Your Reference	UNITS	TP18	TP18	TP19	TP20	TP20
Depth		0.7-0.9	0-0.2	0-0.2	0.5-0.7	0-0.2
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Moisture	%	14	17	15	14	12

Moisture						
Our Reference		364214-72	364214-74	364214-76	364214-78	364214-81
Your Reference	UNITS	TP21	TP22	TP22	TP23	TP24
Depth		1.1-1.3	0.5-0.7	2.3-2.5	0-0.2	0-0.2
Date Sampled		14/10/02	14/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Moisture	%	20	10	15	10	11

Moisture					
Our Reference		364214-83	364214-84	364214-86	364214-92
Your Reference	UNITS	BD1/20241014	BD2/20241014	BD5/20241015	BD6/20241015
Depth		-	-	-	-
Date Sampled		15/10/24	14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	21/10/2024	21/10/2024	21/10/2024	21/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024	22/10/2024
Moisture	%	18	19	8.4	13

Asbestos ID - soils NEPM						
Our Reference		364214-1	364214-2	364214-5	364214-8	364214-9
Your Reference	UNITS	TP1	TP1	TP2	TP3	TP3
Depth		0-0.2	0.5-0.7	0-0.2	0-0.2	0.4-0.6
Date Sampled		14/10/24	14/10/24	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024
Sample mass tested	g	766.9	711.46	635.65	779.63	904.81
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM						
Our Reference		364214-12	364214-15	364214-16	364214-19	364214-20
Your Reference	UNITS	TP4	TP5	TP5	TP6	TP6
Depth		0-0.2	0-0.2	0.5-0.7	0-0.2	0.5-0.7
Date Sampled		14/10/24	14/10/2024	14/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024
Sample mass tested	g	880.9	715.88	595.55	682.84	905.26
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Orange clayey soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM						
Our Reference		364214-22	364214-27	364214-28	364214-30	364214-32
Your Reference	UNITS	TP7	TP8	TP8	TP8	TP9
Depth		0-0.2	0.5-0.7	1.1-1.3	2-2.2	0-0.2
Date Sampled		14/10/24	15/10/24	15/10/24	15/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024
Sample mass tested	g	675.32	710.21	748.46	760.49	563.84
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	Chrysotile Crocidolite	Chrysotile	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	0.0027	0.0141	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	0.0019	<0.001	<0.001
Asbestos comments	-	Nil	YES	YES	Nil	Nil

Asbestos ID - soils NEPM						
Our Reference		364214-33	364214-34	364214-36	364214-39	364214-41
Your Reference	UNITS	TP9	TP9	TP9	TP10	TP10
Depth		0.5-0.7	0.9-1.1	1.8-2	0-0.2	1.3-1.5
Date Sampled		14/10/24	14/10/24	14/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024
Sample mass tested	g	642.66	722.9	856.29	705.55	674.29
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM						
Our Reference		364214-42	364214-43	364214-46	364214-49	364214-50
Your Reference	UNITS	TP10	TP11	TP12	TP13	TP13
Depth		2-2.2	0-0.2	0-0.2	0-0.2	0.5-0.7
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024
Sample mass tested	g	737.89	694.12	642.27	750.91	626.53
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Orange clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM						
Our Reference		364214-51	364214-54	364214-57	364214-62	364214-63
Your Reference	UNITS	TP14	TP15	TP16	TP17	TP18
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0.7-0.9
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024
Sample mass tested	g	778.05	815.73	589.56	639.87	629.16
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Orange clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM						
Our Reference		364214-65	364214-66	364214-67	364214-69	364214-74
Your Reference	UNITS	TP18	TP19	TP20	TP20	TP22
Depth		0-0.2	0-0.2	0.5-0.7	0-0.2	0.5-0.7
Date Sampled		15/10/24	15/10/24	15/10/24	15/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024
Sample mass tested	g	534.18	621.98	530.4	677.37	684.12
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Orange clayey soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM				
Our Reference		364214-76	364214-78	364214-81
Your Reference	UNITS	TP22	TP23	TP24
Depth		2.3-2.5	0-0.2	0-0.2
Date Sampled		14/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil
Date analysed	-	25/10/2024	25/10/2024	25/10/2024
Sample mass tested	g	701.65	745.5	805.05
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	Chrysotile asbestos detected Amosite asbestos detected Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	0.3977	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	See Above	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	0.2736	–	–
FA and AF Estimation*	g	0.0054	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001
Asbestos comments	-	YES	Nil	Nil

Misc Inorg - Soil				
Our Reference		364214-4	364214-18	364214-72
Your Reference	UNITS	TP1	TP5	TP21
Depth		1.5-1.7	1.5-1.7	1.1-1.3
Date Sampled		14/10/24	14/10/24	14/10/02
Type of sample		Soil	Soil	Soil
Date prepared	-	22/10/2024	22/10/2024	22/10/2024
Date analysed	-	22/10/2024	22/10/2024	22/10/2024
pH 1:5 soil:water	pH Units	8.0	5.0	4.9

CEC				
Our Reference		364214-4	364214-18	364214-72
Your Reference	UNITS	TP1	TP5	TP21
Depth		1.5-1.7	1.5-1.7	1.1-1.3
Date Sampled		14/10/24	14/10/24	14/10/02
Type of sample		Soil	Soil	Soil
Date prepared	-	23/10/2024	23/10/2024	23/10/2024
Date analysed	-	23/10/2024	23/10/2024	23/10/2024
Exchangeable Ca	meq/100g	0.5	0.9	1.0
Exchangeable K	meq/100g	<0.1	0.1	<0.1
Exchangeable Mg	meq/100g	4.2	5.2	3.5
Exchangeable Na	meq/100g	1.6	0.3	0.4
Cation Exchange Capacity	meq/100g	6.5	6.4	5.1

Asbestos ID - soils					
Our Reference		364214-23	364214-47	364214-58	364214-60
Your Reference	UNITS	TP7	TP12	TP16	TP17
Depth		0.7-9	0.5-0.7	0.5-0.7	0.5-0.7
Date Sampled		14/10/24	15/10/24	15/10/24	15/10/2024
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	25/10/2024	25/10/2024	25/10/2024	25/10/2024
Sample mass tested	g	Approx. 90g	Approx. 65g	Approx. 100g	Approx. 75g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	Nil	Nil	Nil	Nil
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE#1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF relative to the sample mass tested) NOTE#2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
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.
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.

Method ID	Methodology Summary
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-5	364214-8
Date extracted	-			21/10/2024	2	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			21/10/2024	2	21/10/2024	21/10/2024		21/10/2024	21/10/2024
TRH C_6 - C_9	mg/kg	25	Org-023	<25	2	<25	<25	0	97	92
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	2	<25	<25	0	97	92
Benzene	mg/kg	0.2	Org-023	<0.2	2	<0.2	<0.2	0	101	95
Toluene	mg/kg	0.5	Org-023	<0.5	2	<0.5	<0.5	0	92	86
Ethylbenzene	mg/kg	1	Org-023	<1	2	<1	<1	0	90	85
m+p-xylene	mg/kg	2	Org-023	<2	2	<2	<2	0	101	98
o-Xylene	mg/kg	1	Org-023	<1	2	<1	<1	0	103	97
Naphthalene	mg/kg	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	114	2	102	101	1	105	97

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	364214-34
Date extracted	-			[NT]	20	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			[NT]	20	21/10/2024	21/10/2024		22/10/2024	22/10/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	20	<25	<25	0	100	102
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	20	<25	<25	0	100	102
Benzene	mg/kg	0.2	Org-023	[NT]	20	<0.2	<0.2	0	98	100
Toluene	mg/kg	0.5	Org-023	[NT]	20	<0.5	<0.5	0	96	99
Ethylbenzene	mg/kg	1	Org-023	[NT]	20	<1	<1	0	94	96
m+p-xylene	mg/kg	2	Org-023	[NT]	20	<2	<2	0	107	107
o-Xylene	mg/kg	1	Org-023	[NT]	20	<1	<1	0	102	103
Naphthalene	mg/kg	1	Org-023	[NT]	20	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	20	98	99	1	104	109

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	364214-81
Date extracted	-			[NT]	33	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			[NT]	33	22/10/2024	22/10/2024		22/10/2024	22/10/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	33	<25	<25	0	91	92
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	33	<25	<25	0	91	92
Benzene	mg/kg	0.2	Org-023	[NT]	33	<0.2	<0.2	0	89	90
Toluene	mg/kg	0.5	Org-023	[NT]	33	<0.5	<0.5	0	87	88
Ethylbenzene	mg/kg	1	Org-023	[NT]	33	<1	<1	0	85	87
m+p-xylene	mg/kg	2	Org-023	[NT]	33	<2	<2	0	96	98
o-Xylene	mg/kg	1	Org-023	[NT]	33	<1	<1	0	92	94
Naphthalene	mg/kg	1	Org-023	[NT]	33	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	33	87	108	22	94	99

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]	50	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	50	22/10/2024	22/10/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	50	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	50	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	50	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	50	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	50	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	50	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	50	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	50	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	50	109	97	12	[NT]	[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]	78	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	78	22/10/2024	22/10/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	78	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	78	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	78	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	78	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	78	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	78	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	78	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	78	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	78	103	109	6	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	364214-8
Date extracted	-			21/10/2024	2	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			22/10/2024	2	22/10/2024	22/10/2024		22/10/2024	22/10/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	2	<50	<50	0	116	109
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	2	<100	<100	0	125	99
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	2	<100	<100	0	129	#
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	2	<50	<50	0	116	109
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	2	<100	<100	0	125	99
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	2	<100	<100	0	129	#
Surrogate o-Terphenyl	%		Org-020	92	2	96	98	2	91	81

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	364214-34
Date extracted	-			[NT]	20	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			[NT]	20	22/10/2024	22/10/2024		21/10/2024	22/10/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	20	<50	<50	0	103	102
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	20	<100	<100	0	110	121
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	20	<100	<100	0	100	117
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	20	<50	<50	0	103	102
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	20	<100	<100	0	110	121
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	20	<100	<100	0	100	117
Surrogate o-Terphenyl	%		Org-020	[NT]	20	91	93	2	77	84

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	364214-81
Date extracted	-			[NT]	33	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			[NT]	33	22/10/2024	22/10/2024		22/10/2024	22/10/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	33	<50	<50	0	107	113
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	33	<100	<100	0	110	86
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	33	<100	<100	0	116	#
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	33	<50	<50	0	107	113
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	33	<100	<100	0	110	86
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	33	<100	<100	0	116	#
Surrogate o-Terphenyl	%		Org-020	[NT]	33	82	88	7	76	83

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	50	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	50	22/10/2024	22/10/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	50	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	50	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	50	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	50	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	50	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	50	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	50	97	97	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	78	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	78	22/10/2024	21/10/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	78	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	78	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	78	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	78	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	78	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	78	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	78	92	81	13	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	364214-8
Date extracted	-			21/10/2024	2	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			22/10/2024	2	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	78	66
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	74	72
Fluorene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	66	87
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	2	0.2	0.2	0	76	#
Anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	2	0.3	0.4	29	68	#
Pyrene	mg/kg	0.1	Org-022/025	<0.1	2	0.3	0.4	29	70	#
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	0.1	0.2	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	2	0.2	0.2	0	82	#
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	2	0.2	0.3	40	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	2	0.2	0.2	0	66	#
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	2	0.1	0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	91	2	104	109	5	87	98

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	364214-34
Date extracted	-			[NT]	20	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			[NT]	20	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	78	76
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	74	82
Fluorene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	62	84
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	76	#
Anthracene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	72	#
Pyrene	mg/kg	0.1	Org-022/025	[NT]	20	0.1	<0.1	0	76	#
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	70	#
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	20	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	20	0.06	<0.05	18	64	#
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	20	99	94	5	92	102

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	364214-81
Date extracted	-			[NT]	33	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			[NT]	33	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	100	78
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	92	70
Fluorene	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	96	88
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	33	0.3	0.3	0	104	138
Anthracene	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	33	0.8	0.8	0	100	#
Pyrene	mg/kg	0.1	Org-022/025	[NT]	33	0.8	0.8	0	100	#
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	33	0.4	0.4	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	33	0.4	0.4	0	92	111
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	33	0.7	0.8	13	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	33	0.5	0.5	0	88	110
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	33	0.3	0.3	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	33	0.4	0.4	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	33	100	101	1	138	90

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	50	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	50	22/10/2024	22/10/2024		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	50	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	50	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	50	103	104	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	78	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	78	22/10/2024	22/10/2024		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	78	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	78	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	78	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	78	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	78	0.2	0.2	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	78	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	78	0.3	0.4	29	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	78	0.3	0.4	29	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	78	0.2	0.2	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	78	0.2	0.2	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	78	0.2	0.3	40	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	78	0.1	0.2	67	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	78	<0.1	0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	78	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	78	0.1	0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	78	89	87	2	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	364214-8
Date extracted	-			21/10/2024	2	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			22/10/2024	2	22/10/2024	22/10/2024		22/10/2024	22/10/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	78	76
HCB	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	76	75
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	76	76
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	62	60
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	82	80
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	72	70
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	86	80
Endrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	72	82
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	78	80
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	74	76
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	99	2	102	108	6	99	100

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	364214-34
Date extracted	-			[NT]	20	21/10/2024	21/10/2024		[NT]	21/10/2024
Date analysed	-			[NT]	20	22/10/2024	22/10/2024		[NT]	22/10/2024
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	84
HCB	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	80
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	80
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	60
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	86
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	72
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	84
Endrin	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	84
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	82
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	76
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	20	98	94	4	[NT]	106

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	33	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	33	22/10/2024	22/10/2024		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	33	99	103	4	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	50	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	50	22/10/2024	22/10/2024		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	50	107	106	1	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	364214-8
Date extracted	-			21/10/2024	2	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			22/10/2024	2	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	78	80
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	74	72
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	74	80
Malathion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	80	82
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	76	74
Fenthion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	68	69
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	70	102
Phosalone	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	99	2	102	108	6	99	100

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	364214-34
Date extracted	-			[NT]	20	21/10/2024	21/10/2024		[NT]	21/10/2024
Date analysed	-			[NT]	20	22/10/2024	22/10/2024		[NT]	22/10/2024
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	80
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	76
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	92
Malathion	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	86
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	80
Fenthion	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	82
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	86
Phosalone	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	20	98	94	4	[NT]	106

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	33	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	33	22/10/2024	22/10/2024		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	33	99	103	4	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	50	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	50	22/10/2024	22/10/2024		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	50	107	106	1	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	364214-8
Date extracted	-			21/10/2024	2	21/10/2024	21/10/2024		21/10/2024	21/10/2024
Date analysed	-			22/10/2024	2	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	2	<0.1	<0.1	0	82	60
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	95	2	101	106	5	97	98

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	364214-34
Date extracted	-			[NT]	20	21/10/2024	21/10/2024		[NT]	21/10/2024
Date analysed	-			[NT]	20	22/10/2024	22/10/2024		[NT]	22/10/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	20	<0.1	<0.1	0	[NT]	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	20	95	90	5	[NT]	101

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	33	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	33	22/10/2024	22/10/2024		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	33	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	33	96	95	1	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	50	21/10/2024	21/10/2024		[NT]	[NT]
Date analysed	-			[NT]	50	22/10/2024	22/10/2024		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	50	102	101	1	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	364214-8
Date prepared	-			22/10/2024	2	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Date analysed	-			22/10/2024	2	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	2	<5	<5	0	95	100

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	364214-8
Date prepared	-			22/10/2024	2	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Date analysed	-			22/10/2024	2	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Arsenic	mg/kg	4	Metals-020	<4	2	10	8	22	109	105
Cadmium	mg/kg	0.4	Metals-020	<0.4	2	<0.4	<0.4	0	101	97
Chromium	mg/kg	1	Metals-020	<1	2	23	19	19	102	101
Copper	mg/kg	1	Metals-020	<1	2	6	7	15	99	100
Lead	mg/kg	1	Metals-020	<1	2	73	98	29	103	88
Mercury	mg/kg	0.1	Metals-021	<0.1	2	<0.1	<0.1	0	106	107
Nickel	mg/kg	1	Metals-020	<1	2	4	4	0	100	96
Zinc	mg/kg	1	Metals-020	<1	2	27	35	26	97	97

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	364214-34
Date prepared	-			[NT]	20	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Date analysed	-			[NT]	20	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Arsenic	mg/kg	4	Metals-020	[NT]	20	5	6	18	110	108
Cadmium	mg/kg	0.4	Metals-020	[NT]	20	<0.4	<0.4	0	100	98
Chromium	mg/kg	1	Metals-020	[NT]	20	12	13	8	103	105
Copper	mg/kg	1	Metals-020	[NT]	20	2	2	0	101	102
Lead	mg/kg	1	Metals-020	[NT]	20	13	15	14	102	110
Mercury	mg/kg	0.1	Metals-021	[NT]	20	<0.1	<0.1	0	114	122
Nickel	mg/kg	1	Metals-020	[NT]	20	2	2	0	100	101
Zinc	mg/kg	1	Metals-020	[NT]	20	5	6	18	97	100

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	364214-81
Date prepared	-			[NT]	33	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Date analysed	-			[NT]	33	22/10/2024	22/10/2024		22/10/2024	22/10/2024
Arsenic	mg/kg	4	Metals-020	[NT]	33	9	7	25	110	102
Cadmium	mg/kg	0.4	Metals-020	[NT]	33	<0.4	<0.4	0	98	93
Chromium	mg/kg	1	Metals-020	[NT]	33	21	20	5	101	98
Copper	mg/kg	1	Metals-020	[NT]	33	17	18	6	100	100
Lead	mg/kg	1	Metals-020	[NT]	33	53	48	10	102	95
Mercury	mg/kg	0.1	Metals-021	[NT]	33	0.1	0.2	67	104	110
Nickel	mg/kg	1	Metals-020	[NT]	33	9	10	11	99	95
Zinc	mg/kg	1	Metals-020	[NT]	33	47	43	9	96	87

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	50	22/10/2024	22/10/2024		[NT]	[NT]
Date analysed	-			[NT]	50	22/10/2024	22/10/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	50	11	13	17	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	50	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	50	30	28	7	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	50	<1	1	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	50	19	31	48	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	50	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	50	2	2	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	50	4	7	55	[NT]	[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]	78	22/10/2024	22/10/2024		[NT]	[NT]
Date analysed	-			[NT]	78	22/10/2024	22/10/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	78	6	4	40	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	78	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	78	32	13	84	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	78	6	8	29	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	78	56	46	20	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	78	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	78	3	3	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	78	29	30	3	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			22/10/2024	[NT]	[NT]	[NT]	[NT]	22/10/2024	[NT]
Date analysed	-			22/10/2024	[NT]	[NT]	[NT]	[NT]	22/10/2024	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			23/10/2024	[NT]	[NT]	[NT]	[NT]	23/10/2024	[NT]
Date analysed	-			23/10/2024	[NT]	[NT]	[NT]	[NT]	23/10/2024	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]

Result Definitions

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

Quality Control Definitions

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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 - # Percent recovery for the matrix spike is not possible to report as the high concentration of analytes in sample s364214-8,34,81 have caused interference.

TRH_S_NEPM:# Percent recovery for the matrix spike is not possible to report as the high concentration of analytes in sample s364214-8 have caused interference.

Acid Extractable Metals in Soil:
- The laboratory RPD acceptance criteria has been exceeded for 364214-50 for Pb&Zn. Therefore a triplicate result has been issued as laboratory sample number 364214-93.
- The laboratory RPD acceptance criteria has been exceeded for 364214-78 for Cr. Therefore a triplicate result has been issued as laboratory sample number 364214-94.

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to ASB-001 asbestos subsampling procedure. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab/MPL recommends supplying 40-60g or 500ml of sample in its own container.

Note: Samples 364214-23,47,58,60 were sub-sampled from bags provided by the client.

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Factual description of asbestos identified in the soil samples: NEPM

Sample 364214-27; Chrysotile & Crocidolite asbestos identified in 0.0034g of fibrous matted material & loose fibre bundles

Sample 364214-28; Chrysotile asbestos identified in 0.0176g of fibrous matted material

Sample 364214-76; Chrysotile & Amosite asbestos identified in 1.8241g of fibre cement material >7mm

Sample 364214-76; Chrysotile & Amosite asbestos identified in 0.0068g of fibrous matted material

COC 17.10.24

Douglas PARTNERS | GROUNDED EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	227191.00	**Suburb:**	Rydalmere	**To:**	Envirolab Services
Project Manager:	Joel James-Hall	**Order Number:**		**Sampler:**	NW/JC
					12 Ashley St, Chatswood NSW 2067
Email:	joel.james-hall@douglaspartners.com.au			**Attn:**	Sample Receipt
Turnaround time:	☑ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day				(02) 9910 6200 samplereceipt@envirolab.com
Prior Storage:	☑ Fridge ☐ Freezer ☑ Esky ☐ Shelf	**Do samples contain 'potential' HBM?**	☐ No ☐ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)		

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water M - Material	Container Type: G - glass P - plastic	Analytes: Combo 3a_n	Combo 8a_n	Combo 3	Combo 3a	ph + CEC							Notes/ Preservation/ Additional Requirements
1	TP1	0	0.2	14/10/24	S	G,P	X											
2	TP1	0.5	0.7	14/10/24	S	G,P		X										
3	TP1	1	1.2	14/10/24	S	G,P												
4	TP1	1.5	1.7	14/10/24	S	G,P			X		x							
5	TP2	0	0.2	14/10/24	S	G,P	X											
6	TP2	0.7	0.9	14/10/24	S	G,P												
7	TP2	1.1	1.3	14/10/24	S	G,P												
8	TP3	0	0.2	14/10/24	S	G,P		X										
9	TP3	0.4	0.6	14/10/24	S	G,P	X											
10	TP3	0.7	0.9	14/10/24	S	G,P												
11	TP3	1	1.2	14/10/24	S	G,P												
12	TP4	0	0.2	14/10/24	S	G,P	X											
13	TP4	0.5	0.7	14/10/24	S	G,P												
14	TP4	1	1.1	14/10/24	S	G,P												364214

Metals to analyse:			**LAB RECEIPT**
Number of samples in container:		**Transported to laboratory by:**	**Lab Ref. No:**
Send results to:	Douglas Partners Pty Ltd		**Received by:** ELS GEOFF
Address:	96 Hermitage Road, West Ryde NSW 2114	**Phone:** (02) 98010666	**Date & Time** 16/10/24 1530
Relinquished by:		**Date:** **Signed:**	**Signed:**

Douglas PARTNERS | GROUNDED EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	227191.00	**Suburb:** Rydalmere	**To:** Envirolab Services
Project Manager:	Joel James-Hall		**Dispatch date:** 0/01/1900

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water M - Material	Container Type: G - glass P - plastic	Analytes: Combo 3a_n	Combo 8a_n	Combo 3	Combo 3a	ph + CEC							Notes/ Preservation/ Additional Requirements
15	TP5	0	0.2	14/10/24	S	G,P	X											
16	TP5	0.5	0.7	14/10/24	S	G,P		X										
17	TP5	1.1	1.3	14/10/24	S	G,P												
18	TP5	1.5	1.7	14/10/24	S	G,P			X		x							
19	TP6 (BH)	0	0.2	14/10/24	S	G,P	X											
20	TP6 (BH)	0.5	0.7	14/10/24	S	G,P		X										
21	TP6 (BH)	1.3	1.5	14/10/24	S	G,P												
22	TP7	0	0.2	14/10/24	S	G,P	X											
23	TP7	0.7	9	14/10/24	S	G,P				x								
24	TP7	1.3	1.5	14/10/24	S	G,P												
25	TP7	2.2	2.4	14/10/24	S	G,P												
26	TP8	0	0.2	15/10/24	S	G,P												
27	TP8	0.5	0.7	15/10/24	S	G,P		x										
28	TP8	1.1	1.3	15/10/24	S	G,P	X											
29	TP8	1.7	1.9	15/10/24	S	G,P												
30	TP8	2	2.2	15/10/24	S	G,P		X										
31	TP8	2.4	2.6	15/10/24	S	G,P												364214
32	TP9	0	0.2	14/10/24	S	G,P	X											16.10

Douglas PARTNERS | GROUNDED EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	227191.00	**Suburb:** Rydalmere	**To:** Envirolab Services
Project Manager:	Joel James-Hall		**Dispatch date:** 0/01/1900

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water M - Material	Container Type: G - glass P - plastic	Analytes: Combo 3a_n	Combo 8a_n	Combo 3	Combo 3a	ph + CEC							Notes/ Preservation/ Additional Requirements
33	TP9	0.5	0.7	14/10/24	S	G,P		X										
34	TP9	0.9	1.1	14/10/24	S	G,P		X										
35	TP9	1.5	1.7 (1.6)	14/10/24	S	G,P												
36	TP9	1.8	2	14/10/24	S	G,P	X											
37	TP9	2.8	3	14/10/24	S	G,P												
38	TP9	3.2	3.4	14/10/24	S	G,P												
39	TP10	0	0.2	15/10/24	S	G,P	X											
40	TP10	0.6	0.8	15/10/24	S	G,P												
41	TP10	1.3	1.5	15/10/24	S	G,P		X										
42	TP10	2	2.2	15/10/24	S	G,P	x											
43	TP11	0	0.2	15/10/24	S	G,P	X											
44	TP11	0.5	0.7	15/10/24	S	G,P												
45	TP11	1.1	1.3	15/10/24	S	G,P												
46	TP12	0	0.2	15/10/24	S	G,P	X											
47	TP12	0.5	0.7	15/10/24	S	G,P				x								
48	TP12	1.1	1.3	15/10/24	S	G,P												
49	TP13	0	0.2	15/10/24	S	G,P	X											367214
50	TP13	0.5	0.7	15/10/24	S	G,P		x										16.10
51	TP14	0	0.2	15/10/24	S	G,P	X											

Douglas PARTNERS | GROUNDED EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	227191.00	**Suburb:** Rydalmere	**To:** Envirolab Services
Project Manager:	Joel James-Hall		**Dispatch date:** 0/01/1900

Lab ID	Sample ID: Location / Other ID	Sample ID: Depth From	Sample ID: Depth To	Date Sampled	Sample Type: S - soil W - water M - Material	Container Type: G - glass P - plastic	Analytes: Combo 3a_n	Combo 8a_n	Combo 3	Combo 3a	ph + CEC							Notes/ Preservation/ Additional Requirements
52	TP14	0.5	0.7	15/10/24	S	G,P												
53	TP14	1.1	1.3	15/10/24	S	G,P												
54	TP15	0	0.2	15/10/24	S	G,P	X											
55	TP15	0.5	0.7	15/10/24	S	G,P												
56	TP15	1.2	1.4	15/10/24	S	G,P												
57	TP16	0	0.2	15/10/24	S	G,P	X											
58	TP16	0.5	0.7	15/10/24	S	G,P				x								
59	TP16	1	1.2	15/10/24	S	G,P												
NR	TP17	0	0.2	15/10/24	S	G,P	X											
60	TP17	0.5	0.7	15/10/24	S	G,P				x								
61	TP17	1.2	1.4	15/10/24	S	G,P												
62	TP18	0	0.2	15/10/24	S	G,P	X											
63	TP18	0.7	0.9	15/10/24	S	G,P	x				—							
64	TP18	1.2	1.4	15/10/24	S	G,P												
65	TP19	0	0.2	15/10/24	S	G,P	X											
66	TP20	0	0.2	15/10/24	S	G,P	X											
67	TP20	0.5	0.7	15/10/24	S	G,P	x											
68	TP20	0.9	1.1	15/10/24	S	G,P												364214
69	TP21	0	0.2	14/10/02	S	G,P	X											0610

Douglas PARTNERS | GROUNDED EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 227191.00 **Suburb:** Rydalmere **To:** Envirolab Services

Project Manager: Joel James-Hall **Dispatch date:** 0/01/1900

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water M - Material	Container Type: G - glass P - plastic	Analytes: Combo 3a_n	Combo 8a_n	Combo 3	Combo 3a	ph + CEC							Notes/ Preservation/ Additional Requirements
70	TP21	0.5	0.7	14/10/02	S	G,P												
71	TP21	0.7	0.9	14/10/02	S	G,P												
72	TP21	1.1	1.3	14/10/02	S	G,P			X		x							
73	TP22	0	0.2	14/10/24	S	G,P												
74	TP22	0.5	0.7	14/10/24	S	G,P	x											
NR	TP22	1.3	1.5	14/10/24	S	G,P	x											
75	TP22	1.7	1.9	14/10/24	S	G,P												
76	TP22	2.3	2.5	14/10/24	S	G,P	x											
77	TP22	2.7	2.9	14/10/24	S	G,P												
78	TP23	0	0.2	15/10/24	S	G,P	X											
79	TP23	0.5	0.7	15/10/24	S	G,P												
80	TP23	1	1.2	15/10/24	S	G,P												
81	TP24	0	0.2	15/10/24	S	G,P	X											
82	TP24	0.4	0.5	15/10/24	S	G,P												
83	BD1/20241014	-	-	14/10/24	S	G,P			X									
84	BD2/20241014	-	-	14/10/24	S	G,P			X									
85	BD3/20241014	-	-	14/10/24	S	G,P												
NR	BD4/20241015	-	-	15/10/24	S	G,P												3642.4 1610
86	BD5/20241015	-	-	15/10/24	S	G,P			X									

Project No: 227191.00 **Suburb:** Rydalmere **To:** Envirolab Services

Project Manager: Joel James-Hall **Dispatch date:** 0/01/1900

Douglas PARTNERS | GROUNDED EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water M - Material	Container Type: G - glass P - plastic	Analytes: Combo 3a_n	Combo 8a_n	Combo 3	Combo 3a	ph + CEC							Notes/ Preservation/ Additional Requirements
92	BD6/20241015	-	-	15/10/24	S	G,P			X									
87	BD7/20241015	-	-	15/10/24	S	G,P												
88	Trip spike	-	-	15/10/24	S	G												
89	Trip blank	-	-	15/10/24	S	G												
90	PACM1/																	
91	PACM2/TP12	0	0.2	15/10/24	M	P												
2nd 92	BD6/20241015 - TP18/0-0.2																	
																		264214 E
																		1610 N

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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel James-Hall

Sample Login Details

Your reference	227191.00, Rydalmere
Envirolab Reference	364214
Date Sample Received	16/10/2024
Date Instructions Received	17/10/2024
Date Results Expected to be Reported	25/10/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	90 Soil, 2 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	8
Cooling Method	Ice
Sampling Date Provided	YES

Comments

- TS/TB - not received - we will prep in the lab.
- All TP6 samples labelled BH6
- TP9/1.5-1.7 depth on jar is 1.5-1.6
- Missing 3 samples - TP17/0-0.2, TP22/1.3-1.5 & BD4/20241015
- TP22/0.5-0.7 - depth on jar is 0.7-0.9

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Misc Soil - Inorg	Acid Extractable metalsin soil	Asbestos ID - soils NEPM	Misc Inorg - Soil	CEC	Asbestos ID - soils	On Hold
TP1-0-0.2	✓	✓	✓					✓	✓				
TP1-0.5-0.7	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP1-1-1.2													✓
TP1-1.5-1.7	✓	✓	✓					✓		✓	✓		
TP2-0-0.2	✓	✓	✓					✓	✓				
TP2-0.7-0.9													✓
TP2-1.1-1.3													✓
TP3-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP3-0.4-0.6	✓	✓	✓					✓	✓				
TP3-0.7-0.9													✓
TP3-1-1.2													✓
TP4-0-0.2	✓	✓	✓					✓	✓				
TP4-0.5-0.7													✓
TP4-1-1.1													✓
TP5-0-0.2	✓	✓	✓					✓	✓				
TP5-0.5-0.7	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP5-1.1-1.3													✓
TP5-1.5-1.7	✓	✓	✓					✓		✓	✓		
TP6-0-0.2	✓	✓	✓					✓	✓				
TP6-0.5-0.7	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP6-1.3-1.5													✓
TP7-0-0.2	✓	✓	✓					✓	✓				
TP7-0.7-9	✓	✓	✓					✓				✓	
TP7-1.3-1.5													✓
TP7-2.2-2.4													✓
TP8-0-0.2													✓
TP8-0.5-0.7	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP8-1.1-1.3	✓	✓	✓					✓	✓				
TP8-1.7-1.9													✓
TP8-2-2.2	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP8-2.4-2.6													✓
TP9-0-0.2	✓	✓	✓					✓	✓				

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Misc Soil - Inorg	Acid Extractable metalsin soil	Asbestos ID - soils NEPM	Misc Inorg - Soil	CEC	Asbestos ID - soils	On Hold
TP9-0.5-0.7	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP9-0.9-1.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP9-1.5-1.7													✓
TP9-1.8-2	✓	✓	✓					✓	✓				
TP9-2.8-3													✓
TP9-3.2-3.4													✓
TP10-0-0.2	✓	✓	✓					✓	✓				
TP10-0.6-0.8													✓
TP10-1.3-1.5	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP10-2-2.2	✓	✓	✓					✓	✓				
TP11-0-0.2	✓	✓	✓					✓	✓				
TP11-0.5-0.7													✓
TP11-1.1-1.3													✓
TP12-0-0.2	✓	✓	✓					✓	✓				
TP12-0.5-0.7	✓	✓	✓					✓				✓	
TP12-1.1-1.3													✓
TP13-0-0.2	✓	✓	✓					✓	✓				
TP13-0.5-0.7	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP14-0-0.2	✓	✓	✓					✓	✓				
TP14-0.5-0.7													✓
TP14-1.1-1.3													✓
TP15-0-0.2	✓	✓	✓					✓	✓				
TP15-0.5-0.7													✓
TP15-1.2-1.4													✓
TP16-0-0.2	✓	✓	✓					✓	✓				
TP16-0.5-0.7	✓	✓	✓					✓				✓	
TP16-1-1.2													✓
TP17-0.5-0.7	✓	✓	✓					✓				✓	
TP17-1.2-1.4													✓
TP17-0-0.2	✓	✓	✓					✓	✓				
TP18-0.7-0.9	✓	✓	✓					✓	✓				
TP18-1.2-1.4													✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Misc Soil - Inorg	Acid Extractable metalsin soil	Asbestos ID - soils NEPM	Misc Inorg - Soil	CEC	Asbestos ID - soils	On Hold
TP18-0-0.2	✓	✓	✓					✓	✓				
TP19-0-0.2	✓	✓	✓					✓	✓				
TP20-0.5-0.7	✓	✓	✓					✓	✓				
TP20-0.9-1.1													✓
TP20-0-0.2	✓	✓	✓					✓	✓				
TP21-0.5-0.7													✓
TP21-0.7-0.9													✓
TP21-1.1-1.3	✓	✓	✓					✓		✓	✓		
TP22-0-0.2													✓
TP22-0.5-0.7	✓	✓	✓					✓	✓				
TP22-1.7-1.9													✓
TP22-2.3-2.5	✓	✓	✓					✓	✓				
TP22-2.7-2.9													✓
TP23-0-0.2	✓	✓	✓					✓	✓				
TP23-0.5-0.7													✓
TP23-1-1.2													✓
TP24-0-0.2	✓	✓	✓					✓	✓				
TP24-0.4-0.5													✓
BD1/20241014	✓	✓	✓					✓					
BD2/20241014	✓	✓	✓					✓					
BD3/20241014													✓
BD5/20241015	✓	✓	✓					✓					
BD7/20241015													✓
Trip spike													✓
Trip blank													✓
PACM1/													✓
PACM2/TP12													✓
BD6/20241015	✓	✓	✓					✓					

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

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Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CERTIFICATE OF ANALYSIS 364214-A

Client Details

Client	Douglas Partners Pty Ltd
Attention	Zihan Wang
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**227191.00, Rydalmere**
Number of Samples	Additional analysis
Date samples received	16/10/2024
Date completed instructions received	29/10/2024

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.

Report Details

Date results requested by	30/10/2024
Date of Issue	30/10/2024

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu
Results Approved By
Lucy Zhu, Asbestos Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Asbestos ID - materials			
Our Reference		364214-A-90	364214-A-91
Your Reference	UNITS	PACM1/	PACM2/TP12
Depth		-	-
Date Sampled		15/10/24	15/10/24
Type of sample		Material	Material
Date analysed	-	30/10/2024	30/10/2024
Mass / Dimension of Sample	-	101x94x4mm	82x74x14mm
Sample Description	-	Grey/Brown fibre cement material	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected
Trace Analysis	-	[NT]	[NT]

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

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

Anna Bui

From: Zihan Wang <Zihan.Wang@douglaspartners.com.au>
Sent: Tuesday, 29 October 2024 2:41 PM
To: Envirolab Sydney Sample Receipt
Cc: Joel James-Hall; Simon Song
Subject: RE: 227191.00 Rydalmere - Additional Analysis

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Guys, further to the below.

90 91

Could we please have the material samples PACM-1 and PACM-2 analysed for asbestos ID in material.

On fastest TA please.

Kind regards.

ELJ REF: 364214-A
TAT: 1 DAY
DUE: 30/10/24
AB

Zihan Wang | Environmental Engineer

02 9809 0666 +61 456 830 222 Zihan.Wang@douglaspartners.com.au

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NSW 2114 | Wallumedegal Country
PO Box 472, West Ryde, NSW 1685

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From: Zihan Wang
Sent: Tuesday, October 29, 2024 1:30 PM
To: samplereceipt@envirolab.com.au
Cc: Joel James-Hall <joel.james-hall@douglaspartners.com.au>; Simon Song <SSong@envirolab.com.au>
Subject: 227191.00 Rydalmere - Additional Analysis

Hi Guys,

Could we please schedule the following additional analysis for this project (see attached):

- TCLP – Lead on samples:
  - TP1/0-0.2m
  - TP8/1.1-1.3m
  - TP22/0.5-0.7m
  - TP24/0-0.2m
- TCLP - PAH on samples:
  - TP3/0-0.2m
  - TP8/1.1-1.3m
  - TP9/1.8-2.0m

On a standard TA please.

Kind regards.

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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 364214-B

Client Details

Client	Douglas Partners Pty Ltd
Attention	Zihan Wang
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**227191.00, Rydalmere**
Number of Samples	Additional analysis
Date samples received	16/10/2024
Date completed instructions received	29/10/2024

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.

Report Details

Date results requested by	05/11/2024
Date of Issue	05/11/2024

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Results Approved By
Giovanni Agosti, Group Technical Manager
Liam Timmins, Organics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

TCLP Preparation - Acid						
Our Reference		364214-B-1	364214-B-8	364214-B-28	364214-B-36	364214-B-74
Your Reference	UNITS	TP1	TP3	TP8	TP9	TP22
Depth		0-0.2	0-0.2	1.1-1.3	1.8-2	0.5-0.7
Date Sampled		14/10/24	14/10/24	15/10/24	14/10/24	14/10/24
Type of sample		Soil	Soil	Soil	Soil	Soil
pH of soil for fluid# determ.	pH units	8.3	8.2	8.4	8.2	8.4
pH of soil TCLP (after HCl)	pH units	1.7	1.7	1.7	1.7	1.8
Extraction fluid used		1	1	1	1	1
pH of final Leachate	pH units	4.9	5.0	5.0	4.9	4.9

TCLP Preparation - Acid		
Our Reference		364214-B-81
Your Reference	UNITS	TP24
Depth		0-0.2
Date Sampled		15/10/24
Type of sample		Soil
pH of soil for fluid# determ.	pH units	8.6
pH of soil TCLP (after HCl)	pH units	1.8
Extraction fluid used		1
pH of final Leachate	pH units	4.9

PAHs in TCLP (USEPA 1311)				
Our Reference	UNITS	364214-B-8	364214-B-28	364214-B-36
Your Reference		TP3	TP8	TP9
Depth		0-0.2	1.1-1.3	1.8-2
Date Sampled		14/10/24	15/10/24	14/10/24
Type of sample		Soil	Soil	Soil
Date extracted	-	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024
Naphthalene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Acenaphthylene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Acenaphthene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Fluorene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Phenanthrene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Anthracene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Fluoranthene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Pyrene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Benzo(a)anthracene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Chrysene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.0002	<0.0002	<0.0002
Benzo(a)pyrene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.0001	<0.0001	<0.0001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	100	95	100

Metals from Leaching Fluid pH 2.9 or 5					
Our Reference		364214-B-1	364214-B-28	364214-B-74	364214-B-81
Your Reference	UNITS	TP1	TP8	TP22	TP24
Depth		0-0.2	1.1-1.3	0.5-0.7	0-0.2
Date Sampled		14/10/24	15/10/24	14/10/24	15/10/24
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Lead	mg/L	0.1	0.63	0.37	0.05

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
Metals-020	Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.
Org-022/025	Leachates are extracted with Dichloromethane and analysed by GC-MS/GC-MSMS.

QUALITY CONTROL: PAHs in TCLP (USEPA 1311)						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			01/11/2024	36	01/11/2024	01/11/2024		01/11/2024	[NT]
Date analysed	-			01/11/2024	36	01/11/2024	01/11/2024		01/11/2024	[NT]
Naphthalene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	87	[NT]
Acenaphthylene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	[NT]	[NT]
Acenaphthene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	76	[NT]
Fluorene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	81	[NT]
Phenanthrene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	77	[NT]
Anthracene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	[NT]	[NT]
Fluoranthene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	77	[NT]
Pyrene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	81	[NT]
Benzo(a)anthracene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	[NT]	[NT]
Chrysene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	71	[NT]
Benzo(bjk)fluoranthene in TCLP	mg/L	0.0002	Org-022/025	<0.0002	36	<0.0002	<0.0002	0	[NT]	[NT]
Benzo(a)pyrene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	76	[NT]
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	[NT]	[NT]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	[NT]	[NT]
Benzo(g,h,i)perylene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	36	<0.0001	<0.0001	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	80	36	100	102	2	78	[NT]

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	364214-B-81
Date extracted	-			01/11/2024	28	01/11/2024	01/11/2024		01/11/2024	01/11/2024
Date analysed	-			01/11/2024	28	01/11/2024	01/11/2024		01/11/2024	01/11/2024
Lead	mg/L	0.03	Metals-020	<0.03	28	0.63	0.63	0	108	111

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.

Anna Bui

From: Zihan Wang <Zihan.Wang@douglaspartners.com.au>
Sent: Tuesday, 29 October 2024 1:30 PM
To: Envirolab Sydney Sample Receipt
Cc: Joel James-Hall; Simon Song
Subject: 227191.00 Rydalmere - Additional Analysis
Attachments: 364214-[R00].pdf

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Guys,

Could we please schedule the following additional analysis for this project (see attached):

- TCLP – Lead on samples:
  - 1 TP1/0-0.2m
  - 28 TP8/1.1-1.3m
  - 74 TP22/0.5-0.7m
  - 81 TP24/0-0.2m
- TCLP - PAH on samples:
  - 8 TP3/0-0.2m
  - 28 TP8/1.1-1.3m
  - 36 TP9/1.8-2.0m

ELS REF: 364214-B
MT: STANDARD
DUE: 5/11/24
AB -

On a standard TA please.

Kind regards.

Zihan Wang | Environmental Engineer

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Appendix I

Quality Assurance and Quality Control

1. Field and laboratory data quality assurance and quality control

The field and laboratory data quality assurance and quality control (QA / QC) procedures and results are summarised in the following Table 1. Reference should be made to the field work methodology and the laboratory results / certificates of analysis for further details. The relative percentage difference (RPD) results, along with the other field QC samples are included the end of this appendix.

Table 1: Field and laboratory quality control

Item	Evaluation / acceptance criteria	Compliance
Analytical laboratories used	NATA accreditation	C
Holding times	Various based on type of analysis	C
Intra-laboratory replicates	10% of primary samples; <30% RPD (organics), <50% (inorganics), where results > 5xPQL	C (frequency) PC (RPD results, refer discussion below)
Laboratory / Reagent Blanks	1 per batch; <PQL	C
Laboratory Duplicate	1 per lab batch; As laboratory certificate	C
Matrix Spikes	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	PC (refer discussion below)
Surrogate Spikes	All organics analysis; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Control Samples	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Standard Operating Procedures (SOP)	Adopting SOP for all aspects of the sampling field work	C

Notes:
C = compliance; PC = partial compliance; NC = non-compliance

RPD results

The RPD results were all within the acceptable range, with the exception of those indicated in Table QA1 (results in bold). The exceedances are not, however, considered to be of concern given that:

- The replicate pairs were collected from fill soils which by its nature are heterogeneous;
- Replicates, rather than homogenised duplicates, were used to minimise risk of volatile loss, hence greater analytical variability between replicate pairs can be expected;
- The actual differences in the concentrations of the replicate pairs where RPD exceedances occurred were typically low excluding TP18/BD6 replicate pair. The highest variability was also noted to occur in shallow sample pairs (0-0.2m).

- Most of the recorded concentrations were relatively close to the PQL;
- The majority of RPD results from a replicate pair were within the acceptable limits; and
- All other QA / QC parameters met the data quality indicators.

Overall, the RPD results are considered indicative of the potential variability of the fill materials encountered, particularly variability of metal and PAH present in the fill. Results close to decision criteria should be assessed with caution, and where applicable an overall statistical assessment is recommended rather than relying on individual results where close to the decision criteria.

Laboratory matrix spikes and laboratory replicates

ELS Report 364214 notes that matrix recovery for PAH and TRH for sample TP3/0-0.2 was not possible due to interference from other analytes in the sample. Generally, this is considered due to the relatively higher concentrations of total PAH in the sample, which may potentially correspond to the similar slightly elevated TRH concentrations likely causing interference.

Overall, this is not considered a significant non-conformance given all other matrix spikes returned acceptable results.

Exceedances of laboratory RPD criteria were noted for two samples in ELS Report 364214 for metals (as Pb, Zn and Cr), laboratory triplicate results were issued and deemed suitable by the laboratory for compliance.

Summary

In summary, the QC data is determined to be of sufficient quality to be considered acceptable for the assessment.

2. Data quality indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQI) as outlined in NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013):

- Completeness: a measure of the amount of usable data from a data collection activity;
- Comparability: the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness: the confidence (qualitative) of data representativeness of media present on-site;
- Precision: a measure of variability or reproducibility of data; and
- Accuracy: a measure of closeness of the data to the 'true' value.

Table 2: Data quality indicators

Data quality indicator	Method(s) of achievement
Completeness	Systematic and selected target locations sampled.
	Preparation of test pit logs, sample location plan and chain of custody records.
	Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody.
	Samples analysed for contaminants of potential concern (COPC) identified in the conceptual site model (CSM).
	Completion of chain of custody (COC) documentation.
	NATA accredited laboratory results certificates provided by the laboratory.
	Overall acceptable frequency and results for field and laboratory quality control (QC) samples as discussed in Section 1.
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project.
	Experienced sampler(s) used.
	Use of NATA registered laboratories, with test methods the same or similar between laboratories.
	Satisfactory results for field and laboratory QC samples.
Representativeness	Target media sampled.
	Sample numbers recovered and analysed are considered to be representative of the target media and complying with DQO.
	Samples were extracted and analysed within holding times.
	Samples were analysed in accordance with the COC.
Precision	Field staff followed standard operating procedures.
	Acceptable RPD between original samples and replicates.
	Satisfactory results for all other field and laboratory QC samples.
Accuracy	Field staff followed standard operating procedures.
	Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQI have been generally complied with.

3. Conclusion

Based on the results of the field QA and field and laboratory QC, and evaluation against the DQI it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

4. References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

Table QA1. Summary RPD results

Lab Report No	Sample ID	Depth	Sample Date	Sample Type	Units	Priority metals								Priority PAH			
						Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene [b]	Benzo(a)pyrene (B(a)P)	Benzo(a)pyrene TEQ (B(a)P TEQ)	Total PAH
364214	TP1	1.5 - 1.7 m	14/10/24	Soil	mg/kg	5	<0.4	10	4	12	<0.1	5	11	<1	<0.05	<0.5	<0.05
364214	BD1/20241014	1.5 - 1.7 m	15/10/24	Soil	mg/kg	6	<0.4	16	5	11	<0.1	7	12	<1	<0.05	<0.5	<0.05
			Difference		mg/kg	1	0	6	1	1	0	2	1	0	0	0	0
			RPD		%	18%	0%	**46%**	22%	9%	0%	**33%**	9%	0%	0%	0%	0%
364214	TP14	0 - 0.2 m	15/10/24	Soil	mg/kg	11	<0.4	24	11	17	<0.1	2	10	<1	0.3	<0.5	6.3
364214	BD5/20241015	0 - 0.2 m	14/10/24	Soil	mg/kg	7	<0.4	20	<1	12	<0.1	1	3	<1	<0.05	<0.5	<0.05
			Difference		mg/kg	4	0	4	10	5	0	1	7	0	0.25	0	6.25
			RPD		%	**44%**	0%	18%	**167%**	**34%**	0%	**67%**	**108%**	0%	143%	0%	**197%**
364214	TP18	0 - 0.2 m	15/10/24	Soil	mg/kg	7	<0.4	16	8	45	<0.1	3	74	<1	0.09	<0.5	0.7
364214	BD6/20241015	0 - 0.2 m	15/10/24	Soil	mg/kg	4	<0.4	12	5	27	<0.1	3	17	<1	0.56	0.7	7.5
			Difference		mg/kg	3	0	4	3	18	0	0	57	0	0.47	0.2	6.8
			RPD		%	**55%**	0%	29%	**46%**	**50%**	0%	0%	**125%**	0%	**145%**	**33%**	**166%**
364214	TP21	1.1 - 1.3 m	14/10/02	Soil	mg/kg	15	<0.4	24	8	19	<0.1	1	5	<1	<0.05	<0.5	<0.05
364214	BD2/20241014	1.1 - 1.3 m	14/10/24	Soil	mg/kg	15	<0.4	22	8	16	<0.1	1	7	<1	<0.05	<0.5	<0.05
			Difference		mg/kg	0	0	2	0	3	0	0	2	0	0	0	0
			RPD		%	0%	0%	9%	0%	17%	0%	0%	**33%**	0%	0%	0%	0%

Table QA1. Summary RPD results

Lab Report No	Sample ID	Depth	Sample Date	Sample Type	Units	Priority TRH						TRH		BTEX			
						TRH C6 - C10	TRH >C10-C16	FI ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	TRH C6 - C9	TRH C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes
364214	TP1	1.5 - 1.7 m	14/10/24	Soil	mg/kg	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1	<1
364214	BD1/20241014	1.5 - 1.7 m	15/10/24	Soil	mg/kg	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1	<1
			Difference		mg/kg	0	0	0	0	0	0	0	0	0	0	0	0
			RPD		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
364214	TP14	0 - 0.2 m	15/10/24	Soil	mg/kg	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1	<1
364214	BD5/20241015	0 - 0.2 m	14/10/24	Soil	mg/kg	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1	<1
			Difference		mg/kg	0	0	0	0	0	0	0	0	0	0	0	0
			RPD		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
364214	TP18	0 - 0.2 m	15/10/24	Soil	mg/kg	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1	<1
364214	BD6/20241015	0 - 0.2 m	15/10/24	Soil	mg/kg	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1	<1
			Difference		mg/kg	0	0	0	0	0	0	0	0	0	0	0	0
			RPD		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
364214	TP21	1.1 - 1.3 m	14/10/02	Soil	mg/kg	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1	<1
364214	BD2/20241014	1.1 - 1.3 m	14/10/24	Soil	mg/kg	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1	<1
			Difference		mg/kg	0	0	0	0	0	0	0	0	0	0	0	0
			RPD		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%