Astra Aerolab Stage 1 – Validation Report

1 Williamtown Drive, Williamtown, NSW

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Executive Summary

Qualtest Laboratory NSW Pty Ltd (Qualtest) has carried out a Validation Report for Astra Aerolab Stage 1 located off Williamtown Drive, Williamtown NSW (the site).

The site is about 24ha located to the south of the existing Newcastle Airport. The site has been subdivided into 13 allotments, and is proposed to be developed for commercial/industrial purposes.

Douglas Partners Pty Ltd (DP) carried out a Preliminary Site Investigation (PSI), and subsequently prepared a Remediation Action Plan (RAP), for a larger area that covered the Astra Aerolab Stage 1 site:

- DP (2019) Preliminary Site Investigation (PSI), ref: 39728.20.R.002.Rev0, dated 3 October 2019; and,
- DP (2019) Remediation Action Plan (RAP), ref: 39728.20.R.004.Rev0, dated 5 November 2019.

The DP (2019) PSI identified that contamination could be present in surface soils associated with opportunistic dumping, including the dumping of building materials and cars. The PSI also identified that the site was located within the Primary Management Zone of the NSW Williamtown Management Area, and therefore could contain soil, surface water and groundwater contaminated with Per- and Poly-Fluoroalkyl Substances (PFAS). The DP (2019) RAP provided a remediation strategy (including further assessment in some areas) and validation programme for the site.

Earthworks were completed by KCE and Daracon Group between 2019 and 2021, and the earthworks contractors (or their sub-contractors) were responsible for implementing the RAP (i.e. completing remediation and validation activities).

A Development Application (DA) was submitted to Port Stephens Council (Council) for development of the site, and Council requested a validation report to demonstrate that the site was remediated and validated in accordance with the RAP (DP, 2019b).

The objectives of the report are to:

- Assess whether the remediation strategy and validation programme outlined in the RAP (DP, 2019b) would render the site suitable for the proposed development (commercial/industrial land use);
- Assess whether remediation and validation activities were carried out in accordance with the RAP (DP, 2019b); and,
- Assess whether the site is suitable for the proposed development.

In order to achieve the above objective, Qualtest carried out the following scope:

- Review of relevant sections of the previous DP report PSI (2019a) and RAP (2019b);
- Review of works and assessments completed by KCE and Daracon (or their sub-contractors);
- Data assessment and preparation of this Validation Report.

Qualtest note that, initially the site was not characterised with respect to contamination prior to commencement of works, and limited sampling and analysis of soil, surface water and groundwater was completed. To compensate, the RAP outlined additional assessment to be carried out during earthworks on the site and provided remediation measures where/if contamination was identified.

In addition to the review of previous reports by others, Qualtest compiled and reviewed the documentation provided by GNAPL, Daracon and KCE (or their sub-contractors). This documentation was collected during earthworks and subdivision construction for the site.

Based on the review and assessment, Qualtest conclude that the works were carried out in general accordance with the RAP (DP, 2019a). The discrepancies and missing documentation (e.g. absence of validation sampling following waste removal, assessment of existing site stockpiles, and waste dockets) are not considered significant, as volumes of waste (<3 tonnes) and stockpiles (~300m^3) were small, and assessment of stripped surface soils which were stockpiled on site (~6,080m^3) was undertaken by Qualtest and did not identify contamination.

The site is considered suitable, with respect to contamination, for the proposed light industrial / commercial development, provided that groundwater is not planned to be intersected during construction.

It is noted that groundwater on the site is impacted by PFAS from the RAAF Base Williamtown. PFAS contamination in the region is managed under the RAAF Base Williamtown, PFAS Management Area Plan (PMAP) (AECOM, 2019). The management measures in the PMAP (or future versions of the PMAP) will be relevant to users of the site.

If construction works for buildings/structures on the site are likely to intercept groundwater, a site-specific management plan for protection of construction workers should be developed.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013, Canberra (referred to as ASC NEPM 2013).

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Attachments:

1.0 Introduction

Qualtest Laboratory NSW Pty Ltd (Qualtest) has carried out a Validation Report for Astra Aerolab Stage 1 located off Williamtown Drive, Williamtown NSW (the site). Figure 1, Appendix A, shows the site location.

The site is about 24ha located to the south of the existing Newcastle Airport. The site has been subdivided into 13 allotments, and is proposed to be developed for commercial/industrial purposes. Figure 2, Appendix A shows the subdivision layout.

This report comprises a validation report by Qualtest, based on information provided by Greater Newcastle Aerotropolis Pty Ltd (GNAPL), and states whether the site is suitable for the proposed development from a contamination perspective. It should be understood that Qualtest were not present during remediation and site earthworks and cannot independently verify the information provided.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013*, Canberra (referred to as ASC NEPM 2013).

1.1 Background

Douglas Partners Pty Ltd (DP) carried out a Preliminary Site Investigation (PSI), and subsequently prepared a Remediation Action Plan (RAP), for a larger area that covered the Astra Aerolab Stage 1 site:

- DP (2019) Preliminary Site Investigation (PSI), ref: 39728.20.R.002.Rev0, dated 3 October 2019; and,
- DP (2019) Remediation Action Plan (RAP), ref: 39728.20.R.004.Rev0, dated 5 November 2019.

The DP (2019) PSI identified that contamination could be present in surface soils associated with opportunistic dumping, including the dumping of building materials and cars. The PSI also identified that the site was located within the Primary Management Zone of the NSW Williamtown Management Area, and therefore could contain soil, surface water and groundwater contaminated with Per- and Poly-Fluoroalkyl Substances (PFAS). The DP (2019) RAP provided a remediation strategy (including further assessment in some areas) and validation programme for the site. Further information on the previous reports by DP is provided in Section 3 below.

Earthworks were completed by KCE and Daracon Group between 2019 and 2021, and the earthworks contractors (or their sub-contractors) were responsible for implementing the RAP (i.e. completing remediation and validation activities).

A Development Application (DA) was submitted to Port Stephens Council (Council) for development of the site, and Council requested a validation report to demonstrate that the site was remediated and validated in accordance with the RAP (DP, 2019b).

1.2 Objectives

The objectives of the report are to:

- Assess whether the remediation strategy and validation programme outlined in the RAP (DP, 2019b) would render the site suitable for the proposed development (commercial/industrial land use);
- Assess whether remediation and validation activities were carried out in accordance with the RAP (DP, 2019b); and,
- Assess whether the site is suitable for the proposed development.

1.3 Scope of Works

In order to achieve the above objective, Qualtest carried out the following scope:

- Review of relevant sections of the previous DP report PSI (2019a) and RAP (2019b);
- Review of works and assessments completed by KCE and Daracon (or their sub-contractors);
- Data assessment and preparation of this Validation Report.

2.0 Site Description

2.1 Site Identification

General site information is provided below in Table 2.1. The site location is shown in Figure 1, Appendix A.

Table 2.1: Summary of Site Details

Site Address:	38 Cabbage Tree Road, Williamtown
Approximate site area and dimensions:	Approx. 24ha Approx. 160m wide by 140m long at the longest and widest points.
Title Identification Details:	The site is part of Lot 11 DP 1036501 within the Port Stephens local government area
Current Zoning	B7 Business Park
Current Ownership:	Greater Newcastle Aerotropolis Pty Ltd
Previous and Current Landuse:	Former sand quarry Vacant land
Proposed Landuse:	Light industrial and commercial

Adjoining Site Uses:	Newcastle Airport and RAAF Base to the north. Rural-residential properties to the south. Bushland and commercial / light industrial properties to the east. Bushland and former sand quarry to the west.
Site Coordinates for approx. centre of site:	32°48'33.05 S 151°50'14.69 E

2.2 Topography and Drainage

Reference to the NSW Land and Property Information Spatial Information Exchange website (https://six.nsw.gov.au/wps/portal/) indicated the elevation of the site is less than 10m AHD.

During the site walkover, the site was observed to be relatively level. A sand dune was present to the immediate south-west of the site (not on site), near Williamtown Drive.

Rain falling on the site would be expected to infiltrate into the site surface. Excess surface water is expected to follow surface topography and flow into municipal storm water drains located on roads within the subdivision. The storm water likely discharges to Dawsons Drain, located 1.1m south-west of the site. Dawsons Drain discharges to Fullerton Cove located approximately 2.4km south-west of the site.

2.3 Regional Geology

Reference to the 1:100,000 Newcastle Coalfield Regional Geology map indicates that the site is underlain by Quaternary aged dune sands.

2.4 Hydrogeology

Groundwater beneath the site is anticipated to be present in an unconfined aquifer and located within 2m below ground surface (bgs).

Groundwater flow direction is anticipated to flow to the south south-west, and discharge to Dawson Drain located 1.1km south-west of the site, and Fullerton Cove located approximately 2.4km south-west of the site.

It should be noted that groundwater conditions can vary due to rainfall and other influences including regional groundwater flow, temperature, permeability, recharge areas, surface condition, and subsoil drainage.

A search of the NSW Department of Primary Industries (Office of Water) registered groundwater bores located within a 500m radius of the site was undertaken. The search revealed that there were no registered groundwater bores within this radius.

2.5 Acid Sulfate Soils

Reference to the Acid Sulfate Soil online database from State of NSW and Department of Planning, Industry and Environment, 2021(espade.environment.nsw.gov.au) indicates that the site is located in of "low probability of acid sulfate soils at depths greater than 3.0m of the ground surface, in an Aeolian sandplain at an elevation of >4m AHD.

The NSW Planning Portal (https://www.planningportal.nsw.gov.au/spatialviewer/) shows that the site is mapped as Class 4 Acid Sulfate Soils. The definition for Class 4 ASS provided in the Port Stephens Local Environmental Planning Policy (LEP) is *Acid sulfate soils in a class 4 area are likely to be found beyond 2 metres below the natural ground surface.*

3.0 Previous Reports

3.1 DP (2019a) Preliminary Site Investigation

DP carried out a Preliminary Site Investigation (PSI) for a larger area that included the site. In the PSI report, DP note that a number of previous assessments, and a previous preliminary contamination assessment (DP, 2009), were completed for the site (by DP). The purpose of the PSI was to review the existing site conditions against those previously described in DP (2009), and provide an updated PSI.

A summary of the relevant information for the site from the PSI is provided below.

Site History Review

Council Records Search

In 2009, Section 149 (now Section 10.7) Planning Certificates for the site were reviewed by DP, and indicated that the site had no matters arising under the Contaminated Land Management Act 1997.

No previous Building Applications or Development Applications were recorded for the site (in 2009).

Section 10.7 planning certificates were provided to DP by the client for Lot 11 DP 1036501. DP states that the Section 10.7 Certificate indicated the following:

- *Lot 11 is currently zoned B7 (business park), RU2 (rural landscape), and SP2 (infrastructure);*
- *The land does not include any residential dwelling identified on the loose-fill asbestos register;*
- *There are no prescribed matters under section 52(2) of the Contaminated Land Management Act 1997 disclosed;*
- *The land is within the Williamtown RAAF Based PFAS Management area.*

Historical Titles

The historical titles search indicated that the site was predominately owned by farmers from about 1900 to 1989/1993. Parts of the site were owned by a blacksmith for one year in the early 1930's. From 1989/1993 to 2019 the site was owned by B & M Ellison Pty Ltd. Newcastle Airport Pty Ltd took control of the site in 2019.

Interview with Site Owner

DP stated the following for the interview:

"Brief discussions were held with Mr Barrie Ellison in 2009 as part of the previous preliminary contamination assessment report. Mr Ellison had owned the majority of the Stage 1 Astra Aerolab site (Lot 11 DP 1036501) and other surrounding lots for over 30 years. The following information was collected:

- *The larger 2009 investigation area (which include Lot 11)* [and current site] *had historically been used for cattle grazing. There were no grazing activities being undertaken on Mr Ellison's properties at the time of the 2009 report;*
- *Quarrying of sand materials was undertaken on Lot 11, with the sand used at the adjacent RAAF base;* Qualtest note the quarrying was undertaken on the site;
- *The sand quarrying was undertaken by Mr Ellison's own company;*
- *Mr Ellison was not aware of any soil materials that had been imported to his properties;*
- *Mr Ellison was not aware of any buildings or infrastructure built on Lot 11 as part of sand quarrying works.*

It is understood that the area of previous sand quarrying activities is located within the Stage 1 Astra Aerolab limits."

Aerial Photographs

DP (2009) carried out a review of historical aerial photographs for the site from 1954, 1966, 1975, 1984 and 1998. In 2019, DP reviewed photographs from 2005 and 2018. No copies of the photographs reviewed were provided. The DP photograph descriptions are re-produced below.

Date	DP (2019) Description
1954	*The northern-western and central-northern portions of the 2009 investigation area appear to be mainly covered with vegetation, however some small rectangular clearings are evident;* *There appears to be some roads / tracks to the north of the investigation area;* *Infrastructure including roads and some small buildings, likely to be associated with the Williamtown Airport / tarmac appear to be established to the north-east of the investigation area;* [this is likely located outside of the current site] *A possible small creek / drainage channel is evident to the south east of the investigation area;* *There are a number of houses and grazing properties to the south and east of the investigation area, along Cabbage Tree Road and Nelson Bay Road respectively.*
1966	*Similar to 1954 photo although land along the southern boundary of the 2009 investigation area appears to have been further cleared.*
1975	*Similar to 1966 photo.*
1984	*Similar to previous photos although there appears to be further development of the Williamtown Airport (and associated infrastructure) including the effluent ponds which extend into the Stage 1 Astra Aerolab limits from the north-eastern boundary.* [Note, the effluent pond is outside of the current site area]
1998	*Similar to 1984 photo although a sand quarry is evident in the centre of the investigation area (understood to be within Stage 1 Astra Aerolab limits).*

2005 to 2018	*A review of available google earth and nearmap aerial images between about 2005 and 2018 indicates that there has been very little change to the Stage 1 Astra Aerolab site condition, with the following exceptions:* • *The sand quarrying activity discussed by Mr Ellison in DP (2009) is evident in an aerial photo of the site dated June 2010;* • *The sand quarrying activities are no longer evident in an aerial photo dated November 2010. A stockpile of soil is visible in the general area of the previous sand quarrying activity;* • *The same stockpile is still evident in photos dated July 2014 and February 2019, however now includes some vegetation cover;* • *The waste water pumping station that is now located immediately north of the Astra Aerolab Stage 1 development was constructed around late 2013 / early 2014;* • *Possible construction activity is evident along the access track from Cabbage Tree Road, with small buildings (possible site sheds) present at the northern end of the access track on several dates in late 2013 to early 2014. This activity corresponds with construction activity at the waste water pumping station site, hence is considered likely to be associated with the construction of a rising main from Cabbage Tree Road to the waste water pumping station.*

NSW WorkCover Dangerous Goods / SafeWork NSW Storage of Hazardous Chemicals

DP requested a search of licences to keep dangerous goods by WorkCover NSW in 2009. The search indicated that WorkCover NSW did not locate records pertaining to the site.

DP applied to SafeWork NSW requesting information on Storage of Hazardous Chemicals for the site. The search indicated that no records are held by SafeWork NSW indicating the storage of hazardous chemicals on the site.

Contaminated Land Register

No statutory notices under the Contaminated Land Management Act were identified for the site or adjacent land.

DP carried out a search of the NSW EPA list of sites that have been notified to the EPA, which revealed that 38 Cabbage Tree Road, Williamtown had been notified for "Hunter Land Effluent Pond", and that Regulation under the CLM Act was not required. DP assumed that this related to the effluent ponds located north-east of the site (in Stage 2A of the Astra Aerolab subdivision).

PFAS

"The site is located within the NSW EPA Williamtown Primary Management Zone for PFAS contamination, where PFAS (per- and poly-fluoroalkyl substances) is an emerging contaminant and research is still being undertaken to understand their long-term effects. PFAS is particularly persistent in groundwater. The RAAF Williamtown base, to the north of the site, is generally accepted to be the source of the PFAS contamination locally. The Primary Management Zone has significantly higher levels of PFAS detected and therefore, the "strongest advice from the EPA applies". This will require that construction and long term site use consider and manage risks of exposure to PFAS contaminated soil and groundwater."

Site Observations

The summary of site observations provided by DP is re-produced below, with comments on whether they are relevant to the current site. It is noted that the Figures (photographs) referred to were included in the DP (2019a) report. The photographs that are relevant to the site have been included below, DP referred to the photographs as Figures, and these have been retained for reference purposes. The site features on Drawings 1 to 3 and 5 from the PSI report (DP, 2019a) have been re-produced in Appendix A as Figures 4A to 4D.

"*The following site observations were made during within the Stage 1 Astra Aerolab project area during the walkover in June 2019:*

- *Several sand dunes were evident, with the main dune located to the north of the access track from Cabbage Tree Road.*
- *A large vegetated sand dune in the eastern portion of the site (Precinct 12), is understood to be an Aboriginal Site, and was fenced off and inaccessible at the time of the current walkover. A burned out car body could be seen within the fenced off area (Figure 1). A comparison photo of the dune area from the 2009 report is included in Figure 2.* Qualtest note this was not located on the site;
- *A gravel track accesses the waste water pumping station, located to the north of the site, from Williamtown Drive (Figure 8);*
- *A gravel track passes through the central part site in a generally south-east to north-westerly direction; The track surface is generally gravelly and comprises coal reject / carbonaceous siltstone (Figures 13 and 29)*;
- *Areas around open drains were more heavily vegetated, with access difficult, particularly on the northern side of the main sand dune, and to the south of the southern east-draining open drain (refer Figures 9, 11 and 30);*
- *A mound / stockpile of probable filling was observed to the north-west of the main sand dune (refer Figure 19). This is considered to be the stockpile that is evident in the general vicinity of the former quarry activities, as discussed in Section 6* [Updated Site History 2019]*, above*;
- *Areas of localised scattered rubbish were present on the site, with the rubbish including building materials (timber, metal, concrete rubble, fibro, tiles etc), a small stockpile of remnant asphalt and household rubbish (eg high chair, television, mattress, cans, bottles etc). The scattered rubbish was likely to have been from opportunistic dumping. In some areas, upper stockpile material has been placed which obscures underlying materials from inspection (refer Figures 16, 17, and 20 to 28);*
- *Other localised stockpiles were noted, generally in close proximity to the access track including coal reject and carbonaceous siltstone (refer Figure 5)*;
- *A small gravel pad / hardstand had been constructed off Williamtown Drive, to the east of the site;*
- *Standing surface water was observed in a number of low-lying parts of the site, particularly in areas of more dense vegetation*;
- *The waste water pumping station was observed to the north of the Stage 1 Astra Aerolab site (Figure 8).* Qualtest note this was not located on the site;
- *Several burned out cars were observed across the site (refer Figures 1 and 12).* Qualtest note based on DP (2019a) Drawing 1 - one was located in the central part of the site, and one was located on the site boundary;

- *Effluent ponds associated with the RAAF Base waste water treatment works are present in the north-eastern corner of the lot. While a close inspection of the ponds was not undertaken during the current works, DP (2009) reported that the ponds appeared to be unlined at that time (Figure 7).* Qualtest note this was not located on the site;
- *A stockpile of asphalt fragments was observed in the central part of the site (refer to Figure 14 and Figure 15). A sample of the asphalt was collected for laboratory testing purposes."*

Figure 3: Fibro fragments (possible asbestos containing material (ACM)) observed in the eastern portion of Lot 11 (2009)

Figure 4: Coal reject/siltstone gravel track, possible asphalt pavement and concrete tank within the eastern portion of Lot 11, looking north-west (2009)

Figure 5: Stockpiled carbonaceous siltstone material in the central portion of the site (June 2019)

Figure 6: Stockpiled carbonaceous siltstone material in the eastern portion of Lot 11 (2009)

Figure 9: Dense vegetation to the south of the waste water pumping station (2019)

Figure 10: Localised Sand dune feature in south-west part of Stage 1 (2019)

Figure 11: Dense vegetation (2019)

Figure 12: Burned out car (2019)

Figure 13: Unsealed track with coal reject / carbonaceous siltstone (2019)

Figure 14: Stockpile of remnant asphalt fragments (2019)

Figure 15: Asphalt fragments (tested for presence of coal tar) (2019)

Figure 16: Remnant concrete, metal and other fragments (2019)

Figure 17: Stockpile of concrete rubble (2019)

Figure 18: Burned out Car (2019)

Figure 19: Fill Stockpile (2019)

Figure 20: Building material waste, including timber and fibro (possible ACM) (2019)

Figure 21: Building material waste including timber and fibro (possible ACM) (2019)

Figure 22: Building material waste, including timber and fibro (possible ACM) (2019)

Figure 23: Fabric / matting – contents unknown (possible ACM?) (2019)

Figure 24: Household rubbish (2019)

Figure 25: Household rubbish and concrete rubble (2019)

Figure 26: Concrete Rubble (2019)

Figure 27: Household rubbish, building debris and fibro (possible ACM?) (2019)

Figure 28: Household rubbish, building debris and fibro (possible ACM?) (2019)

Figure 29: Unsealed track with coal reject and carbonaceous siltstone (2019)

Figure 30: Dense vegetation (2019)

Potential Contaminants

DP assessed the principal sources of potential contamination, based on the site history and site observations. These are re-produced below with comments on whether they are relevant to the site.

- *"Fill materials on unpaved tracks within the Stage 1 area and in fill stockpiles (source unknown) which may contain a range of contaminants including hydrocarbons, heavy metals, PAHs, pesticides, PCBs, asbestos etc;*
- *Stockpile of remnant asphalt which may contain elevated PAHs, hydrocarbons, heavy metals and coal tar;*
- *Effluent ponds located in the north-eastern portion of the site, which may be a source of elevated nutrient, heavy metal, hydrocarbon and microbiological concentrations in soil, surface water and groundwater;* Qualtest note these are not located on the site;
- *Localised dumped rubbish / anthropogenic materials. Some of the anthropogenic materials observed are indicative of potential hazardous building materials (HBM) which can include ACM;*
- *Dumped / burned car bodies, which can be a source of TRH, BTEX, heavy metals, asbestos and acids. Burning of materials can indicate areas of potential elevated PAHs and heavy metals, depending on what may have been burned;*
- *PFAS contamination in soil, surface water and groundwater, due to the site being located within the NSW EPA Williamtown Primary Management Zone.* Qualtest note PFAS contamination affects a large area, including the site;

A sample of the material from the remnant asphalt stockpile, indicated approximately as location S1 on Drawing 1 in Appendix C, was sent to the laboratory to test for the presence of coal tar. The results of the testing are provided in Appendix B. The results indicate the absence of coal tar in the sample tested."

Limited Groundwater Sampling & Analysis

DP installed and sampled four wells (1101, 1102, 1103, 1105) in 2019, two of these are located on the site, and two are located offsite (in up-gradient and cross-gradient locations). The location of the wells is shown on Figures 4A to 4D, Appendix A.

The groundwater samples were analysed for:

- pH;
- Electrical conductivity (EC);
- Chlorides and Sulfates;
- Total Recoverable Hydrocarbons (TRH);
- Benzene, Toluene, Ethylbenzene and Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Organochlorine Pesticides and Organophosphorous Pesticides (OCPs/OPPs);
- Phenolics;
- Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); and,
- Per- and poly-fluoroalkyl substances (PFAS).

DP compared the analytical results to:

- ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality;
- NEPC (2013) National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [for petroleum hydrocarbons via the vapour intrusion exposure pathway – depth top groundwater 2 to <4 m, soil type sand and commercial industrial land use]; and
- HEPA (2018) PFAS National Environmental Management Plan. Qualtest note this was superceded by HEPA (January 2020) PFAS National Environmental Management Plan, Version 2.0.

The results showed:

- Depth to groundwater was measured at 0.5m bgs in 1101, 0.9m bgs in 1102, 0.15m bgs in 1103 and 0.6m bgs in 1105, this equated to water levels between 1.45m AHD to 2.3m AHD;
- Concentrations of TRH, BTEX, PAH, OCP, OPP, and phenols were below the laboratory reporting limits, with the exception of detectable concentrations of PAHs in Sample 1101;
- Concentrations of chromium, copper, nickel and zinc exceeded the Default Guideline Values (DGVs) in ANZG (2018) for protection of 95% of species in aquatic ecosystems;
- Concentrations of fluorooctane sulfonate, perfluorooctane sulfonic acid (PFOS), perfluorooctanoate, perfluorooctanoic acid (PFOA) and perfluorohexane sulfonate, perfluorohexane sulfonic acid (PFHxS) exceeded the screening levels in HEPA (2018). PFOA was below the adopted criteria for protection of freshwater aquatic ecosystems. PFOS was above the adopted criteria for protection of freshwater aquatic ecosystems.

Conceptual Site Model

DP developed a Conceptual Site Model for the larger area assessed, which includes the site. This has been re-produced below as Table 3.1, with an additional column added for whether the known and potential contamination source is relevant to the site.

Table 3.1 – Conceptual Site Model (DP, 2019a)

Known and Potential Primary Sources	*Primary Release Mechanism*	*Secondary Release Mechanism*	*Potential Impacted Media*	*Contaminants of Concern*	*Exposure Pathway*	*Potential Receptors*		Relevant to Current Site
						Current	*Future*	
Localised dumped rubbish observed across the site	*Placement of filling and opportunistic dumping on the site*	*Long-term leaching/transport of contaminants via runoff, rain water infiltration / percolation, crushing / weathering of bonded cement fragments (if present)*	*Soil, groundwater, surface water*	*TRH, BTEX, PAH, metals, pesticides, PCB, asbestos, coal tar*	*Dermal contact, inhalation (dust / vapours), ingestion*	*Site workers, maintenance workers, consultants, trespassers, surface water bodies, groundwater, neighbouring residents / businesses in the case of groundwater migration*	*Potential site users, residences, site workers, maintenance workers, construction workers, consultants, trespassers, surface water bodies, groundwater*	The dumped waste observed on the site by DP (2019a) is considered unlikely to cause contamination, with exception of potential localised contamination in the footprint of the two car bodies. The potential ACM observed would not cause contamination, if it was removed.

Known and Potential Primary Sources	*Primary Release Mechanism*	*Secondary Release Mechanism*	*Potential Impacted Media*	*Contaminants of Concern*	*Exposure Pathway*	*Potential Receptors*		Relevant to Current Site
						Current	*Future*	
Filling (unknown source)	*Access tracks / Stockpiles*	*Long-term leaching/transport of contaminants via runoff, rainwater infiltration / percolation, crushing / weathering of bonded cement fragments (if present)*	*Soil, groundwater, surface water*	*TRH, BTEX, PAH, metals, pesticides, PCB, asbestos*	*Dermal contact, inhalation (dust / vapours), ingestion*			Relevant to the site.
Pesticides	*Application of pesticides during previous agricultural landuse, and possible storage of chemicals*	*Long-term leaching/transport of contaminants via runoff, rain water infiltration / percolation*	*Soil, groundwater, surface water*	*Pesticides, including DDT, heavy metals, hydrocarbons*	*Dermal contact, inhalation (dust / vapours), ingestion*			If pesticides were used, and are present, would be relevant to the site.

Known and Potential Primary Sources	*Primary Release Mechanism*	*Secondary Release Mechanism*	*Potential Impacted Media*	*Contaminants of Concern*	*Exposure Pathway*	*Potential Receptors*		Relevant to Current Site
						Current	*Future*	
Hazardous Building materials	*Demolition of structures*	*Trafficking and weathering of hazardous materials including bonded cement products*	*Soil, surface water, groundwater*	*Asbestos, Lead, PCB*	*Dermal contact, inhalation (dust / vapours), irrigation*			Based on available information, not relevant to the site as no structures were demolished.
Adjacent landuse *- Newcastle Airport* *- RAAF Base* *- Service Station* *- Effluent Wastewater Treatment Plant*	*Placement of filling, opportunistic dumping, spills and leaks from tanks / bowsers, use of firefighting foam. Off-site migration / leaching / transport of contaminants*	*Long-term leaching/transport of contaminants via runoff, rain water infiltration / percolation, groundwater migration, crushing / weathering of bonded cement fragments (if present)*	*Soil, groundwater, surface water*	*TRH, BTEX, PAH, metals, pesticides, PCB, asbestos, Nutrients, biological, PFAS*	*Dermal contact, inhalation (dust / vapours), ingestion*	*Site workers, maintenance workers, consultants, trespassers, surface water bodies, groundwater, neighbouring residents / businesses in the case of groundwater migration*	*Potential site users, residences, site workers, maintenance workers, construction workers, consultants, trespassers, surface water bodies, groundwater*	PFAS contamination from airport and RAAF Base relevant to site. Potential contamination from service station and effluent wastewater treatment plant not relevant to the site.

Known and Potential Primary Sources	*Primary Release Mechanism*	*Secondary Release Mechanism*	*Potential Impacted Media*	*Contaminants of Concern*	*Exposure Pathway*	*Potential Receptors*		Relevant to Current Site
						Current	*Future*	
Effluent Ponds	*Spills and leaks from ponds*	*Long-term leaching/transport of contaminants via runoff, rain water infiltration / percolation, groundwater migration*	*Soil, groundwater, surface water*	*TRH, BTEX, PAH, metals, pesticides, PCB, asbestos, Nutrients, biological, PFAS*	*Dermal contact, inhalation (dust / vapours), ingestion*			Whilst not located on the site, could cause impact to groundwater on the site given proximity (~15m).

Conclusions and Recommendations

DP (2019a) concluded that the PSI indicated *"a general absence of gross contamination across the site, with the exception of PFAS contamination, particularly in groundwater, which is known to be a regional issue.*

Sources of potential contamination were generally limited to localised imported filling, rubbish stockpiles, the presence of fibro fragments possibly containing asbestos, localised impact under burned car bodies, and possible impacts in the vicinity of the effluent ponds."

"The PFAS contamination is expected to be more widespread, and should be assumed could impact the soil, surface water and groundwater within the greater Stage 1 project area."

DP provided more detailed information on known and potential contamination including exposure pathways, and remediation and management measures. As these are repeated in the RAP (DP, 2019b), see summary in Section 3.2 below), they are not re-produced here.

DP (2019a) recommended:

"The site is considered to be suitable for the proposed light industrial / business park development from a contamination perspective, provided that the potential localised contamination is assessed, remediated and validated in accordance with a site specific RAP, which contains an unexpected finds protocol (UFP). Site development should also account for the long term management of PFAS impacted soil, surface water and groundwater. Consideration of short-term management of PFAS impacted soil, surface water and groundwater will also be required during construction for the protection of workers.

Non-PFAS contamination could be expected in near-surface soils associated with localised opportunistic dumping, including the dumping of building materials (including ACM) and burned out cars. Validation testing should be undertaken where these impacted materials are removed.

PFAS contamination is likely to be present in surface water and groundwater, and could also be present in soil. Development of the site should be undertaken with reference to a construction environmental management plan. Long term operation of the site should be undertaken with reference to a long term site management plan. While there is some data available regarding PFAS concentration in surface water and groundwater in the local area, assessment of PFAS contaminant levels in soil should be undertaken so that the risk of exposure to PFAS within the site soils is better understood.

Site development will also need to be undertaken with reference to an acid sulfate soil management plan."

3.2 DP (2019b) Remediation Action Plan

DP prepared a Remediation Action Plan (RAP) for the larger area which includes the site.

The RAP provided the *"clean-up objectives, remediation acceptance criteria (RAC), principles, methods and procedures"* to remediate and validate the site, such that it is suitable for the proposed light industrial / commercial development.

At the time of preparing the RAP, DP understood the development would comprise earthworks for the subdivision construction, construction of roads, drainage and other utilities, with *"significant areas of the site … filled to raise site elevations above flood level. Some localised areas of sand dune formations will be cut to bring those areas of the site to grade."*

The DP (2019b) report also included a summary of a report by AECOM in 2012 for the sewage treatment plant effluent lagoon.

The DP (2019b) summary of the findings of the AECPOM (2012) report are re-produced below:

- *"The site was used as an evaporation lagoon which receives treated effluent discharged from the Sewerage Treatment Plant;*
- *The majority of contaminant concentrations in soil were within the adopted site assessment criteria with the exception one soil sample with elevated vanadium concentrations. Some elevated concentrations of aluminium, iron, silver, mercury, PAH and faecal coliforms were also noted in soil;*
- *Groundwater concentrations were generally within the adopted site assessment criteria with the exception of some heavy metals, nitrate, total phosphorus and PFOS;*
- *The report recommended additional groundwater assessment to assess the potential of migration from upgradient impacts (i.e. RAAF), potential migration of impacts from the subject site along with assessment of pond sediments and surface water."*

The areas requiring remediation, the remediation strategy, and validation programme outlined in the RAP have been summarised below.

Remediation of Asbestos Affected Soils

The proposed remediation strategy was to identify and remove localised asbestos contamination from the surface and near-surface soils.

The proposed scope of remediation and validation for asbestos impacted soils was:

- DP (or other qualified consultant) to identify and peg locations identified to contain asbestos (i.e. areas of identified opportunistic dumping, fill, fill stockpiles etc);
- Contractor to progressively excavate soils/materials from affected area under full-time guidance by DP (or other qualified consultant);
- Contaminated material excavated/chased until visual evidence indicates the absence such materials;
- DP (or other qualified consultant) to classify soil prior to disposal;
- Licensed contractor to load classified materials directly into appropriate trucks for transport and disposal to a licensed waste facility;
- DP (or other qualified consultant) to observe and advise on the excavation/segregation of soils containing asbestos;
- DP (or other qualified consultant) to validate area:
    - The stripped surface should be observed to confirm the asbestos of visible asbestos materials;
    - Validation samples for asbestos would be collected:
        - From a systematic grid (with a minimum density of 10m by 10m) over the stripped surface, with a minimum of two samples per stripped area;
        - A higher sampling frequency may be required subject to the abundance of bonded asbestos materials observed;
        - Validation testing would comprise in-situ sieving/screening for potential asbestos containing materials, plus collection of samples for laboratory testing of asbestos;
        - Laboratory asbestos analysis would be conducted by a NATA registered laboratory.

  - Validation samples were to be collected from the surface following removal of temporary stockpiles of asbestos impacted materials.

If validation results exceed the RAC, further excavation/stripping would be required, followed by additional validation sampling and analysis.

Remediation of Asbestos Affected Soils

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The proposed scope of remediation and validation for asbestos impacted soils was:

- DP (or other qualified consultant) to identify and peg locations identified to contain asbestos (i.e. areas of identified opportunistic dumping, fill, fill stockpiles etc);
- Contractor to progressively excavate soils/materials from affected area under full-time guidance by DP (or other qualified consultant);
- Contaminated material excavated/chased until visual evidence indicates the absence such materials;
- DP (or other qualified consultant) to classify soil/fill prior to disposal;
- Licensed contractor to load classified materials directly into appropriate trucks for transport and disposal to a licensed waste facility;
- DP (or other qualified consultant) to observe and advise on the excavation/segregation of soils containing asbestos;
- DP (or other qualified consultant) to validate area:
  - The stripped surface should be observed to confirm the asbestos of visible asbestos materials;
  - Validation samples for asbestos would be collected:
    - From a systematic grid (with a minimum density of 10m by 10m) over the stripped surface, with a minimum of two samples per stripped area;
    - A higher sampling frequency may be required subject to the abundance of bonded asbestos materials observed;
    - Validation testing would comprise in-situ sieving/screening for potential asbestos containing materials, plus collection of samples for laboratory testing of asbestos;
    - Laboratory asbestos analysis would be conducted by a NATA registered laboratory.
  - Validation samples were to be collected from the surface following removal of temporary stockpiles of asbestos impacted materials.

If validation results exceed the RAC, further excavation/stripping would be required, followed by additional validation sampling and analysis.

Remediation of Hydrocarbon and Heavy Metal Impacted Soils

Potential hydrocarbon and heavy metal contamination was expected to localised in areas of car bodies, and potentially associated with other dumped waste materials.

The proposed remediation strategy was to conduct testing on the potentially impacted soils, and if required, remove the localised source/affected fill to a licensed waste facility.

The following procedures were recommended for assessment of areas with potential hydrocarbon and heavy metals contaminated soils:

- Contractor to remove the car bodies, waste materials, upper fill;
- Contamination consultant to observe the footprint of the area to assess for visual or olfactory indicators of contamination.

If the assessment identified impact, the following procedures for remediation were proposed:

- Contractor to progressively excavate affected soils from affected areas under full-time guidance of contamination consultant;
- Excavated/chase contaminated material until visual evidence indicated the absence of such materials;
- Waste classification of the materials by contamination consultant;
- Disposal of the materials to an appropriately licensed waste facility;
- Validate the area:
    - Observation of the stripped surface/excavation by a contamination consultant to confirm the visual absence of potentially contaminated fill/soils;
    - Validation samples for chemical testing would be collected at a sampling density of at least 10m by 10m grid over the stripped area, with a minimum of two samples per stripped area;
    - Chemical analysis of validation samples would be conducted by a NATA registered laboratory;
    - If required, validation samples should also be collected from the surface following removal of temporary stockpiles of impacted materials.

If validation results exceed the RAC, further excavation/stripping would be required, followed by additional validation sampling and analysis.

<u>Assessment of Fill Stockpiles for Re-use or Disposal</u>

The results of laboratory analysis would be utilised to confirm options for off-site disposal, or re-use at the site, as follows:

- Satisfies Remediation Action Criteria (RAC):
    - Re-use on site, subject to geotechnical suitability as engineered fill;
    - Dispose off-site to a licensed landfill.
- Satisfies RAC and off-site re-use criteria:
    - Re-use on site, subject to geotechnical suitability as engineered fill;
    - Dispose off-site to a licensed landfill;
    - Re-use off-site, subject to geotechnical suitability and classification as VENM or ENM.
- Exceeds RAC but satisfies landfill disposal guidelines (NSW EPA, 2014):
    - Dispose off-site to a licensed landfill.
- Exceeds RAC and exceeds landfill disposal guidelines:
    - Develop on-site remediation strategy (subject to regulatory approval);

- Carry out appropriate immobilisation for off-site disposal to licensed landfill (subject to regulatory approvals).

Additional Investigation and Management of Potential PFAS-impacted Soils

At the time of preparing the RAP, DP understood that the site was proposed to be largely filled. The placement of fill, with the construction of buildings and pavements, would minimise the potential exposure pathway between PFAS-impacted soils and site users, following construction.

In areas where natural soils were exposed at or near the final surface (i.e. areas of cut, landscaped areas, areas adjacent to surface water bodies), the RAP required the following additional investigation, and management (if required):

- Near-surface soil sampling within the area of exposed soils, with sampling density in accordance with the NSW EPA (1995) Sampling Design Guidelines (which were current at the time of preparing and implementing the RAP);
- Analysis of near-surface soils for PFAS;
- Comparison of the PFAS concentrations with the RAC.
- If PFAS-impacted soils were identified, then the RAP provided two options for remediation/ management
- Option 1 Removal of impacted soils, followed by validation testing, including:
  - Waste classification of the soils requiring disposal;
  - Disposal of the classified soils to an appropriately licensed waste facility;
  - Observation of the stripped surface/excavation by a contamination consultant to confirm the visual absence of potentially contaminated fill/soils;
  - Validation samples for chemical testing would be collected at a sampling density of at least 10m by 10m grid over the excavated/stripped area, with a minimum of two samples per excavation/stripped area;
  - Chemical analysis of validation samples would be conducted by a NATA registered laboratory;
  - If required, validation samples should also be collected from the surface following removal of temporary stockpiles of impacted materials.
- Option 2 Management of via capping with "clean" soil, including:
  - Survey of the top of the PFAS-impacted soil;
  - Placement of a marker layer over the surface of the PFAS-impacted soil;
  - Construct a cap with "clean" soil a minimum of 0.3m thick;
  - Survey to the top of the cap to demonstrate the thickness;
  - Preparation of a Long-Term Environmental Management Plan for the ongoing management of the impacted soil.

The RAP provided more detailed information on the validation and capping requirements, which have not been reproduced here.

DP also recommended that due to the diffuse nature of PFAS contamination at the site, a long-term environmental management plan be adopted for the whole site, "…*noting that all*

natural soils are treated as PFAS-impacted unless otherwise assessed as a precautionary measure, and subject to additional site assessment.

In addition to the above, there is potential for groundwater and surface water interaction at the site, given the regional PFAS impact in groundwater. The following additional management measures are recommended to minimise the potential for interaction between site users and potential PFAS impacts:

- *A restriction on the extraction and use of groundwater within the site (to be include as part of the EMP regulatory documents);*
- *Lining of constructed surface water bodies (e.g. stormwater basins, drains etc.) to minimise interaction of 'clean' stormwater and PFAS-impacted groundwater and possible contamination of surface water bodies."*

Additional Investigation and Management of Fill

As detailed assessment was not previously completed, the DP 2019 RAP recommended the following for areas where fill was identified:

Subsurface sampling of fill,

- NSW EPA (1995) Sampling Design Guidelines (which were current at the time of preparing and implementing the RAP);
- Analysis of fill soils for a range of contaminants, as identified in the CSM (DP, 2019a);
- Comparison of the concentrations with the RAC.

If contaminated soils were identified, then the RAP provided the two options for remediation/ management:

- Option 1 Removal of impacted soils, followed by validation testing, including:
  - Waste classification of the soils requiring disposal;
  - Disposal of the classified soils to an appropriately licensed waste facility;
  - Observation of the stripped surface/excavation by a contamination consultant to confirm the visual absence of potentially contaminated fill/soils;
  - Validation samples for chemical testing would be collected at a sampling density of at least 10m by 10m grid over the excavated/stripped area, with a minimum of two samples per excavation/stripped area;
  - Chemical analysis of validation samples would be conducted by a NATA registered laboratory;
  - If required, validation samples should also be collected from the surface following removal of temporary stockpiles of contaminated materials.
- Option 2 Management of via capping with "clean" soil, including:
  - Survey of the top of the contaminated soil;
  - Placement of a marker layer over the surface of the contaminated soil;
  - Construct a cap with "clean" soil a minimum of 0.3m thick;
  - Survey to the top of the cap to demonstrate the thickness;
  - Preparation of a Long-Term Environmental Management Plan for the ongoing management of the contaminated soil.

The RAP provides more detailed information on the validation and capping requirements, which have not been reproduced here.

Investigation and Remediation of Effluent Pond

Department of Defence are responsible for the remediation/management of the effluent pond, and therefore the remediation requirements in the DP 2019 RAP for the effluent pond have been excluded from this report.

Further information regarding the potential for the site soils or groundwater to be contaminated by the pond are provided in Section 3.4 below.

Groundwater Monitoring

Department of Defence are responsible for the ongoing groundwater monitoring due to PFAS impacts and the effluent pond, and therefore the groundwater monitoring recommendations in the RAP have been excluded from this report.

3.3 DP (2019c) Geotechnical Investigation

DP carried out a Geotechnical Investigation for the larger Stage 1 subdivision site, ref: 39728.20.R.001.Rev1 dated 30 September 2019. In the report, DP note that a number of previous assessments were completed on or near the site (by DP), and data from those assessments was referred to in the DP (2019c) Report.

A review of the borehole and test pit logs in the DP (2019c) Report was carried out, and fill materials were identified in locations 2, 219, 307 and 1101. Of these locations, only 307 was located on the site. Location 307 showed 0.6m of fill comprising Clayey Sand with some gravel and cobbles, and trace brick and coal. Based on the location of 307, it appears it was located in the stockpile of fill identified by DP in the central part of the site.

The boreholes and test pits for the site typically showed aeolian sands, and soft clays. Figure 5, Appendix A, shows the borehole locations, with the site overlaid on the Figure.

The other information in the geotechnical investigation report is not considered relevant to contamination issues for the site, and is not re-produced here.

3.4 AECOM (2021) Sewage Treatment Plant Lagoons – Remediation Considerations (DRAFT Rev B)

AECOM prepared a response (ref: to the Department of Defence on current soil and water contamination status and the potential future remediation of the Effluent Lagoons associated with the RAAF Base Williamtown Sewage Treatment Plant (STP). The letter also addressed how remediation could impact the Newcastle Airport Pty Ltd (NAPL) proposed car parks.

The letter provided a summary relating to information AECOM gathered from historical and current environmental investigations associated with the U-Shaped Effluent Lagoon. The lagoon is located to the north-east of the site. The environmental investigations the letter was based on were not provided to Qualtest.

Lagoon Description

AECOM (2021) stated that treated effluent from the Sewage Treatment Plan (STP), located further north of the site, is directed to the U-Shaped Effluent Lagoon for storage and disposal via evaporation and infiltration. During peak flow periods treated water is directed to two overflow effluent lagoons, located to the north-east of the site. The STP has been identified (by AECOM) as a primary PFAS source area in the PFAS management area.

The u-shaped lagoon was historically reported to be unlined. AECOM assessed that "*The edge of the U-Shaped Lagoon is raised slightly around the perimeter, comprising grass overlying sandy soils and acts as a bund to contain water in the lagoon catchment, however overflow of the lagoon water would be expected to infiltrate these soils during increased flow/rainfall events.*" Recent investigations (by AECOM) indicated the base of the U-shaped effluent lagoon is below the groundwater level.

Contamination Summary

Remediation planning had not commenced for the STP infrastructure, lagoons network or the immediate surrounding land. AECOM stated that an investigation report for recently completed PFAS sampling was currently being drafted for Defence.

Soil and Sediment Results
Sampling of sediment was limited to 0.5m below the base of the lagoon and in surrounding soils up to 0.8m below the ground surface. AECOM considered that the sampling targeted the soil/sediment depth that would be directly impacted by STP effluent. These locations were located around the lagoon, and were not located on the site.

Elevated concentrations of chemicals of potential concern (apart from PFAS) were not reported for soil or sediment. Concentrations of PFAS (PFOS + PFHxS) were reported:

- In the soil immediately surrounding the lagoons, but at concentrations below the commercial/industrial land use criteria;
- Within the sediment under the lagoon. There was no criteria for PFAS in sediment. Comparison of sediment results to soil criteria showed concentrations below the commercial/industrial land use criteria; and,
- In groundwater above the drinking water guideline and recreational guidelines.

AECOM stated that leaching (ASLP) data indicated that the PFAS from the soil and sediment was likely to be an ongoing source to the underlying groundwater.

Based on the above, it is considered unlikely that soil on site would be impacted by PFAS contamination from the lagoon. Groundwater on site would be expected to contain PFOS + PFHxS above the drinking water guideline and recreational guideline.

Remediation Management [for Lagoons]

AECOM stated:

"*Given that the concentrations of the chemicals of potential concern were not elevated above relevant criteria, the management of soil and sediment during future remedial works associated with the lagoons is unlikely to extend beyond the bunds of the lagoons.*

AECOM considers that due to the presence of faecal coliforms and leachable concentrations of PFAS, the excavation would be limited to the sediment within the lagoons together with a portion of the bunding. The excavation depths are likely to extend to be between 0.5 and 0.8m in depth.

In areas where NAPL infrastructure (i.e. carpark or roadways) is present adjacent to the lagoons, sheet piling may need to be considered to minimise disturbance of the infrastructure, where slope battering may not be suitable.

Until such time as remediation of the Site [the lagoons] *is progressed, preserving the structure of the U-Shaped Effluent Lagoon will be critical to ensure it continues to function as required. Similarly, preservation of an easement and/or laydown area at the southern end of the lagoons would be prudent to allow access for any future remediation (potentially including*

excavation and stockpiling) that may be required. Such an allowance of space should account for the anticipated volume of approximately 15,000m³ (bunding and sediment) that may be removed from the lagoon as part of future remediation.

The Groundwater Strategy Review is currently considering remediation options for the Base, however, the most likely forms of future groundwater remediation is unlikely to impact the proposed infrastructure surrounding the Site."

Based on the above, the remediation of the lagoon may affect the site, as the laydown area suggested by AECOM at the southern end of the lagoon could be located within lots 103 to 108. There is also a potential that groundwater monitoring wells may be installed within the site, presumably under agreement with GNAPL, and these would need to be accessed intermittently for monitoring.

3.5 Appendix I - Illegal Dumping

GNAPL provided a plan showing the location of waste materials on the Stage 1 subdivision areas, titled "Appendix I – Illegal Dumping". It is not known who identified the waste materials, plotted the waste on the plan, or the date of the identification. It is inferred that the plan was provided as part of tender documents prior to commencement of early works.

The plan has been re-produced as Figure 6, Appendix A. The waste types identified comprised: a burnt out holden commodore; rubble; timber; household wastes (i.e. heater, fan, cooler fridge, mattress); fibro; asphalt; car bumpers; dirtbike; glass; and, plastic.

3.6 Williamtown RAAF Base PFAS Assessments

The Williamtown RAAF Base and surrounds have been the subject of numerous investigations due to the occurrence of Per and Poly-FluoroAlkyl Substances (PFAS) contamination. The PFAS contamination has been identified across and beyond the RAAF Base boundaries, largely spread via groundwater and surface water.

Information is publicly available from the Australian Government Department of Defence – PFAS Investigation and Management Program, RAAF Base Williamtown website (https://www.defence.gov.au/environment/pfas/williamtown/Default.asp).

The website states: "*In October 2018, Defence completed the detailed environmental investigation into per- and poly-fluoroalkyl substances (PFAS) on, and in the vicinity of, RAAF Base Williamtown. All findings from the investigation are available on the publications page including detailed reports and factsheets.*

Defence is now focusing on management and remediation of PFAS contamination within the Management Area. The outcomes of the investigation have been used to develop a PFAS Management Area Plan (PMAP) that outlines the best management and remediation solutions for the unique circumstances at Williamtown."

Qualtest have carried out a review of the PMAP (ref: RAAF Base Williamtown, PFAS Management Area Plan, 27 May 2019 Revision 1). Information from the PMAP that is relevant to the site, is summarised below.

NSW EPA Management Area

The site is located within the NSW EPA Management Area. The NSW EPA Management Area is split into three zones. The three zones and institutional controls for each zone are summarised below:

- Primary Management Zone which includes the land immediately to the south of the RAAF Base. The institutional controls for the Primary Management Zone are: "*Groundwater, bore water and surface water should NOT be used for any purpose. Additionally, do not do anything with groundwater, bore water or surface water (including in creeks and drains) that might lead to incidental ingestion (swallowing). Home grown foods produced in your area should NOT be consumed. This includes home-slaughtered meat, poultry, eggs, milk, fruit and vegetables.*"
- Secondary Management Zone which includes land immediately to the west and south of the Primary Management Zone, and extending east along Moors Drain. The institutional controls for the Secondary Management Zone are: "*Do not use groundwater, bore water or surface water for drinking or cooking. Avoid swallowing groundwater or surface water when bathing, showering, swimming and paddling (including in creeks and drains). Groundwater and surface water should NOT be used for swimming or paddling pools. Avoid eating home grown food produced in your area – including home-slaughtered meat, eggs, milk, poultry, fruit and vegetables.*"; and,
- Broader Management Zone which surrounds the Secondary Management Zone and extends south along the eastern side of Fullerton Cove. The institutional controls for the Broader Management Zone are the same as the secondary management zone, see above.

The site is located within the Primary Management Zone.

Human Health Risk Zones

As part of a Human Health Risk Assessment completed by AECOM (2017) on behalf of the Department of Defence, four risk zones via exposure pathways to PFAS were identified:

- "*Risk Zone A – Defined as the Southern Area. The precautions recommended by the HHRA in Zone A generally correspond with those recommended by the NSW government for the NSW EPA Primary Management Zone.*
- *Risk Zone B – Defined as the eastern boundary, runoff to Moors Drain. The precautions recommended by the HHRA in Zone B generally correspond with those recommended by the NSW government for the NSW EPA Secondary Management Zone.*
- *Risk Zone C – Defined as that portion of the off-Base Management Area outside Zone A and Zone B and which corresponds with the surface water drainage network south of the Base, which predominately discharges to Fullerton Cove. The precautions recommended by the HHRA in Zone C generally correspond with those recommended by the NSW government for the NSW EPA Broader Management Zone.*
- *Risk Zone D- Defined as that portion of the off-Base Management Area outside Zone A, Zone B and Zone C which corresponds with the surface water drainage network south- east of the Base, which predominately discharged to Tilligerry Creek. The precautions recommended by the HHRA in Zone D generally correspond with those recommended by the NSW government for the NSW EPA Broader Management Zone.*"

The site is located within Risk Zone A.

Ecological Risk Zones

As part of an Ecological Risk Assessment completed by AECOM (2018), six ecological risk zones were identified based on exposure pathways to PFAS:

- *"Area A – Encompasses the area to the west and south of the RAAF Base and Newcastle Airport and north of Cabbage Tree Road;*
- *Area B – Encompasses the area from the east boundary of the RAAF Base and Newcastle Airport to the eastern extent of the NSW EPA Management Area and north of Nelson Bay Road;*
- *Area C1 – Encompasses the area west of Nelson Bay Road, and south of Cabbage Tree Road. Area C1 contains the southern section of Dawsons Drain, the western portions of Fourteen Foot Drain and Ten Foot Drain and the Fullerton Cove Ring Drain;*
- *Area C2 – Encompasses the area south and east of Nelson Bay Road and contains the eastern sections of Fourteen Foot Drain and Ten Foot Drain as well as the freshwater reaches of Tilligerry Creek;*
- *Area D – Encompasses the Hunter Wetlands National Park which includes Fullerton Cover, the Tomago Wetlands (including the restoration area), the Kooragang Wetlands and the southern reaches of the Hunter River (excluding the southern portion of Kooragang Island); and*
- *Area E – Encompasses the estuarine area of Tilligerry Creek to Lemon Tree Passage."*

The site is located within Assessment Area A. The identified exposure pathways with potential elevated or unacceptable ecological risks are shown below:

- *"Ingestion of environmental media (Areas A, B, C1, E);*
- *Bioaccumulation of PFAS into aquatic organisms (Areas A, B, Ca, C2, E);*
- *Bioaccumulation of PFAS into terrestrial organisms (Areas A, B, C1, C2);*
- *Bioaccumulation and trophic transfer in aquatic and terrestrial food webs (Areas A, B, C1, C2, D, E)."*

Groundwater and Surface Water Monitoring

The PMAP states that groundwater, surface water and sediment sampling on and off Base will occur every 6 months. The most recent report publicly available is the AECOM (October, 2022) Annual Interpretive Report – 2021 (AECOM, 2022).

Based on the AECOM, 2022 report, there are soil or surface water/sediment sampling locations on the site. There was one groundwater well on the eastern side of the site, but this was not sampled. There are a number of offsite groundwater monitoring wells, and surface water/sediment sampling locations, surroundings the site, at various distances from the site. There are several soil sampling locations south of the site along Cabbage Tree Road.

The AECOM (2022) report showed groundwater concentrations in May 2021 of PFOS + PFHxS were above the adopted criteria up-gradient and down-gradient of the site. PFOA concentrations were above the adopted criteria up-gradient of the site, and below the adopted criteria down-gradient of the site. This indicates that groundwater beneath the site likely contains PFAS concentrations above the adopted criteria.

There are no surface water bodies on the site on the site, there are stormwater drainage channels on the site. The AECOM (2022) report showed surface water concentrations in May 2021 of PFOS + PFHxS were above the adopted criteria up-gradient and down-gradient of the site. PFOA concentrations were below the adopted criteria up-gradient and down-gradient of the site. This indicates that surface water on the site (when present in drains) would contain PFAS above the adopted criteria.

There would be sediment associated with stormwater drainage channels on the site. The AECOM (2022) report showed sediment concentrations in May 2021 of PFOS + PFHxS and PFOA were below the adopted criteria up-gradient and down-gradient of the site. This indicates that sediment on the site would contain PFAS below the adopted criteria.

The AECOM (2022) report showed the soil samples located south of the site reported concentrations in May 2021 of PFOS + PFHxS and PFOA below the adopted criteria.

3.7 Qualtest (2021) Preliminary Contamination Assessment

Qualtest carried out a Preliminary Contamination Assessment (PCA), on behalf of Northrop Consulting Engineers (Northrop), for two proposed car parking areas at Newcastle Airport (ref: NEW21P-0182-AA, dated 3 December 2021). The areas were located on either side of the U-shaped effluent pond, located to the north of the site. Whilst the areas are not located on the current site, they provide information that is relevant to the site, as the sampled areas are closer to potential contamination sources (Newcastle Airport and RAAF Base) than the site.

The areas assessed were:

- Designated Stage 1, approx. 6,700m^2 located in Stage 2B (part of Lot 256) of the Astra Aerolab Development;
- Designated Stage 4 and Stage 1 (additional), approx. 4,700m^2 located in Stage 2B (part of Lots 256 and 257 and part of Road 3) of the Astra Aerolab Development;
- Stockpiled soil designated as SP105, approx. 1,270m^3 located on Stage 2B (eastern side of Lot 256) of the Astra Aerolab Development.

At the time of the assessment, the site was vacant, unused land within the Newcastle Airport grounds.

The objectives of the assessment were to:

- Carry out an assessment of the likelihood of contamination to be present from past and current site activities (i.e. assessment of Areas of Environmental Concern and Contaminants of Potential Concern) and prepare a preliminary Conceptual Site Model (CSM);
- Carry out a re-use assessment of fill mound SP105; and,
- Make recommendations on the need for further assessment.

In order to achieve the above objectives, Qualtest carried out the following scope of work:

- Desktop study and site history review;
- Site walkover;
- Collection of soil samples from 23 locations;
- Laboratory analysis of soil samples for identified Contaminants of Potential Concern (COPC); and,
- Data assessment and preparation of a Preliminary Contamination Assessment Report.

The site history review showed the area investigated had remained vacant land, likely used for cattle grazing since at least the mid-1950s. The surrounding land to the north, east and west had been developed since the 1940s into a commercial airport and RAAF Base, and a sewage treatment plant with effluent ponds associated with the airport and RAAF base.

Stockpile SP105 was observed along the eastern boundary of the area investigated, and was placed there during earthworks for previous car park developments for the airport.

The are was located within the Williamtown RAAF Base Per- and Poly-Fluoroalkyl Substances (PFAS) Management Area. Based on previous assessments carried out around the site, the groundwater on the site was expected to be contaminated with PFAS above the human health drinking water and recreational criteria.

Two Areas of Environmental Concern (AECs) were identified based on the site history and site observations:

- AEC 1: Imported Fill - Potential storage and use of contaminated imported fill;
- AEC 2: PFAS contamination from Williamtown RAAF base and Sewage Treatment Plant & Lagoons adjacent to site - Potential for contaminated soil and groundwater on the site.

A preliminary soil assessment was carried out, and showed that fill was present in one location on the western side of the Stage 1 car park area. The fill was overlying an asphalt pavement. The laboratory results showed benzo(a)pyrene TEQ and TRH contamination in the fill material, and based on the concentrations it was considered that the contamination was related to asphalt fragments in the fill. The laboratory results showed other contaminants below the adopted criteria.

The results of the stockpile SP105 sampling and analysis showed that it did not meet the criteria for ENM. The assessment showed that the stockpile was suitable for onsite re-use.

The absence of contaminated surface soils in areas located closer to the potential sources of contamination, (effluent lagoon, airport and RAAF Base) indicates that the surface soils on the site are unlikely to be contaminated from offsite sources.

4.0 Works Completed by KCE

KCE completed early works on the Stage 1 Astra Aerolab site in October to December 2019, that included:

- Removal of waste materials on the site;
- Vegetation clearing; and
- Bulk earthworks including placement of fill for construction of roads, and on proposed Lots 103 to 106 for pre-load testing (for geotechnical purposes).

Information provided by KCE indicates they completed the following, from a remediation perspective, for the Stage 1 Astra Aerolab site:

- Disposal of 2.86 tonnes of "C&D dry waste" to Suez Raymond Terrace Waste Management Centre located on Newline Road, Raymond Terrace NSW. The waste was disposed on the 26 August 2019:
    - It is assumed that the material disposed comprised the waste material identified on the Stage 1 Astra Aerolab site, and shown on Appendix I – Illegal Dumping (see Section 3.5 above), however no documentation to demonstrate this has been provided;
    - The waste would have included potential asbestos containing materials (identified as "fibro" on Appendix I – Illegal Dumping). The waste dockets do not refer to asbestos

waste. The waste facility the material was disposed to was licensed to accept asbestos waste, so whilst this is a discrepancy, it is not considered to affect the outcome of the validation report.

- Imported 915.52 tonnes quarried material from Hunter Quarries Karuah Quarry located on Andersite Road, Karuah NSW. Karuah Quarry quarries andesite rock to produce road base and other materials. The material imported by KCE comprised "125mm minus- non". The material was imported on 16, 19, 20, 21 and 22 August 2019.
- No information on the earthworks for Lots 103 to 106 has been provided. Based on information provided it is assumed that the earthworks comprised cut and fill of the existing site soils, and use of imported fill from Karuah Quarry.

The waste dockets and imported fill dockets provided by KCE are presented in Appendix B.

No clearance reports for the site surface following removal of waste materials, including potential asbestos containing materials ("fibro") have been provided.

Satellite images of the site prior to KCE commencing works, and after KCE completed works are provided as Figures 3 and 7, Appendix A.

Selected photographs taken by KCE during the works are presented below in chronological order.

Photograph 1 – Showing stripped surface near round-about intersection with Williamtown Drive (based on KCE information), 22 Sept 2019

Photograph 2 – Showing stockpiling of imported quarry material (based on KCE information), 25 Sept 2019. Inferred to be looking south-west from the north-west of the site.

Photograph 3 – Showing pre-load area (based on KCE information), inferred to be in the area of Lots 103 to 106, 23 Oct 2019.

Photograph 4 – Showing site on 23 Oct 2019. Inferred to be the central part of the site.

Photograph 5 – Showing pre-load drainage installation (based on KCE information), inferred to be in the area of Lots 103 to 106, 29 Oct 2019.

Photograph 6 – Showing site on 1 Nov 2019. Inferred to be the south-western part of the site.

Photograph 7 – Showing site on 1 Nov 2019. Inferred to be the south-western part of the site.

Photograph 8 – Showing site (inferred to be Lots 103 to 106) before works on 5 Nov 2019. Photograph 14 shows similar site location after works on 19 Dec 2019.

Photograph 9 – Showing site (inferred to be Lots 103 to 106) before works on 5 Nov 2019. Photograph 15 shows similar site location after works on 19 Dec 2019.

Photograph 10 – Showing site (inferred to be Lots 103 to 106) on 15 Nov 2019.

Photograph 11 – Showing site (inferred to be central portion of the site) on 15 Nov 2019.

Photograph 12 – Showing site (inferred to be south-west portion) on 18 Nov 2019.

Photograph 13 – Showing site (inferred to be Lots 103 to 106) on 6 Dec 2019.

Photograph 14 – Showing site (inferred to be Lots 103 to 106) after works on 19 Dec 2019. Photograph 8 showed similar site location before works on 5 Nov 2019.

Photograph 15 – Showing site (inferred to be Lots 103 to 106) after works on 19 Dec 2019. Photograph 9 showed similar site location before works on 5 Nov 2019.

Photograph 16 – Showing site area with stockpiles of imported quarry material, on 17 Jan 2020. Inferred to be looking south-west from the north-west of the site.

5.0 Works Completed by Daracon

Daracon completed the bulk earthworks and construction of the subdivision, i.e. creation of allotments, construction of roads, and installation of services, between February 2020 and October 2020. An aerial image of the site, after Daracon completed works, is provided as Figure 10, Appendix A.

Daracon provided a RAP Compliance letter dated 4 May 2021, which is presented in Appendix C. The letter provided the following information:

"In accordance with Contract Preliminaries, Daracon confirm that where applicable, Daracon have undertaken the works in accordance with the Remediation Action Plan prepared by Douglas Partners dated November 2019.

Details of works undertaken in accordance with Remediation Action Plan (RAP) Section 8 Scope of Works, are outlined as follows:

Identified Scope	*Treatment Details*	*Record*
Localised opportunistic Dumping	*Site rubbish removed prior to Daracon commencement onsite. No treatment required.*	*Nearmaps high-resolution aerial image dated 11/2/2020 depicting absence of dumped rubbish and car bodies.*
Additional Assessment of PFAS impacts	*Additional assessment/ investigation undertaken in the form of PFAS testing by GNAPL. Results of testing indicate no requirement for barrier layer of capping, in line with RAP requirements.*	*Valley Civilab Report ref P-R002-ESA-Rev0, and related email correspondence.*

Identified Scope	*Treatment Details*	*Record*
On-site Management of PFAS Impacts	*Not required based on the above testing.*	*N/A*
On-site management of impacts associated with effluent ponds	*Not applicable to Daracon Scope of Work.*	*N/A*
Sediments and Groundwater associated with effluent pond	*Not Applicable to Daracon Scope of Works*	*N/A*
Classification of imported materials for on-site reuse	*Earthworks fill imported by GNAPL.*	*N/A*
Unexpected Find – White Crystalline Material within excavated earthworks material	*Material separated and stockpiled. Material testing undertaken by Qualtest. Material assessed as suitable for onsite reuse. No Treatment Required.*	*Qualtest Report NEW20P-0020-AC*

The Nearmaps image dated 11/2/2020 referred to by Daracon has been included in Appendix C. Qualtest reviewed the Nearmaps image and agree that there was no visible evidence of waste materials on the site, with the exception of some tree branches and stumps in the central portion, and a pile of concrete rubble or similar in the eastern portion. There were also numerous stockpiles of soils on the site which appeared to be imported gravels/aggregates, and site sourced soils (dune sands). Works were underway in the north-west corner (proposed Lot 100).

Selected photographs taken by Qualtest during Level 1 geotechnical supervision of earthworks, showing the site prior to earthworks, during proof-rolling, and placement of material are presented below in chronological order.

Photograph 17 – Initial site visit by Qualtest, showing entry road foundation on 12 Feb 2020.

Photograph 18 – Initial site visit by Qualtest, showing general site conditions in the south-west portion of site, 12 Feb 2020.

Photograph 19 – Initial site visit by Qualtest, showing general site conditions in the south-west portion of site, 12 Feb 2020.

Photograph 20 – Initial site visit by Qualtest, showing profile of test pit excavated to expose material in the south-west portion of site, 12 Feb 2020.

Photograph 21 – Placement of first layer of material on Lot 109, 17 Feb 2020.

Photograph 22 – Placement of material on Lot 109, 17 Feb 2020.

Photograph 23 – Test pit in Lot 108 showing profile of imported fill material overlying aeolian sands, 20 Feb 2020.

Photograph 24 – Detention basin area in western part of site, prior to works, 10 Mar 2020.

Photograph 25 – Showing topsoil stripping, 20 Apr 2020.

Photograph 26 – Showing placement of geo-fab, and stockpiled imported fill ready for placement, 20 Apr 2020.

Photograph 27 – Showing Lot 101 and 102 after topsoil stripping and before placement of fill, 20 May 2020.

5.1 Valley Civilab (2020) PFAS Investigation, Astra Aerolab Stage 1

Valley Civilab Pty Ltd were engaged by Newcastle Airport to complete a PFAS investigation of surface soils for a portion of the Stage 1 Astra Aerolab site (ref: P1927-R-002-ESA-Rev0, dated 26 March 2020). Figure 8, Appendix A, shows the area assessed.

At the time of the assessment, the majority of the site had been subject to earthworks to level the area and then roadbase/gravel placed on the surface. The eastern portion of the assessment area comprised exposed site soils (dune sands).

The objective of the investigation was to assess whether the soils were suitable for re-use on site, or required capping (in accordance with procedures in the RAP, DP, 2019b) from a PFAS contamination perspective.

The assessment comprised:

- Collection of 13 surface soil samples (S1 to S13), which were analysed for PFAS at a NATA accredited laboratory. Figure 8, Appendix A, shows the sampling locations;
- Comparison of the results to the HEPA (2019) PFAS NEMP (current at the time of the assessment);
- Preparation of a letter report.

The results showed concentrations of PFAS below the adopted criteria (commercial/industrial land use). Valley Civilab concluded that the material was suitable to remain in-situ during future development and no marker layer was required.

5.2 Qualtest (2020) Assessment of Stockpiled Material

Daracon identified a stockpile of white crystalline material when they took control of the site (for during earthworks). Daracon engaged Qualtest to carry out an assessment of the material, to assess if the material was suitable for re-use onsite, and the waste classification of the material.

The source of the material was not known, but appeared to be gypsum mixed with site soils. The stockpile was approximately 8m^3. No staining, odours, or asbestos containing materials were observed during the site assessment.

The assessment comprised

- Collection of 3 surface soil samples (SP1-1 to SP1-3), which were analysed for TRH, BTEX, PAH, Metals and asbestos at a NATA accredited laboratory. Based on the findings of the Valley Civilab assessment, it was considered that the material was unlikely to be contaminated with PFAS;
- Comparison of the results to commercial/industrial land use criteria and waste classification criteria; and,
- Preparation of a letter report.

The results showed concentrations of contaminants below the adopted commercial/industrial land use criteria, and the material was suitable for re-use onsite. The material classified as General Solid Waste (non-putrescible) if it required disposal off-site.

5.3 Qualtest (2020) Level 1 Re-Grade Assessment Report

Daracon engaged Qualtest to carry out Level 1 supervision and testing as defined in Clause 8.2 – Section 8 of AS3798-2007 '*Guidelines on Earthworks for Commercial and Residential Developments*' during earthworks. A Level 1 Re-Grade Assessment report was prepared, ref NEW20P-0020-AB dated 12 November 2020:

The report included information on the earthworks completed on the site for proposed Lots 101 to 110 of the Stage 1 subdivision:

The fill materials used comprised:

- Site material won from around the site. This material could generally be described as (SP) SAND, fine to coarse grained, pale grey / white in colour, with fines of little or no plasticity.
- Imported material sourced from Hunter Quarries Karuah Quarry located on Andersite Road, Karuah NSW. The imported material consisted of either 5mm Dust, a 20mm or 40mm Fine Crushed Rock (FCR) product, or a mixture of both materials. The 5mm Dust material was described as Gravelly SAND, fine to coarse grained, grey in colour, with fine to medium grained Gravel. The FCR material was described as mixtures of Sandy GRAVEL / Clayey GRAVEL, fine to coarse grained, grey / brown in colour, low plasticity, fine to coarse grained Sand.
- Mixtures of the site won material and imported quarry material. This material was generally described as mixtures of Sandy GRAVEL / Clayey GRAVEL, fine to coarse grained, grey / brown in colour, low plasticity, and fine to coarse grained Sand.

The fill thicknesses placed by Daracon were:

- Lots 101 to 108 were filled with between 0.1m to 2.4m thickness of fill, with the majority between 0.4m to 1.6m. No cuts were carried out on Lots 101 to 108;
- Lot 109 was subject to cut and fill. Lot 109 had natural site soils cut from dunes in the north-east portion and central-western portion. The cuts ranged from 0.1m to 1.4m. The remainder of Lot 109 was filled with between 0.1m to 1.8m thickness of fill; and,
- Lot 110 was subject to cut and fill. Lot 110 had natural site soils cut from dunes on the central-western boundary, and central to north-east portion. The cuts ranged from 0.1m to 1.6m. The remainder of Lot 109 was filled with between 0.1m to 2.0m thickness of fill.

5.4 EP Risk (2021) Asbestos Clearance Certificate (ACC01) – Hen Peck Work Area

EP Risk Pty Ltd (EP Risk) prepared an asbestos clearance certificate (ref: EP2074-ACC01, dated 27 April 2021) following removal of bonded ACM from a portion of the Stage 1 Astra Aerolab site. The area of the clearance was located on the eastern side of the site, and is shown on Figure 9, Appendix A.

EP Risk were engaged by EnviroPacific Services Pty Ltd (EPS) for the clearance works. EPS were engaged by Daracon to undertake the hen-peck and removal works.

EP Risk reported:

"EP Risk were engaged to visually inspect the Hen Picking Work Area and issue an ACC following bonded (non-friable) Hen Picking works by EnviroPacific. This ACC covers the bonded (non-friable) ACM fragments Hen Picking Work Area only. A separate validation report will document the asbestos remediation and validation works.

Hen Picking of bonded (non-friable) ACM fragments was conducted 26 April 2021. Experienced and qualified environmental consultants from EP Risk attended the Site on a part-time basis during the segregation works to provide control air monitoring and visual clearance following the works.

EP Risk considers bonded (non-friable) ACM fragments were removed to the extent practicable at the time of the inspections. EP Risk concludes the bonded (non-friable) ACM fragments within the Hen Picking Work Area have been removed in accordance with the Code of Practice, as far as reasonably practicable and the Segregation Hen Picking Work Area is suitable for reoccupation for ongoing commercial/industrial use.

Given the nature of loose sand soils encountered and potential for further buried ACM fragments, EP Risk cannot guarantee that buried asbestos will not become exposed over time and an unexpected finds protocol (UFP) should be developed and implemented for future management of the construction area and the Proposed Development."

Qualtest note that Daracon advised that no separate validation report was prepared, and that reference to a separate report was an error in the EP Risk (2021) report.

A docket for the disposal of the ACM was provided, and is attached in Appendix B. The docket indicates that 0.04 tonnes of asbestos waste was disposed on 21 October 2021 to Summerhill Waste Management Centre, located on Minmi Road, Wallsend.

5.5 Material Imported by GNAPL

As stated in Section 5.1 above, fill material used by Daracon for bulk earthworks was imported by GNAPL. Table 5.5 below summarises the material GNAPL imported.

Table 5.5 – Summary of Material Imported by GNAPL

Source	Type	Quantity (t)	Documentation
Hunter Quarries – Karuah Quarry, Andersite Road, Karuah	"125mm Minus"	81.28	VENM letter by Valley Civilab, dated 10 September 2018 Hunter Quarries Transcript
	"General Fill – Processed"	24,770.36	
Hunter Quarries – Karuah East Quarry, Blue Rock Close, Karuah	"Fill, Civil, Process, Non Specified"	64,013.26	VENM letter by Valley Civilab, dated 10 September 2018 Hunter Quarries Transcript
	"Large Rock, Civil (Gabion) 90-250mm, Specified"	3,620.64	
	"Large Rock, Civil (Surge Material) 40-250mm, Non Specified"	70.74	

Karuah Quarry and Karuah East Quarry both quarry andesite rock to produce road base and other materials.

6.0 Current Site Observations

A Qualtest Environmental Scientist carried out a site walkover on 30 January 2023 to assess site features. A summary of the site condition at the time of walkover is outlined below:

- The site is an irregular shape, and comprised an asphalt paved road through the central part of the site, generally running in an east-west direction from Williamtown Drive, with a loop around Lots 103 to 108 and Lots 253 to 255 (Stage 2, not part of the current site).
- The road verges comprise concrete footpath, with gravel and turf on the sides. The stormwater drains are located in the verge and comprise open drains lined with cobbles and boulders.
- Large allotments were present on either side of the roads. The allotments were relatively flat, and the majority of the site surface of the allotments was covered with gravel, with grass and weeds growing on areas of the site. The north-western corner of Lot 109 was turfed;
- A picnic and outdoor gym area were present on the south-east portion of the site, located in Lot 113. The area contained a timber and metal shelter, bbq, gym equipment, sandstone blocks, concrete and gravel paths, timber fencing, turfed areas, and garden beds with mulch and tree/plants.

- Stockpiled soils were observed on Lots 101 and 102. The material appeared to comprise a mixture of topsoil and gravel (roadbase / cobbles). Asphalt was observed on some stockpiles. The stockpiles were largely covered in vegetation at the time of the walkover. Information provided by the client indicated that about 380 "loads" of 32 tonnes each (about 6,080m^3) were placed there by Daracon, and the material comprised topsoil stripped off the lots as part of the bulk earthworks.
- Some stockpiled materials were observed on Lot 100, visually these comprised imported roadbase (gravel / cobbles) and mulch (woodchips from mulching of trees).
- Cars were parked on Lot 110. Based on information provided by the client, hire car companies use Lot 110 to temporarily park hire cars.
- No waste materials, or evidence of potential contamination were observed on the site.

Selected photographs taken during the site walkover are shown below.

Photograph 28 – Showing footpath and timber fence on eastern side of site.

Photograph 29 – Showing timber fence, pathway and landscaping towards the picnic area on south-eastern part of site. The sand dune on left side of photograph is located off-site.

Photograph 30 – Showing picnic and outdoor gym area.

Photograph 31 – Showing typical site surface of allotments, and parked cars on Lot 110.

Photograph 32 – Showing typical site surface, and turfed area on Lot 109.

Photograph 33 – Showing mulch stockpiles on Lot 100.

Photograph 34 – Showing stockpiles on Lots 101 and 102.

Photograph 35 – Showing stockpiles on Lots 101 and 102.

7.0 Sampling of Stockpiles on Lots 101 and 102

7.1 Data Quality Objectives

Step 1 – State the Problem

Stockpiles of soil were observed on Lots 101 and 102. Information indicates the stockpiles comprise topsoil stripped from the site as part of bulk earthworks. No previous assessment of topsoil was completed, and based on the PSI (DP, 2019a) completed for the site, contamination, if present, was likely to be in surface soils. Therefore, assessment of the stockpiles (from a contamination perspective) was required to assess if they were suitable to remain on site and/or be reused onsite.

Step 2 – Identify the Decisions

The decisions to be made based on the assessment are:

- Are the stockpiled soils on Lots 101 and 102 suitable to remain on site or be reused on site (i.e. do they meet the criteria for commercial/industrial land use?
- Is further assessment required?
- Will the stockpiles require remediation and/or management to be suitable for reuse, from a contamination perspective?

Step 3 – Identify the Inputs to the Decisions

Inputs into the decision are:

- Have samples been collected at the required frequencies and adequately represent the conditions of the stockpiles?
- Is the data set adequate to perform statistical analysis, if required (i.e. calculate 95% UCL)?
- Have the samples been analysed for the COPCs identified?
- Have concentrations exceeding the adopted criteria been reported in the samples?
- If concentrations exceeding adopted criteria have been reported, will remediation and/or management be required?

The informational inputs into the decision are:

- Field observations and field screening results;
- Laboratory results (concentrations of contaminants in soil);
- QA/QC documentation and data;
- Adopted assessment criteria (see Section 7.3); and,
- Relevant NSW EPA endorsed Guidelines.

The media to be sampled and analysed is: Soil

Step 4 – Define the Study Boundaries

The study boundary is defined as the stockpiles located on Lots 101 and 102 of Astra Aerolab subdivision. The Astra Aerolab subdivision is located in Lot 11 DP 1036501 within the Port Stephens local government area, located off Williamtown Drive, Williamtown NSW. The stockpiled soils location is shown on Figure 11, Appendix A. The stockpiles are about 6,080m^3 in volume. Vertically, the study boundary will be defined by the height of the stockpiles, between 0.5m and 1.5m high. Temporally, the study boundary is the date of sampling, 6 February 2023.

Step 5 – Develop an Analytical Approach

The analytical approach can be defined as: -

- If the laboratory quality assurance/ quality control data are within the acceptable ranges, the data will be considered suitable for use;
- If the COPCs are reported above the adopted criteria and/or at elevated levels (where no criteria are available) then it will be considered whether further assessment, remediation and/or management measures are required;
- Where practical and/or appropriate, the 95% Upper Confidence Limit (UCL) of the validation samples will be calculated. If the 95% UCL is above the adopted criteria, then it will be considered whether further assessment, remediation and/or management measures are required; and,
- Where concentrations are below the assessment criteria, then no further assessment, remediation and/or management of that contaminant, in that area, in that media, is required. This is provided samples have been collected at the required frequencies (as per NSW EPA guidelines) and adequately represent the conditions on site, if not, additional sampling may be required.

Step 6 – Specify Acceptable Limits on Decision Errors

There are two types of errors:

- Type 1 – finding that the site is contaminated, when it is not;
- Type 2 – finding that the site is uncontaminated, when it is.

To reduce the potential for errors, the following will be applied:

- Appropriate field sampling methodologies and collection of field data (including sampling frequency);
- Robust QA/QC assessment of field procedures and laboratory data;
- Appropriate sampling and analytical density;
- Use of statistics (i.e. 95% UCL) to assess arithmetic average of COPCs. Use of statistics will also take into account:
    - No sample should report a concentration more than 250% of the adopted criteria; and,
    - The standard deviation of a sample population should not exceed 50% of the adopted criteria.

The adopted criteria are shown in Section 7.3.

Step 7 – Optimise the Design for Obtaining Data

The methodologies presented in this report are designed to meet the nominated DQOs. Optimisation of the data collection process will be achieved by:

- Working closely with the analytical laboratories and sampling equipment suppliers so that appropriate procedures and processes are developed and implemented prior to and during the field work and that sampling, handling, and transport to, and processing by, the analytical laboratories is appropriate.
- Conduct sampling in accordance with industry best practice and Standard Operating Procedures (SOPs) for the type of sampling being conducted.

7.2 Field and Laboratory Investigations

Soil Sampling

The stockpiles are about 6,080m³ in volume. The NSW EPA (2022) Sampling Design Part 1 – Application, Contaminated Land Guidelines recommends a minimum of one sample per 250m³ for stockpiles volumes over 2,000m³. This equates to 24 sampling locations for 6,080m³. This sampling density was adopted. It is noted that these sampling design guidelines superceded the guidelines reference in the RAP (DP, 2019b).

Twenty-four (24) test pits were excavated into the stockpiles, with the test pits spread across the stockpiles. The test pits were excavated using a mini-excavator with a 450mm bucket. Soil samples were collected from the excavator bucket using a clean pair of nitrile gloves per sample. Figure 11, Appendix A, shows the sampling locations.

From each test pit a 10L sample was collected (SP3-1 to SP3-24) for gravimetric asbestos testing onsite. The gravimetric testing comprised sieving the 10L sample through a 6.7mm sieve and then weighing of any potential Asbestos Containing Material (ACM) fragments (if any). The results of the gravimetric testing are shown in Table 2, Appendix D, and included in Section 7.5 below.

From twelve of the test pits (every second pit), soil samples were collected for laboratory analysis. The soil samples were placed into 250mL laboratory supplied glass jars, 250ml laboratory supplied PFAS jars, and laboratory supplied 500ml zip locked bags. The jar samples were placed directly into an ice-chilled esky and remained chilled during fieldwork and transportation to the laboratory.

Laboratory Analysis

The samples were dispatched to the NATA-accredited Eurofins laboratory under chain of custody conditions. The soil samples were analysed for the following:

- Total Recoverable Hydrocarbons (TRH) – 12 primary samples;
- Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) – 12 primary samples;
- Polycyclic Aromatic Hydrocarbons (PAHs) – 12 primary samples;
- Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury) – 12 primary samples;
- Asbestos (NEPM %w/w) – 12 primary samples;
- Per- & Polyfluoroalkyl Substances (PFAS) – 12 samples; and,
- Cation Exchange Capacity and pH – 2 primary samples.

7.3 Validation Criteria

The RAP (DP, 2019b) provides remediation/validation criteria. These have been adopted.

The validation criteria adopted are:

- Health-based investigation levels (HILs) (heavy metals, PAH, pesticides, PCB, NEPC 2013);
- Health-based screening levels (HSLs) and management limits (petroleum hydrocarbons, NEPC 2013);
- Health screening levels (HSLs) for asbestos in soil (NEPC 2013);
- Human health screening (HSLs) values for PFAS in soil (HEPA, 2020).

Tables 3 to 7 in the RAP (DP, 2019b) provide the validation criteria. These have been summarised in Table 7.3 below.

Contaminant	HIL D (mg/kg)	HSL D (mg/kg)	Management Limits (mg/kg)
Arsenic	3,000	-	-
Cadmium	900	-	-
Chromium	3,600	-	-
Copper	240,000	-	-
Lead	1,500	-	-
Mercury	730	-	-
Nickel	6,000	-	-
Zinc	400,000	-	-
TRH C6-C10	-	-	700
TRH C6-C10 minus BTEX (F1)	-	260	
TRH >C10-C16	-	-	1,000
TRH >C10-C16 minus naphthalene (F2)	-	NL	
TRH >C16-C34	-	-	3,500
TRH >C34-C40	-	-	10,000
Benzo(a)pyrene TEQ	40	-	-
Total PAHs	4,000	-	-
Naphthalene	-	NL	-
Benzene	-	3	-
Toluene	-	NL	-
Ethylbenzene	-	NL	-
Xylenes	-	230	-
Bonded ACM	-	0.05%	-
FA and AF	-	0.001%	-
All forms of asbestos	-	No visible for surface soil	-
PFOS + PFHxS	-	20	-
PFOA	-	50	-

DDD+DDE+DDT	3,600	-	-
Aldrin & dieldrin	45	-	-
Chlordane	530	-	-
Endosulfan	2,000	-	-
Endrin	100	-	-
Heptachlor	50	-	-
HCB	80	-	-
Methoxychlor	2,500	-	-
Toxaphene	160	-	-
Total PCBs	7	-	-

Notes: *HSLs based on sand soils, 0-1m.

DP (2019b) did not include ecological investigation or screening levels (EILs / ESLs):

"Use of Ecological Investigation/Screening Levels (EIL/ESL) as part of remediation action criteria is not considered to be relevant for the proposed commercial subdivision due to the following:

- *The soil conditions present across the site are likely to be typical of the conditions across the broader Williamtown area, particularly within the NSW EPA Williamtown Primary Management Zone with respect to PFAS contamination;*
- *The majority of the site will be capped with concrete slabs and pavements. Localised Landscape areas will likely comprise raised garden beds with 'clean' imported soils;*
- *The site is not considered to comprise an area of ecological significance due to the former landuse (i.e. agriculture, sand mining, treated effluent pond) and adjacent landuses."*

It is considered that the soils have the potential to be used for landscaping as they comprise topsoils. Therefore, Qualtest have also adopted the EILs / ESLs for this assessment. Table 7.3.1 presents the ecological criteria adopted.

Contaminant	EIL / ESL D (mg/kg)
Arsenic	160
Cadmium	-
Chromium	670*
Copper	90*
Lead	1,800
Mercury	-
Nickel	330*
Zinc	240*

TRH C6-C10	215
TRH >C10-C16	170
TRH >C16-C34	1,700
TRH >C34-C40	3,300
Benzo(a)pyrene	1.4
Total PAHs	-
Naphthalene	370
Benzene	75
Toluene	135
Ethylbenzene	165
Xylenes	180
PFOA	10
PFOS	1
DDT	640

Notes: * EIL based on pH of 6, CEC of 5meq/100ml, and clay content of 10% from assessment of surface soils located to the north of Stage 1 Astra Aerolab (Qualtest, 2021). ESLs based on coarse grained soils.

7.4 Quality Assurance/Quality Control

Sampling activities were undertaken in accordance with normal, industry accepted practices and standards. The assessment of field and laboratory quality assurance / quality control (QA / QC) procedures is provided below, and a data validation report is presented in Appendix F.

In order to assess field quality assurance / quality control (QA/QC) procedures, the following quality control samples were collected and analysed:

QC Sample	Type	Lab	Analysis
D.6.2.23	Duplicate of SP3-1	Eurofins	TRH, BTEX, PAH, Metals

Primary and intra lab duplicate samples were analysed by the NATA-accredited Eurofins laboratory.

Table 3, Appendix D, presents the relative percentage differences (RPDs) between the primary and duplicate samples. A review of the Qualtest QA / QC results indicates that RPDs were within the acceptable range (30%). It is noted that low concentrations can exaggerate the percentage differences with respect to small total concentrations, therefore where results for primary and duplicate sample were less than 10 time the LOR, the RPDs have been disregarded.

The laboratory internal QA/QC reports indicated that the appropriate laboratory QA / QC procedures and rates were undertaken for contamination studies, and that:

- Holding times were met;
- Laboratory blank samples were free of contamination;
- Matrix spike recoveries were within the control limits with the exception of:
- Laboratory duplicate RPDs were recorded within the control limits. For TRH C10-C14, fluoranthene the laboratory code Q15 was quoted which states *"The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report"*. Based on this these RPDs are acceptable
- Surrogates and laboratory control samples were within the laboratories acceptable range;
- The Laboratory Limit of Reporting (LOR) was raised for OCPs and PCBs on two samples due to matrix interference. As the raised LOR was below the adopted criteria, this does not affect the data usability.

Based on the above, and the data validation report in Appendix F, it is considered that the field and laboratory methods for soil sampling are appropriate and that the data obtained is usable and considered to reasonably represent the concentrations at the sampling points at the time of sampling.

7.5 Results

Stockpile Soil Descriptions

The soils encountered in the stockpiled during sampling comprised SAND, fine to medium grained, grey, and Gravelly SAND, fine to coarse grained, grey to light grey, fine to coarse grained gravel, occasionally with some asphalt.

No odours, stained soils, or anthropogenic material (other than asphalt) were observed.

Laboratory Results

Soil analytical results for the stockpile contamination assessment are summarised in Tables 1 and 2, Appendix D. The laboratory analytical reports are also included in Appendix E.

The soil laboratory results were compared to the investigation levels described in Section 7.3. The analytical results indicated that concentrations of contaminants were reported below the adopted criteria, and asbestos was not detected.

8.0 RAP Requirements and Works Completed

Table 8.1 below summarises the remediation or additional assessment required by the RAP (DP, 2019b) and whether this was completed satisfactorily.

Table 8.1 – Summary of RAP Requirements and Works Completed

Requirement	Works Completed	Qualtest Comment
Remediation of Asbestos Affected Soils: • Identify and peg locations of asbestos waste and asbestos affected soils; • Excavate and remove affected soils to landfill, after waste classification completed; • Validation of excavation/stripped area.	The figure *'Appendix I – Illegal Dumping'* inferred to be from tender documents, showed potential Asbestos Containing Materials (ACM) were identified in several locations on the site. Based on dockets provided by KCE, it is assumed that the potential ACM identified were disposed to a licensed waste facility on 26 August 2019, when 2.86 tonnes of waste was disposed from the site. Based on information provided, no validation or clearance of the underlying soils was completed. With the exception of an area in the eastern portion of the site, Daracon did not identify potential ACM during earthworks. The area in the eastern portion was hen-pecked to remove bonded ACM, and a clearance was provided by EP Risk (2021).	To the best of our knowledge, based on information provided, potential ACM and ACM material were disposed to a licensed waste facility. A clearance was completed following removal of ACM via hen-pecking in one area. No validation or clearances were completed following removal of potential ACM in other areas. Given that no potential ACM was identified by Daracon when they took control of the site after KCE completed waste removal works, it is considered that the risk of ACM being present at concentrations above the commercial/industrial land use criteria is low. No potential ACM was observed by Qualtest on the site during the site walkover in January 2023.

Requirement	Works Completed	Qualtest Comment
Remediation of Hydrocarbon and Heavy Metal Impacted Soils • Identify locations of waste, assess if type of waste that has potential to cause contamination (i.e. car bodies); • Remove waste to landfill; • Validation of excavation/stripped area.	The figure '*Appendix I – Illegal Dumping*' inferred to be from tender documents, showed one burnt out car, and DP (2019) identified two burnt out cars. It is assumed one of the cars was removed between 2019 and the production of Appendix I – Illegal Dumping. Based on dockets provided by KCE, it is assumed that the waste materials identified, including car bodies, were disposed to a licensed waste facility on 26 August 2019, when 2.86 tonnes of waste was disposed from the site.	To the best of our knowledge, based on information provided, the waste was disposed off-site to a licensed waste facility. It is noted that there is little documentation to confirm what waste was disposed. There is a potential that the car bodies could have caused localised hydrocarbon or lead contamination, from leaks of fuels, oils, or batteries. No validation was carried out following removal of the cars, and the area has been subjected to bulk earthworks, making validation at this stage impractical. It is considered that, if contamination was present, it would be localised to the surface soils in the footprint of the car (<5m^3). Based on the small volume of potentially contaminated material, and the commercial/industrial nature of the site, the absence of validation sampling is not considered to affect the conclusion regarding site suitability.

Requirement	Works Completed	Qualtest Comment
Assessment of Fill Stockpiles for Re-Use or Disposal	The DP PSI (2019) report figures indicated the locations of stockpiled fill material: • Soil stockpile in the central-northern portion of the site. Qualtest estimate it was approx. 300m^3 based on DP (2019a) photograph and Google Earth satellite image. From DP (2019c) test pit log for location 307, the material comprised Clayey Sand with some gravel and cobbles, and trace brick and coal. • Asphalt and carbonaceous siltstone stockpiles in central part of the site. Qualtest estimate it was less than 10m^3 based on DP (2019a) photographs. • Carbonaceous siltstone stockpile in eastern part of the site. Qualtest estimate it was less than 20m^3 based on DP (2019a) photographs. No assessment of the stockpiled materials was completed. Assessment of an Unexpected Find of a stockpile of white crystalline material was carried out on behalf of Daracon in 2020. Assessment of this material indicated it was suitable for reuse on the site. Daracon provided an email dated 25 January 2023 that states that no potentially contaminated fill materials were encountered on the site, other than the white crystalline material assessed by Qualtest.	It is assumed that the stockpiled materials were re-used on site during bulk earthworks. There are no records of where the stockpiles were used. Qualtest consider that the asphalt and carbonaceous siltstone stockpiles were unlikely to contain contamination that would pose a risk for commercial/industrial land use, based on the materials described in the stockpiles (from DP, 2019a descriptions), and our experience with similar materials on other sites. It is impractical with the information available to assess whether the former soil stockpiles may have contained contamination. The available information indicates that visible or odorous contamination was not observed. No assessment of the material was carried out, and the stockpiles were subjected to bulk earthworks, making validation at this stage impractical. It is considered that, if contamination was present, based on the relatively small volume of the stockpiles (~300m^3) compared to the overall site (24ha), and the commercial/industrial nature of the site, the absence of sampling and analysis is not considered to affect the conclusions regarding the suitability of the site.

Requirement	Works Completed	Qualtest Comment
Assessment of Fill Stockpiles for Re-Use or Disposal (cont'd)	Stockpiles were observed on Lots 101 and 102 by Qualtest. These stockpiled were sampled and analysed in accordance with current guidelines. The assessment indicated that these stockpiles were suitable for re-use on the site.	Item completed satisfactorily.
Additional Investigation and Management of Potential PFAS-impacted Soils	Assessment of surface soils for PFAS was completed for the north-eastern portion of the site. The assessment showed concentrations of PFAS in soil below the commercial land use criteria. Assessment of surface soils north of the site, closer to potential sources of PFAS, did not identify contamination above commercial/industrial land use criteria. Based on these assessments, it is considered that the soils on the site do not contain PFAS above the commercial land use criteria.	Item completed satisfactorily.
Additional Investigation and Management of Fill	The DP PSI (2019a) and geotechnical investigation (2019c) reports indicate that fill materials, other than that in stockpiles was not identified on the site. Stockpiled fill was addressed above. Daracon provided an email dated 25 January 2023 states that no potentially contaminated fill materials were encountered on the site, other than the stockpiled white crystalline material assessed by Qualtest (see information provided above).	Item completed satisfactorily.

9.0 Conceptual Site Model

Based on the results of the works completed on the site, a Conceptual Site Model (CSM) for the site has been developed, refer to Table 9.1, below. The Areas of Environmental Concern are based on the Potential Sources of Contamination in the CSM developed by DP (2019a), refer to Section 3.1 above.

Table 9.1 – Updated Conceptual Site Model Following Assessment

AEC	COPC	Mechanism of Contamination	Potentially Affected Media	Human & Ecological Receptors	Potential mechanisms of exposure	Remediation Completed	Potential & Complete Exposure Pathways
1. *Localised dumped rubbish observed across the site* • Generally comprised household waste • Two car bodies, and potential ACM were identified	TRH, BTEX, PAH, Lead for cars Asbestos for ACM	• Leaks/spills of fuels, oil, batteries from car bodies • Fragments of ACM on site surface, flakes/fibres from weathering of ACM	• Aesthetics • Surface soils (prior to bulk earthworks)	• Current and future site users • Future maintenance workers • Dawson Drain located 1.1km south-west of the site, and Fullerton Cove located approximately 2.4km south-west of the site • Groundwater (<2m bgs) in sandy soils.	• Visual (aesthetics) • Direct dermal contact with contaminated soil • Ingestion of contaminated soil • Inhalation of asbestos fibres, or contaminated soil (as dust) • Leaching of soil contaminants to surface water and/or groundwater • Surface water and groundwater discharge to Dawson Drain located 1.1km south-west of the site, and Fullerton Cove located approximately 2.4km south-west of the site.	Waste materials disposed to a licensed waste facility No validation assessment in areas of car bodies or ACM was completed after removal in 2019 by KCE. This is discussed in Table 8.1, above. Fragments of ACM were removed by Daracon (and their sub-contractors) in 2021, and a clearance was completed.	• Waste was removed and disposed, therefore removing the aesthetics issue. • Based on the assessments completed, and the discussion in Table 8.1, exposure pathways site users are incomplete. • Incomplete exposure pathway for surface water and groundwater as potential contamination (if any present) would have been small (localised to the footprint of the car bodies), and on surface soils. Asbestos does not pose a risk to surface water and groundwater.
2. *Filling (unknown source)* • Stockpiles • Access tracks	TRH, BTEX, PAH, OCP, PCB, Metals, Asbestos	• Importation of contaminated materials • Stockpiling of surface soils that may have been contaminated	• Stockpiled soils	• Current and future site users • Future maintenance workers • Dawson Drain located 1.1km south-west of the site, and Fullerton Cove located approximately 2.4km south-west of the site • Groundwater (<2m bgs) in sandy soils.	• Direct dermal contact with contaminated soil • Ingestion of contaminated soil • Inhalation of asbestos fibres, or contaminated soil (as dust) • Leaching of soil contaminants to surface water and/or groundwater • Surface water and groundwater discharge to Dawson Drain located 1.1km south-west of the site, and Fullerton Cove located approximately 2.4km south-west of the site.	No assessment of stockpiles observed by DP in 2019 was carried out, other than testing an asphalt stockpile for coal tar (which showed no coal tar present). Table 7.1 above discusses this. Stockpiles observed Daracon (white crystalline material) or Qualtest (on Lots 101 and 102) were assessed, and results showed they were suitable for re-use on site.	• Based on the assessments completed, and the discussion in Table 8.1, exposure pathways site users are incomplete. • Incomplete exposure pathway for surface water and groundwater, as volume of stockpiles that were not assessed was small (~500m^3). Asbestos, if present, does not pose a risk to surface water and groundwater. No contamination was identified in the stockpiles that were assessed (~6,080m^3).

AEC	COPC	Mechanism of Contamination	Potentially Affected Media	Human & Ecological Receptors	Potential mechanisms of exposure	Remediation Completed	Potential & Complete Exposure Pathways
3. Pesticides • *Application of pesticides during previous agricultural land use and possible storage of chemicals.*	OCPs, Metals	• Spraying of pesticides • Leaching of soil contaminants to surface water and groundwater	• Surface soils • Surface water • Groundwater	• Current and future site users • Future maintenance workers • Dawson Drain located 1.1km south-west of the site, and Fullerton Cove located approximately 2.4km south-west of the site • Groundwater (<2m bgs) in sandy soils.	• Direct dermal contact with contaminated soil • Ingestion of contaminated soil • Inhalation of contaminated soil (as dust) • Leaching of soil contaminants to surface water and/or groundwater • Surface water and groundwater discharge to Dawson Drain located 1.1km south-west of the site, and Fullerton Cove located approximately 2.4km south-west of the site.	Nil	• Based on site history information, the site was likely used for cattle grazing. Pesticides were rarely used for cattle grazing activities, and it is unlikely significant quantities of pesticides would have been used. In addition, OCPs degrade over time, and if used would have degraded in the >30 years since cattle were grazed on the site. • Based on the above, no exposure pathways, as concentrations of pesticides if they existed would not present a human health or environmental risk.
4. Hazardous Building Materials • *Demolition of structures* • No structures/buildings identified on site.	N/A	• N/A	• N/A	• N/A	• N/A	N/A	• No exposure pathway as no structures/buildings identified on the site.
5. Adjacent land uses: Newcastle Airport, RAAF Base: • *Placement of filling, opportunistic dumping;* • *Spills and leaks from tanks / bowsers;* • *Use of firefighting foam.* • *Off-site migration / leaching / transport of contaminants* Waste materials and fill addressed in AECs 1 and 2 above. Spills/leaks from tanks/bowsers not relevant to site due to the distance from the site to the tanks/bowsers on the airport and RAAF Base. Fire-fighting foam not used on the site, but has the potential to migrate onto the site via groundwater.	PFAS	• Migration of PFAS via groundwater	• Groundwater	• Current and future site users • Future maintenance workers	• Direct dermal contact with contaminated groundwater • Ingestion of contaminated groundwater	Nil	• Potentially complete exposure pathway for future construction and/or maintenance workers, if excavations extend to the groundwater table. • Incomplete exposure pathway for site visitors and site users, as they are unlikely to come into contact with groundwater. • PFAS in the region is managed under the RAAF Base Williamtown, PFAS Management Area Plan.

AEC	COPC	Mechanism of Contamination	Potentially Affected Media	Human & Ecological Receptors	Potential mechanisms of exposure	Remediation Completed	Potential & Complete Exposure Pathways
6. Effluent ponds • *Spills/leaks from ponds.* Not located on site, potential for migration of contaminated groundwater onto site.	PFAS	• Migration of PFAS via groundwater	• Groundwater	• Current and future site users • Future maintenance workers	• Direct dermal contact with contaminated groundwater • Ingestion of contaminated groundwater	Nil	• Potentially complete exposure pathway for future construction and/or maintenance workers, if excavations extend to the groundwater table. • Incomplete exposure pathway for site visitors and site users, as they are unlikely to come into contact with groundwater. • PFAS in the region is managed under the RAAF Base Williamtown, PFAS Management Area Plan.

10.0 Conclusions

Qualtest note that, initially the site was not characterised with respect to contamination prior to commencement of works, and limited sampling and analysis of soil, surface water and groundwater was completed. To compensate, the RAP outlined additional assessment to be carried out during earthworks on the site and provided remediation measures where/if contamination was identified.

In addition to the review of previous reports by others, Qualtest compiled and reviewed the documentation provided by GNAPL, Daracon and KCE (or their sub-contractors). This documentation was collected during earthworks and subdivision construction for the site.

Based on the review and assessment, Qualtest conclude that the works were carried out in general accordance with the RAP (DP, 2019a). The discrepancies and missing documentation (e.g. absence of validation sampling following waste removal, assessment of existing site stockpiles, and waste dockets) are not considered significant, as volumes of waste (<3 tonnes) and stockpiles (~300m^3) were small, and assessment of stripped surface soils which were stockpiled on site (~6,080m^3) was undertaken by Qualtest and did not identify contamination.

The site is considered suitable, with respect to contamination, for the proposed light industrial / commercial development, provided that groundwater is not planned to be intersected during construction.

It is noted that groundwater on the site is impacted by PFAS from the RAAF Base Williamtown. PFAS contamination in the region is managed under the RAAF Base Williamtown, PFAS Management Area Plan (PMAP) (AECOM, 2019). The management measures in the PMAP (or future versions of the PMAP) will be relevant to users of the site.

If construction works for buildings/structures on the site are likely to intercept groundwater, a site-specific management plan for protection of construction workers should be developed.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013, Canberra (referred to as ASC NEPM 2013).

11.0 Limitations

This report has been prepared by Qualtest for Greater Newcastle Aerotropolis Pty Ltd (GNAPL) based on the objectives and scope of work list in Sections 1.1 and 1.2. No warranty, expressed or implied, is made as to the information and professional advice included in this report. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to their particular situation.

The opinions, conclusions and recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. Qualtest has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

In preparing this report Qualtest has relied on information contained in reports, documents and plans by others, and has assumed that the information provided in those reports is accurate. Information from searches of government websites has also been relied upon, and Qualtest has not independently verified or checked the data contained on these websites.

In preparing this report, current guidelines for assessment and management of contaminated land were followed. The conclusions reached in this report are dependent on the limitations inherent in all subsurface investigations where horizontal and vertical variation in contaminant

concentrations can occur. No subsurface assessment can accurately predict the contaminant concentration at all points.

Site conditions may change after the date of this Report. Qualtest does not accept responsibility arising from, or in connection with, any change to the site conditions.

8.0 References

DP (2019a) Report on Preliminary Site Investigation, ref: 39728.20.R.002.Rev0, dated 3 October 2019; and,

DP (2019b) Remediation Action Plan, ref: 39728.20.R.004.Rev0, dated 5 November 2019

DP (2019c) Report on Geotechnical Investigation, ref: 39728.20.R.001.Rev1 dated 30 September 2019

PFAS Management Area Plan (2019), ref: RAAF Base Williamtown, PFAS Management Area Plan, 27 May 2019 Revision 1

AECOM (2017) Off-Site Human Health Risk Assessment – December 2017, reference 60527153,1 December 2017

AECOM (2018) Ecological Risk Assessment – September 2018, reference 60527153, 7 September 2018

AECOM (2019) Interim Monitoring Event Report - June 2019, reference 60527153, dated 27 September 2019 (AECOM, 2019)

AECOM (2021) STP Lagoons – Remediation Considerations (Draft - Rev B), reference 60569462, dated 11 November 2021 (AECOM 2021)

Valley Civilab Pty Ltd (2020) PFAS Investigation, ref: P1927-R-002-ESA-Rev0, dated 26 March 2020.

Qualtest (2020) Level 1 Site Re-Grade Assessment Report, ref: NEW20P-0020-AB dated 12 November 2020.

Qualtest (2021) Preliminary Contamination Assessment, ref: NEW21P-0182-AA, dated 3 December 2021.

EP Risk (2021) Asbestos Clearance Certificate (ACC01) – Hen Pick Work Area, ref: EP2074_ACC01_Hen Pick, 27 April 2021.

NSW Department of Primary Industries (Office of Water) Registered Groundwater Bore Map, accessed from http://allwaterdata.water.nsw.gov.au/water.stm.

NSW Land and Property Information, Spatial Information eXchange (SIX) Maps - Topographic Map, accessed from https://maps.six.nsw.gov.au/.

State of NSW and Department of Planning, Industry and Environment, 2021, Acid Sulfate Soil online database (https://espade.environment.nsw.gov.au

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

NEPC (2013) National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), Canberra (ASC NEPM 2013).

NSW ePlanning Spatial Viewer Portal (https://www.planningportal.nsw.gov.au/spatialviewer/), accessed on 16 November 2022

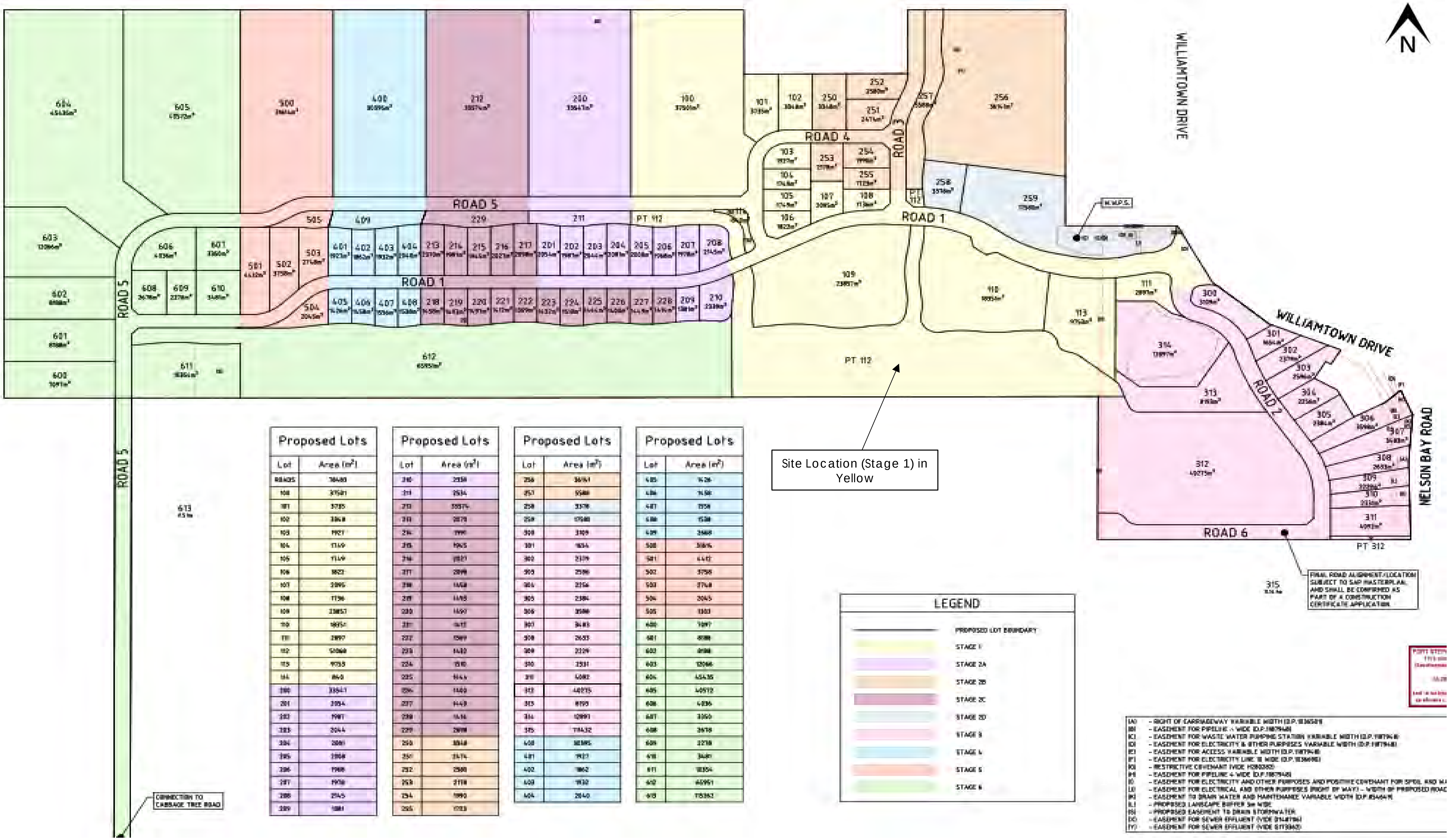
WA DoH (2009) Guidelines of the assessment and management of asbestos contaminated sites in Western Australia, WA Department of Health and Department of Environment and Conservation

APPENDIX A:

Figures

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 1
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	SITE LOCATION PLAN	Date:	31/01/2023



Proposed Lots

Lot	Area (m²)
ROADS	38480
100	37501
101	3735
102	3048
103	1927
104	1749
105	1749
106	1822
107	2095
108	1736
109	23857
110	18354
111	2897
112	51060
113	9753
114	840
200	33541
201	2054
202	1987
203	2044
204	2081
205	2008
206	1988
207	1978
208	2145
209	1881

Proposed Lots

Lot	Area (m²)
210	2538
211	2534
212	33574
213	2070
214	1990
215	1965
216	2027
217	2098
218	1458
219	1493
220	1497
221	1612
222	1589
223	1632
224	1510
225	1644
226	1480
227	1449
228	1414
229	2898
250	3048
251	2474
252	2580
253	2178
254	1990
255	1723

Proposed Lots

Lot	Area (m²)
256	36141
257	5588
258	3578
259	17540
300	3109
301	1654
302	2379
303	2596
304	2356
305	2384
306	3590
307	3483
308	2653
309	2329
310	2331
311	4082
312	40275
313	8193
314	12897
315	115432
400	30595
401	1927
402	1862
403	1932
404	2040

Proposed Lots

Lot	Area (m²)
405	1626
406	1458
407	1556
408	1538
409	2668
500	31614
501	4412
502	3758
503	2748
504	2045
505	1303
600	7097
601	8188
602	8188
603	12066
604	45435
605	40512
606	4036
607	3350
608	3618
609	2738
610	3481
611	18354
612	65951
613	115362

Figure based on Job No. NL182640, Drawing No. CSK51.03,

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 2
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	ASTRA AEROLAB SUBDIVISION PLAN	Date:	31/01/2023

Image dated 15 Aug 2018 sourced from Nearmaps

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 3
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	SITE PRIOR TO WORKS COMMENCING	Date:	31/01/2023

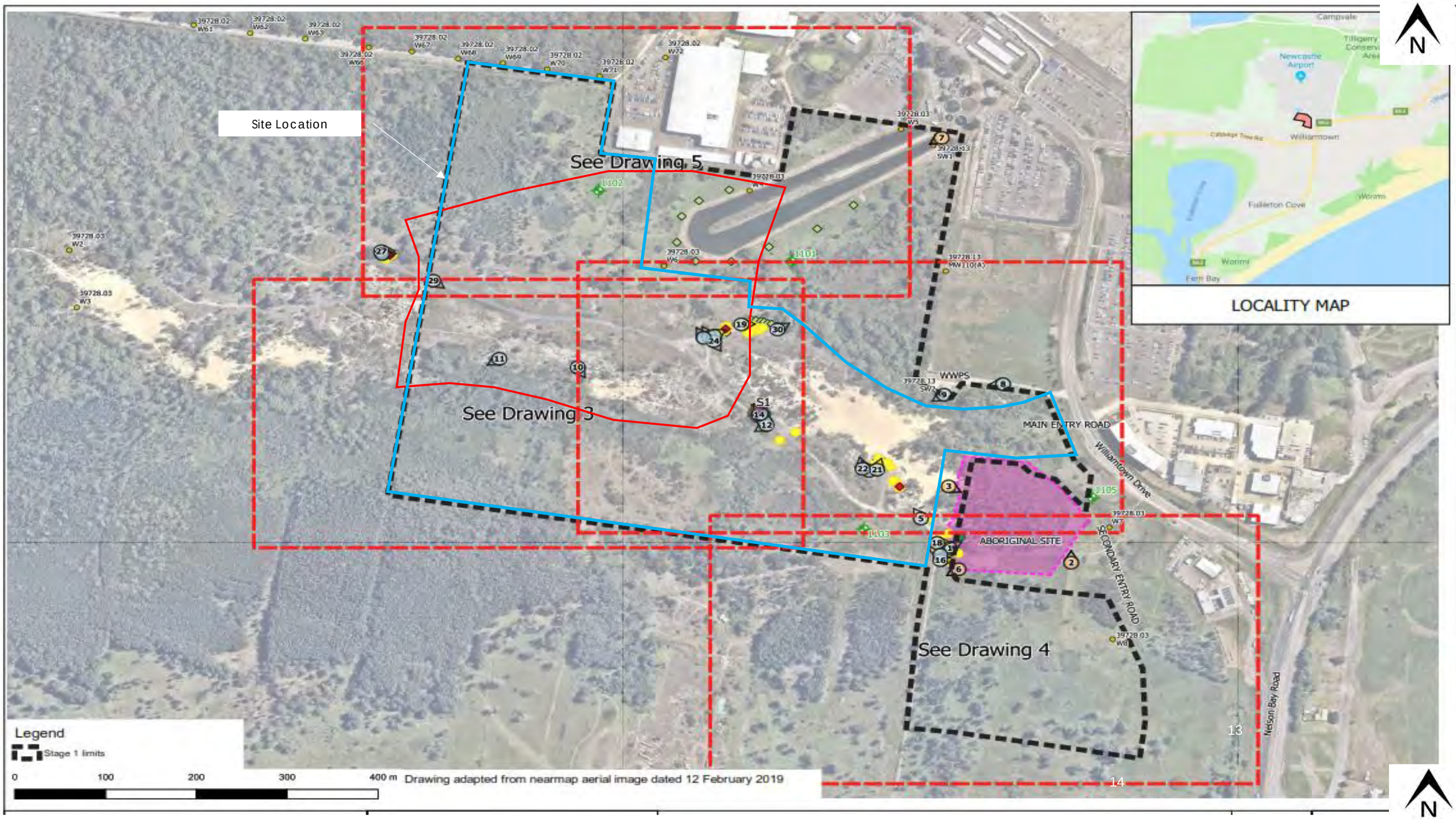


Figure based on Drawing 1 from DP PSI, 2019

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 4A
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	EXTRACT FROM DP PSI (2019) SHOWING SITE FEATURES	Date:	31/01/2023

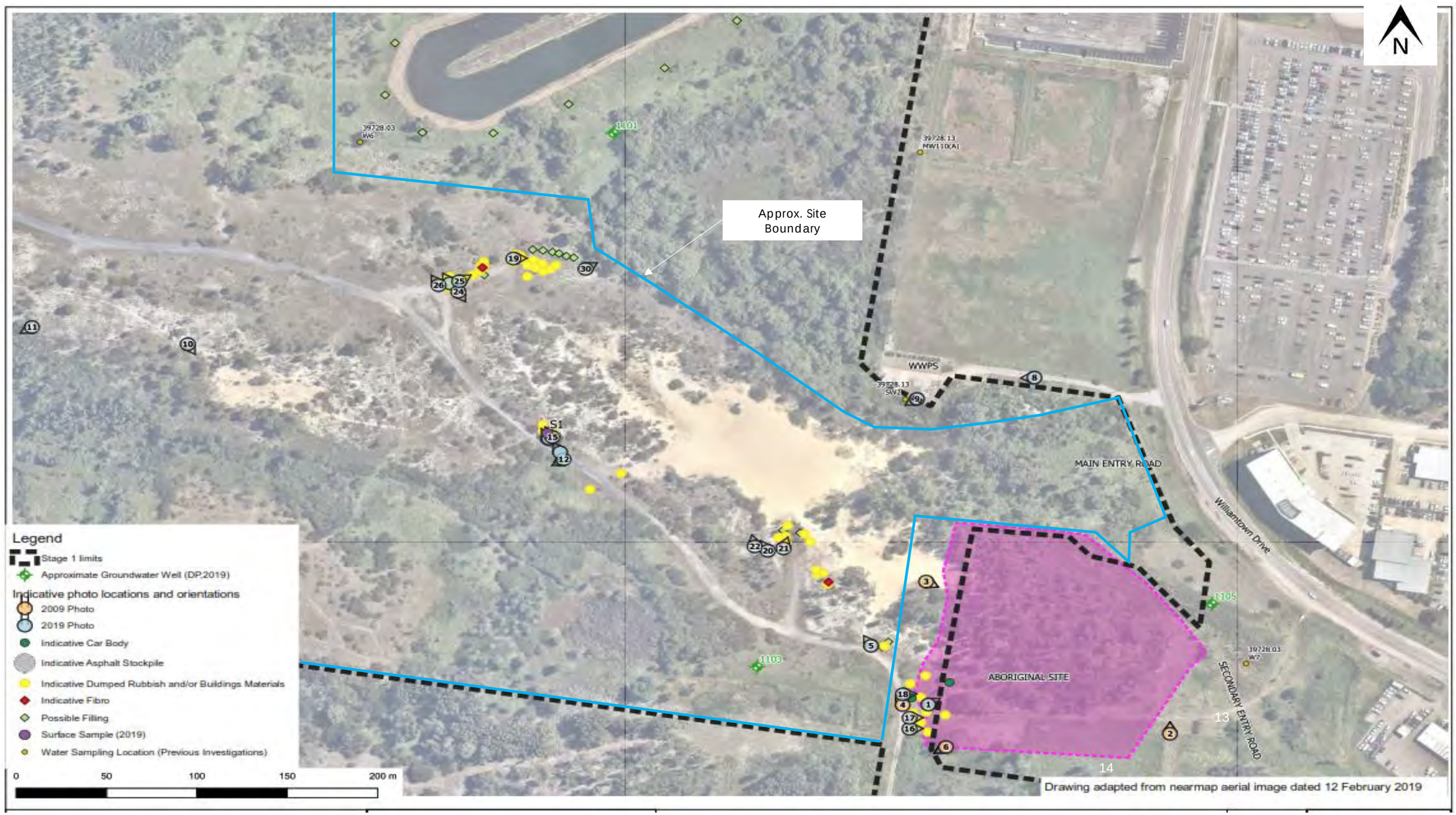


Figure based on Drawing 2 from DP PSI, 2019

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 4B
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	EXTRACT FROM DP PSI (2019) SHOWING SITE FEATURES	Date:	31/01/2023

Figure based on Drawing 3 from DP PSI, 2019

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 4C
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	EXTRACT FROM DP PSI (2019) SHOWING SITE FEATURES	Date:	31/01/2023

Figure based on Drawing 5 from DP PSI, 2019

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 4D
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	EXTRACT FROM DP PSI (2019) SHOWING SITE FEATURES	Date:	31/01/2023

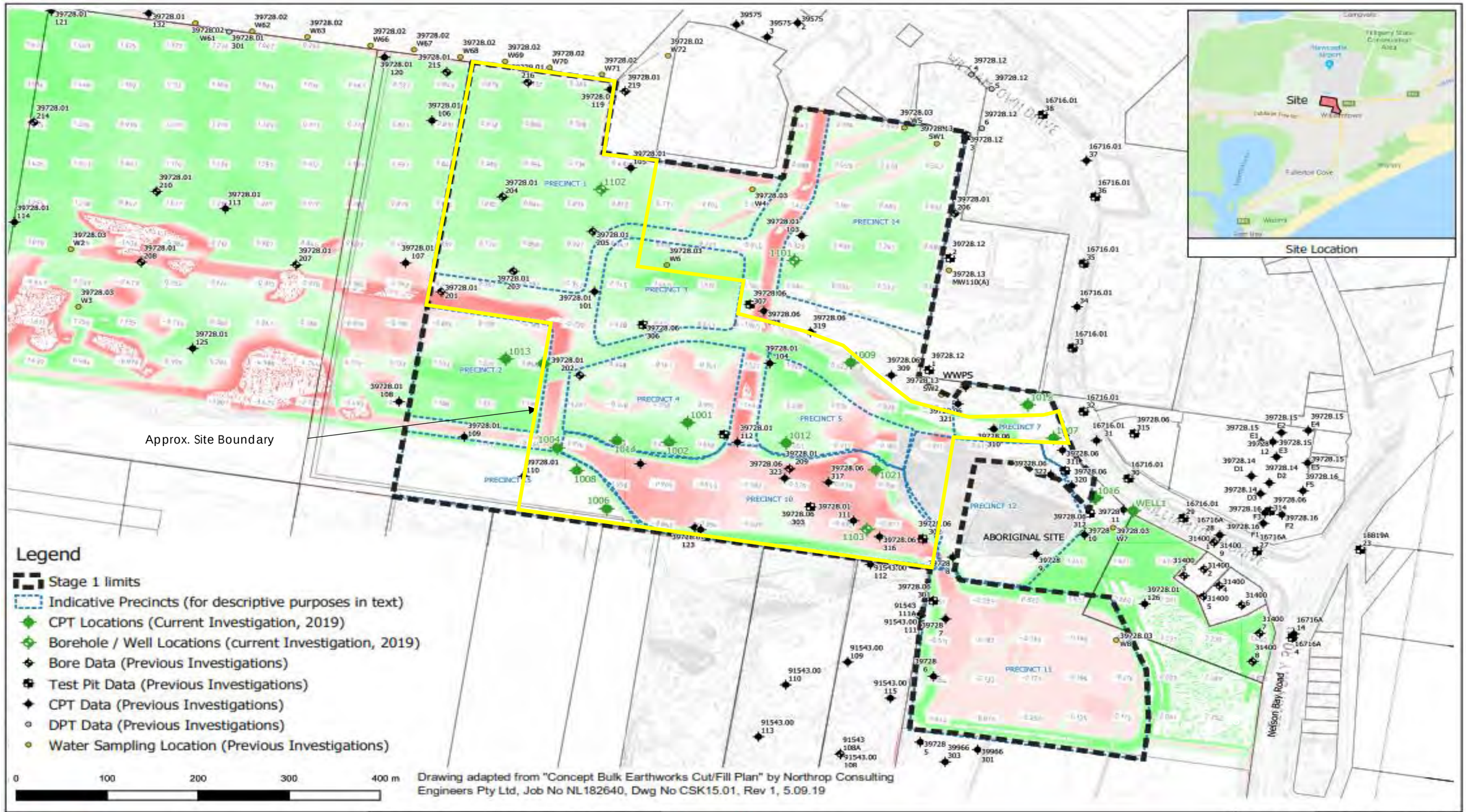
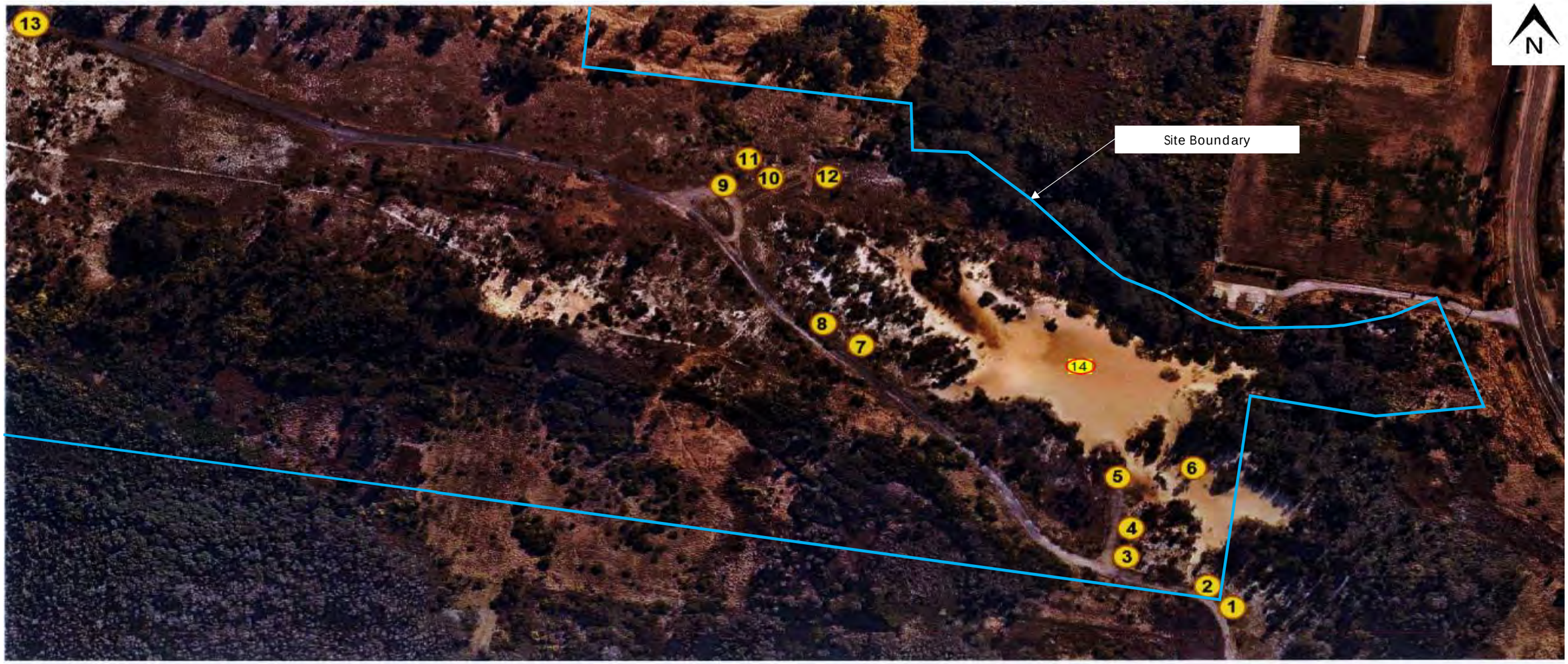


Figure based on Drawing 1 from DP Geotechnical Investigation, 2019

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 5
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	EXTRACT FROM DP GEOTECHNICAL REPORT (2019) SHOWING BOREHOLE/TESTPIT LOCATIONS	Date:	31/01/2023



1) Burnt out holden commodore and misc. rubbish

2) dumped pile of rubble

3) heater and fan

4) pile of timber and fibro

6) mixed building waste

7) pile of old broken up asphalt

8) car bumper

9) matress and mixed waste

11) glass/plastic mixed waste and car bumper

12) mixed waste

13) pile of broken up fibro

14) pile of broken up fibro

Figure based on image provided by GNAPL called Appendix I - Illegal Dumping

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 6
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	WASTE MATERIAL ONSITE PRIOR TO KCE WORKS COMMENCING	Date:	25/01/2023

Image dated 11/02/2020 sourced from Nearmaps

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 7
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	SITE AFTER COMPLETION OF KCE WORKS	Date:	31/01/2023

VALLEY CIVILAB

PFAS Investigation
Astra AeroLab Stage 1 - Williamtown NSW
P1927

GPS Coordinates		
Sample	Eastings	Northings
S1	391208	6369282
S2	391292	6369263
S3	391310	6369242
S4	391328	6369210
S5	391352	6369222
S6	391193	6369287
S7	391184	6369262
S8	391113	6369305
S9	391129	6369286
S10	391150	6369268
S11	391031	6369254
S12	391073	6369247
S13	391083	6369294

Notes:
(1) The scale bar is approximate.
(2) Base layer sourced from NearMap (2020).

Figure 1 - Site Features Plan

LEGEND
Sampling Location

Scale (m)
0 25 50

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 8
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	VALLEY CIVILAB SAMPLING LOCATIONS	Date:	25/01/2023

EP RISK

www.eprisk.com.au

Visual Asbestos Clearance Certificate (ACC01)
Astra Aerolab Site, Cabbage Tree Road (off Williamtown Drive), Williamtown, NSW

Job No: EP2074.002
Date: 28/04/2021
Drawing Ref: EP2074.002 Fig:
Version No: v1

Not to Scale

Co-ordinate system: MGA 56
Drawn by: LK Checked by:TR
Scale of regional map not shown
Source: NearMaps

Figure 1 – Hen Picking Work Area

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 9
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	EP RISK ASBESTOS CLEARANCE LOCATION	Date:	25/01/2023

N

Qualtest
LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 10
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	SITE AFTER COMPLETION OF DARACON WORKS	Date:	25/01/2023

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 11
Project:	STAGE 1 OF ASTRA AEROLAB SUBDIVISION	Project No:	NEW23P-0005-AB
Location:	OFF WILLIAMTOWN DRIVE, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	LOT 101-102 STOCKPILES SAMPLING LOCATIONS	Date:	9/02/2023

APPENDIX B:

Waste Dockets and Imported Material Dockets

SUEZ Recycling & Recovery Pty Ltd
Delivery Docket

Raymond Terrace Waste Management Centre
330 Newline Road
Raymond Terrace 2324
Mon-Fri 6AM-4.30PM Sat 8AM-3.30PM
Phone: 02 4983 4100
ABN: 34071096421

Ticket No: RT360002276.0
Time In: 26/08/2019 8:06:49 AM
Time Out: 26/08/2019 8:27:33 AM
Vehicle Rego: XN72AY

3460032 - KELLER CIVIL ENGINEERS PTY LTD-NRL
Cust ref: 19019

C&D Dry Waste - 8023
1.96t@
Source: External
Dest: Raymond Terrace Landfill

GROSS	10.96t
TARE	9.00t
NET Weight:	1.96t
Chargeable Weight:	1.96t
Each Item Weight:	0.00t

Total (ex GST):
GST :

Total Price:

------ Payment Details----------

Temporary Acc:
==========
Total Price:
==========

Total Amount Tendered:
Change Given:

Operator: WOKDS

....

SUEZ Recycling & Recovery Pty Ltd
Delivery Docket

Raymond Terrace Waste Management Centre
330 Newline Road
Raymond Terrace 2324
Mon-Fri 6AM-4.30PM Sat 8AM-3.30PM
Phone: 02 4983 4100
ABN: 34071096421

Ticket No: RT360002358.0
Time In: 26/08/2019 11:50:12 AM
Time Out: 26/08/2019 12:04:44 PM
Vehicle Rego: XN72AY

3460032 - KELLER CIVIL ENGINEERS PTY LTD-NRL
Cust ref: 19019

C&D Dry Waste - 8023
0.90t@
Source: External
Dest: Raymond Terrace Landfill

GROSS	9.96t
TARE	9.06t
NET Weight:	0.90t
Chargeable Weight:	0.90t
Each Item Weight:	0.00t

Total (ex GST):
GST :

Total Price:

------ Payment Details----------

Temporary Acc:
==========
Total Price:
==========

Total Amount Tendered:
Change Given:

Operator: WOKDS

....

Delivery Docket

Summerhill Waste Management Centre
City of Newcastle

ABN: 25 242 068 129
Phone: 02 49856600

HOURS Mon - Fri 7.30am - 5.00pm
Sat - Sun 9.00am - 3.00pm

Ticket No: 30365445-SH
Voucher No:

Date Out: 21/10/2021 10:42:17 AM

Vehicle Rego: CQ70UL

Client: Enviropacific Services Pty Ltd
Order Number: WILLIAMTOWN

Weighed Waste

Asbestos

Chargeable Weight:

Single Items	Qty	Price

GROSS Weight: 2.40t
TARE Weight: 2.36t
NET Weight: 0.04t

Total Charge Fee:
GST:

Total Price:

Payments:

Change Given:

There is a 0.75% surcharge on credit card transactions

.....

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A21352211

Customer Name: KCR	Time Dispatched: 2:40 PM	Date: 16/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XN23AQ
	Order No:	Gross Weight: 22.86t
Additional Instructions: *UHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 225.20t	Nett Weight: 12.96t
Product Description: RR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A21352111

Customer Name: KCR	Time Dispatched: 2:35 PM	Date: 16/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Greys Earthmovin	Vehicle Rego: BO76BP
	Order No:	Gross Weight: 21.80t
Additional Instructions: *UHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 11.34t
	Daily Progressive Total: 212.24t	Nett Weight: 10.46t
Product Description: RR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2135191

Customer Name: KCR	Time Dispatched: 2:26 PM	Date: 16/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Pa RX77DP	Vehicle Rego:
	Order No:	Gross Weight: 22.84t
Additional Instructions: XURP #15 A0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 201.78t	Nett Weight: 12.46t
Product Description: RR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2135161

Customer Name: KCR	Time Dispatched: 1:21 PM	Date: 16/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XN23AO
	Order No:	Gross Weight: 22.94t
Additional Instructions: XURP #15 A0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 189.32t	Nett Weight: 13.04t
Product Description: RR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

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Thornton NSW 2322
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E: admin@hunterquarries.com.au

Docket No: A21351511

Customer Name: KCR	Time Dispatched: 1:19 PM	Date: 16/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Greys Earthmovin BQ76BP	Vehicle Rego:
	Order No:	Gross Weight: 21.52t
Additional Instructions: *UHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 11.34t
	Daily Progressive Total: 176.28t	Nett Weight: 10.18t
Product Description: FR-12MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A21351411

Customer Name: KCR	Time Dispatched: 1:15 PM	Date: 16/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel #3 RX77DP	Vehicle Rego:
	Order No:	Gross Weight: 22.78t
Additional Instructions: *UHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 166.10t	Nett Weight: 12.40t
Product Description: FR-12MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

Karuah Quarry
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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2135071

Customer Name: RCR	Time Dispatched: 12:02 PM	Date: 16/08/2019
Delivery Address: RCR Cabbage Tree Rd (Airport Access Rd) Williamtown	Carrier: Greys Earthmoving BQ76BP	Vehicle Rego:
	Order No:	Gross Weight: 21.70t
Additional Instructions: 40mm #14 *0407 111 35A *4922 50mm *Newcastle Airport Access Roads		Tare Weight: 11.34t
	Daily Progressive Total: 153.70t	Nett Weight: 10.36t
Product Description: RR-125MM MTRDS - RDR	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: R85897681

Customer Name: RCR	Time Dispatched: 11:52 AM	Date: 16/08/2019
Delivery Address: RCR Cabbage Tree Rd (Airport Access Rd) Williamtown	Carrier: Peter Trappel Pty Ltd BX77DP	Vehicle Rego:
	Order No:	Gross Weight: 22.76t
Additional Instructions: 40mm #14 *0407 111 35A *4922 50mm *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 143.34t	Nett Weight: 12.38t
Product Description: RR-125MM MTRDS - RDR	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
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Ph: 4997 5966 Fax: 4997 5933

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2135031\1

Customer Name: RCR	Time Dispatched: 11:35 AM	Date: 16/08/2019
Delivery Address: RCR Cabbage Tree Rd (Airport Access Rd) Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XN23AQ
	Order No:	Gross Weight: 22.62t
Additional Instructions: XUHF #14 *0407 111 058 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 130.96t	Nett Weight: 12.72t
Product Description: RA-125MM MINUS - RCR	Stockpile No: All Areas	1

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2134991\1

Customer Name: RCR	Time Dispatched: 10:45 AM	Date: 16/08/2019
Delivery Address: RCR Cabbage Tree Rd (Airport Access Rd) Williamtown	Carrier: Grays Earthmovin	Vehicle Rego: RQ76RP
	Order No:	Gross Weight: 21.52t
Additional Instructions: XUHF #14 *0407 111 058 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 11.34t
	Daily Progressive Total: 118.24t	Nett Weight: 10.18t
Product Description: RA-125MM MINUS - RCR	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

Karuah Quarry

ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: B8589766\1

Customer Name: KCE	Time Dispatched: 10:37 AM	Date: 16/08/2019
Delivery Address: KCE Cabbage Tree Rd (Airport Access Rd) Williamtown	Carrier: Peter Trappel Fa	Vehicle Rego: BX77DP
	Order No:	Gross Weight: 22.56t
Additional Instructions: *OHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 108.06t	Nett Weight: 12.18t
Product Description: RB 125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

Karuah Quarry

ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213494\1

Customer Name: KCE	Time Dispatched: 10:20 AM	Date: 16/08/2019
Delivery Address: KCE Cabbage Tree Rd (Airport Access Rd) Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XN23AO
	Order No:	Gross Weight: 22.76t
Additional Instructions: *OHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 95.88t	Nett Weight: 12.86t
Product Description: RB 125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2134891

Customer Name: KCR	Time Dispatched: 9:31 AM	Date: 16/08/2019
Delivery Address: KCR Cabbage Tree Rd (Airport Access Rd) Williamtown	Carrier: Greys Earthmoving BQ78BP	Vehicle Rego:
	Order No:	Gross Weight: 21.58t
Additional Instructions: *0407 111 158 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 11.34t
	Daily Progressive Total: 83.02t	Nett Weight: 10.24t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2134888

Customer Name: KCR	Time Dispatched: 9:24 AM	Date: 16/08/2019
Delivery Address: KCR Cabbage Tree Rd (Airport Access Rd) Williamtown	Carrier: Peter Trappel Pa BX77DP	Vehicle Rego:
	Order No:	Gross Weight: 22.82t
Additional Instructions: *0407 111 158 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 72.78t	Nett Weight: 12.44t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213486\1

Customer Name: KCR	Time Dispatched: 9:05 AM	Date: 16/08/2019
Delivery Address: KCR Cabbage Tree Rd (Airport Access Rd) Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XB23AQ
	Order No:	Gross Weight: 22.68t
Additional Instructions: *UHF #14 *0407 111 (SA *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 60.34t	Nett Weight: 12.78t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213479\1

Customer Name: KCR	Time Dispatched: 8:13 AM	Date: 16/08/2019
Delivery Address: KCR Cabbage Tree Rd (Airport Access Rd) Williamtown	Carrier: Peter Trappel T/A BX77MP	Vehicle Rego:
	Order No:	Gross Weight: 22.86t
Additional Instructions: *UHF #14 *0407 111 (SA *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 47.56t	Nett Weight: 12.48t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

19019.

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

Karuah Quarry

ABN 15 093 914 937
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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213525\1

Customer Name: KCE	Time Dispatched: 3:41 PM	Date: 16/08/2019
Delivery Address: KCE Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Ra	Vehicle Rego: BX77DP
	Order No:	Gross Weight: 22.88t
Additional Instructions: *DHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 237.70t	Nett Weight: 12.50t
Product Description: KB-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature: [signature]

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature: [signature]

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Karuah NSW 2324
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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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ABN 15 093 914 937
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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: R8589777\1

Customer Name: KCR	Time Dispatched: 8:31 AM	Date: 19/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Sweetman Haulage CD19MR	Vehicle Rego:
	Order No:	Gross Weight: 22.98t
Additional Instructions: *ORF #14 *0407 111 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.42t
	Daily Progressive Total: 53.08t	Nett Weight: 12.56t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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ABN 15 093 914 937
Andersite Road
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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: R8589777\1

Customer Name: KCR	Time Dispatched: 7:13 AM	Date: 19/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Pa RS56UR	Vehicle Rego:
	Order No:	Gross Weight: 23.00t
Additional Instructions: *ORF #14 *0407 111 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.48t
	Daily Progressive Total: 37.68t	Nett Weight: 12.52t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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ABN 15 093 914 937
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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2135834\1

Customer Name: KCR	Time Dispatched: 3:16 PM	Date: 19/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel t/a RB560K	Vehicle Rego:
	Order No:	Gross Weight: 22.86t
Additional Instructions: KDRF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads PR-12MM MINUS - NOM		Tare Weight: 10.48t
	Daily Progressive Total: 239.36t	Nett Weight: 12.38t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2134574\1

Customer Name: KCR	Time Dispatched: 2:13 PM	Date: 19/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel XN23AQ	Vehicle Rego:
	Order No:	Gross Weight: 22.90t
Additional Instructions: KDRF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads PR-12MM MINUS - NOM		Tare Weight: 9.90t
	Daily Progressive Total: 226.98t	Nett Weight: 13.00t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213578\1

Customer Name: KCE	Time Dispatched: 2:11 PM	Date: 19/08/2019
Delivery Address: KCE Williamtown Drive (Airport Access R Williamtown	Carrier: Sweetman Haulage	Vehicle Rego: CD14MB
	Order No:	Gross Weight: 23.10t
Additional Instructions: *UHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.42t
	Daily Progressive Total: 213.98t	Nett Weight: 12.68t
Product Description: KB-125MM MINUS - RGN	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Andersite Road
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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213577\1

Customer Name: KCE	Time Dispatched: 2:06 PM	Date: 19/08/2019
Delivery Address: KCE Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Ra	Vehicle Rego: BS56UK
	Order No:	Gross Weight: 22.62t
Additional Instructions: *UHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.48t
	Daily Progressive Total: 201.30t	Nett Weight: 12.14t
Product Description: KB-125MM MINUS - RGN	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date: 19/08/2019
Delivery Address: Williamtown	Carrier: Peter Trappel Pty Ltd	Vehicle Rego:
	Order No:	Gross Weight: 22.74t
Additional Instructions:		Tare Weight: 10.48t
	Daily Progressive Total:	Nett Weight: 12.26t
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date: 19/08/2019
Delivery Address: Williamtown	Carrier: Sweetman Haulage (Qld) Pty Ltd	Vehicle Rego:
	Order No:	Gross Weight: 22.90t
Additional Instructions:		Tare Weight: 10.42t
	Daily Progressive Total:	Nett Weight: 12.48t
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213564\1

Customer Name: RCR	Time Dispatched: 11:06 AM	Date: 19/08/2019
Delivery Address: RCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XN23AQ
	Order No:	Gross Weight: 22.80t
Additional Instructions: ADBP #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 139.12t	Nett Weight: 12.90t
Product Description: RR-125MM MINUS - NOR	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213563\1

Customer Name: RCR	Time Dispatched: 11:03 AM	Date: 19/08/2019
Delivery Address: RCR Williamtown Drive (Airport Access R Williamtown	Carrier: Sweetman Haulage CD19MR	Vehicle Rego:
	Order No:	Gross Weight: 23.02t
Additional Instructions: ADBP #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.42t
	Daily Progressive Total: 126.22t	Nett Weight: 12.60t
Product Description: RR-125MM MINUS - NOR	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213557\1

Customer Name: KCB	Time Dispatched: 9:51 AM	Date: 19/08/2019
Delivery Address: KCB Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Ea	Vehicle Rego: BS56UE
	Order No:	Gross Weight: 22.98t
Additional Instructions: *UHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.48t
	Daily Progressive Total: 113.62t	Nett Weight: 12.50t
Product Description: RR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213556\1

Customer Name: KCB	Time Dispatched: 9:48 AM	Date: 19/08/2019
Delivery Address: KCB Williamtown Drive (Airport Access R Williamtown	Carrier: Sweetman Haulage	Vehicle Rego: CD19MB
	Order No:	Gross Weight: 22.94t
Additional Instructions: *UHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.42t
	Daily Progressive Total: 101.12t	Nett Weight: 12.52t
Product Description: RR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

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Andersite Road
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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: AZ1355511

Customer Name: KCR	Time Dispatched: 9:43 AM	Date: 19/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappe	Vehicle Rego: XN23AQ
	Order No:	Gross Weight: 22.98t
Additional Instructions: *QHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 58.60t	Nett Weight: 13.08t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: AZ1354611

Customer Name: KCR	Time Dispatched: 8:27 AM	Date: 19/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappe	Vehicle Rego: XN23AQ
	Order No:	Gross Weight: 22.74t
Additional Instructions: *QHF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 50.52t	Nett Weight: 12.84t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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ABN 15 093 914 937
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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

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Drivers Signature:

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Customer Signature:

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

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Customer Signature:

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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

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Drivers Signature:

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Customer Signature:

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HUNTER QUARRIES

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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
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Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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ABN 15 093 914 937
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Accounts
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Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Accounts
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Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total: 14.58	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

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Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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Thornton NSW 2322
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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total: 61.54	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Accounts
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Thornton NSW 2322
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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

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Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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Accounts
PO Box 3284
Thornton NSW 2322
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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total: 25.30	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

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Customer Signature:

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Accounts
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Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213643\1

Customer Name: KCR	Time Dispatched: 1:55 PM	Date: 20/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XN23AQ
	Order No:	Gross Weight: 22.76t
Additional Instructions: *0407 111 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 284.46t	Nett Weight: 12.86t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213642\1

Customer Name: KCR	Time Dispatched: 1:54 PM	Date: 20/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Rd 885608	Vehicle Rego:
	Order No:	Gross Weight: 22.84t
Additional Instructions: *0407 111 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.48t
	Daily Progressive Total: 271.60t	Nett Weight: 12.36t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date: 20/08/2019
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight: 22.42t
Additional Instructions:		Tare Weight: 10.76t
	Daily Progressive Total:	Nett Weight: 11.66t
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date: 20/08/2019
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight: 22.90t
Additional Instructions:		Tare Weight: 10.38t
	Daily Progressive Total:	Nett Weight: 12.52t
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2136491

Customer Name: KCR	Time Dispatched: 3:08 PM	Date: 20/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel RA 8856UE	Vehicle Rego:
	Order No:	Gross Weight: 22.94t
Additional Instructions: *URF #14 *0407 111 058 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.48t
	Daily Progressive Total: 320.94t	Nett Weight: 12.46t
Product Description: KR-125MM MINUS - NOR	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2136471

Customer Name: KCR	Time Dispatched: 2:41 PM	Date: 20/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Burns Earthmovin BZ48XG	Vehicle Rego:
	Order No:	Gross Weight: 22.32t
Additional Instructions: *URF #14 *0407 111 058 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.76t
	Daily Progressive Total: 308.48t	Nett Weight: 11.56t
Product Description: KR-125MM MINUS - NOR	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name: KCR	Time Dispatched: 3:10 PM	Date: 20/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XN23AQ
	Order No:	Gross Weight: 22.84t
Additional Instructions: AUBF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 333.88t	Nett Weight: 12.94t
Product Description: 5/8-1 25MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name: KCR	Time Dispatched: 3:34 PM	Date: 20/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Pa BX77DP	Vehicle Rego:
	Order No:	Gross Weight: 22.80t
Additional Instructions: AUBF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 346.30t	Nett Weight: 12.42t
Product Description: 5/8-1 25MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name: KCK	Time Dispatched: 2:23 PM	Date: 20/08/2019
Delivery Address: KCK Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Pty RX77DP	Vehicle Rego:
	Order No:	Gross Weight: 22.84t
Additional Instructions: *UHF #14 *0407 111 158 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 296.92t	Nett Weight: 12.46t
Product Description: 6B-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name: KCK	Time Dispatched: 12:42 PM	Date: 20/08/2019
Delivery Address: KCK Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel XN23AQ	Vehicle Rego:
	Order No:	Gross Weight: 22.78t
Additional Instructions: *UHF #14 *0407 111 158 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 293.06t	Nett Weight: 12.88t
Product Description: 6B-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name: KCR	Time Dispatched: 10:57 AM	Date: 20/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel RA RS560R	Vehicle Rego:
	Order No:	Gross Weight: 22.66t
Additional Instructions: *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.48t
	Daily Progressive Total: 185.38t	Nett Weight: 12.18t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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Docket No:

Customer Name: KCR	Time Dispatched: 12:11 PM	Date: 20/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel RA RS560R	Vehicle Rego:
	Order No:	Gross Weight: 22.92t
Additional Instructions: *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.48t
	Daily Progressive Total: 222.18t	Nett Weight: 12.44t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date: 20/08/2019
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight: 22.86t
Additional Instructions:		Tare Weight: 10.38t
	Daily Progressive Total: 111.26t	Nett Weight: 12.48t
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched: 10:08 AM	Date: 20/08/2019
Delivery Address:	Carrier: Burns Earthmoving B248AG	Vehicle Rego:
	Order No:	Gross Weight: 22.28t
Additional Instructions:		Tare Weight: 10.76t
	Daily Progressive Total: 147.96t	Nett Weight: 11.52t
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total: 31.58	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total: 49.06	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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Accounts
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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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Accounts
PO Box 3284
Thornton NSW 2322
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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

Karuah Quarry

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Accounts
PO Box 3284
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E: admin@hunterquarries.com.au

Docket No: H858983751

Customer Name: KCR	Time Dispatched: 7:08 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Sweetman Haulage	Vehicle Rego: CD19MB
	Order No:	Gross Weight: 22.86t
Additional Instructions: *AUHE #14 *0407 111 158 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.42t
	Daily Progressive Total: 37.72t	Nett Weight: 12.44t
Product Description: KB-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature: [signature]

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature: [signature]

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HUNTER QUARRIES

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A21366511

Customer Name: KCR	Time Dispatched: 8:17 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Ha	Vehicle Rego: BX77DP
	Order No:	Gross Weight: 22.56t
Additional Instructions: *AUHE #14 *0407 111 158 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 49.90t	Nett Weight: 12.18t
Product Description: KB-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature: [signature]

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature: [signature]

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name: KCR	Time Dispatched: 8:21 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R) Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XN23AQ
	Order No:	Gross Weight: 22.74t
Additional Instructions: *UBE #14 AU407 111 458 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 62.74t	Nett Weight: 12.84t
Product Description: 6R-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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E: admin@hunterquarries.com.au

Docket No:

Customer Name: KCR	Time Dispatched: 9:27 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R) Williamtown	Carrier: Peter Trappel Pa RX77DP	Vehicle Rego:
	Order No:	Gross Weight: 22.72t
Additional Instructions: *UBE #14 AU407 111 458 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 87.54t	Nett Weight: 12.34t
Product Description: 6R-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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E: admin@hunterquarries.com.au

Docket No: AZ136741

Customer Name: KCR	Time Dispatched: 9:37 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trapnell	Vehicle Rego: XN29AQ
	Order No:	Gross Weight: 22.96t
Additional Instructions: *QUIP #14 *0407 111 [illegible] *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 100.60t	Nett Weight: 13.06t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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E: admin@hunterquarries.com.au

Docket No: AZ136751

Customer Name: KCR	Time Dispatched: 9:41 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Sweetman Haulage CD19MB	Vehicle Rego:
	Order No:	Gross Weight: 22.86t
Additional Instructions: *QUIP #14 *0407 111 [illegible] *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.42t
	Daily Progressive Total: 113.04t	Nett Weight: 12.44t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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ABN 15 093 914 937
Andersite Road
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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213677\1

Customer Name: KCR	Time Dispatched: 9:47 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Ra	Vehicle Rego: B856UR
	Order No:	Gross Weight: 22.78t
Additional Instructions: *UHF #14 *0407 111 458 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.48t
	Daily Progressive Total: 125.34t	Nett Weight: 12.30t
Product Description: KB-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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---

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PO Box 3284
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E: admin@hunterquarries.com.au

Docket No: A213682\1

Customer Name: KCR	Time Dispatched: 10:36 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Ra	Vehicle Rego: BX77DP
	Order No:	Gross Weight: 22.94t
Additional Instructions: *UHF #14 *0407 111 458 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 137.90t	Nett Weight: 12.56t
Product Description: KB-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2136831

Customer Name: KCR	Time Dispatched: 10:48 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: YN23AO
	Order No:	Gross Weight: 22.98t
Additional Instructions: *UHF #14 *0407 111 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 150.98t	Nett Weight: 13.08t
Product Description: RR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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Accounts
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Thornton NSW 2322
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E: admin@hunterquarries.com.au

Docket No: A2136841

Customer Name: KCR	Time Dispatched: 10:56 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Sweetman Haulage CD19MR	Vehicle Rego:
	Order No:	Gross Weight: 23.14t
Additional Instructions: *UHF #14 *0407 111 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.42t
	Daily Progressive Total: 163.70t	Nett Weight: 12.72t
Product Description: RR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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Accounts
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Thornton NSW 2322
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E: admin@hunterquarries.com.au

Docket No: A213691\1

Customer Name: KCR	Time Dispatched: 11:51 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Pa RX77DP	Vehicle Rego:
	Order No:	Gross Weight: 22.88t
Additional Instructions: *UHF #14 *0407 111 15A *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 176.20t	Nett Weight: 12.50t
Product Description: KB-7.25MM MINUS - NOR	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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Thornton NSW 2322
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E: admin@hunterquarries.com.au

Docket No: A213692\1

Customer Name: KCR	Time Dispatched: 11:56 AM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Pa RB56UR	Vehicle Rego:
	Order No:	Gross Weight: 22.84t
Additional Instructions: *UHF #14 *0407 111 15A *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.48t
	Daily Progressive Total: 188.56t	Nett Weight: 12.36t
Product Description: KB-7.25MM MINUS - NOR	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213701

Customer Name: KCR	Time Dispatched: 1:10 PM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Pty BX77DP	Vehicle Rego:
	Order No:	Gross Weight: 22.96t
Additional Instructions: *QUBP #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 226.54t	Nett Weight: 12.58t
Product Description: RR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213697

Customer Name: KCR	Time Dispatched: 12:37 PM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XN23AQ
	Order No:	Gross Weight: 22.74t
Additional Instructions: *QUBP #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 213.96t	Nett Weight: 12.84t
Product Description: RR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

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Accounts
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Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A2137041

Customer Name: KCR	Time Dispatched: 1:52 PM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Sweetman Haulage CD19MR	Vehicle Rego:
	Order No:	Gross Weight: 23.02t
Additional Instructions: *ORF #14 A0407 111 PSA *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.42t
	Daily Progressive Total: 251.42t	Nett Weight: 12.60t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: B8589859\1

Customer Name: KCR	Time Dispatched: 1:15 PM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel PA 85580R	Vehicle Rego:
	Order No:	Gross Weight: 22.76t
Additional Instructions: *ORF #14 A0407 111 PSA *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.48t
	Daily Progressive Total: 236.82t	Nett Weight: 12.28t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

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HUNTER QUARRIES

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ABN 15 093 914 937
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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: AZ137051

Customer Name: KCE	Time Dispatched: 11:54 PM	Date: 21/08/2019
Delivery Address: KCE Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XN23AO
	Order No:	Gross Weight: 23.00t
Additional Instructions: *UHF #14 *0407 111 356 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 264.52t	Nett Weight: 13.10t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: AZ137101

Customer Name: KCE	Time Dispatched: 2:25 PM	Date: 21/08/2019
Delivery Address: KCE Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Pa	Vehicle Rego: RX77DP
	Order No:	Gross Weight: 22.92t
Additional Instructions: *UHF #14 *0407 111 356 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 277.06t	Nett Weight: 12.54t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

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Customer Signature:

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E: admin@hunterquarries.com.au

Docket No: A213711\1

Customer Name: KCR	Time Dispatched: 2:37 PM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Ka RS560K	Vehicle Rego:
	Order No:	Gross Weight: 22.86t
Additional Instructions: *UHF #14 *0407 111 15A *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.48t
	Daily Progressive Total: 289.44t	Nett Weight: 12.38t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213713\1

Customer Name: KCR	Time Dispatched: 3:08 PM	Date: 21/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XN23AQ
	Order No:	Gross Weight: 22.86t
Additional Instructions: *UHF #14 *0407 111 15A *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 302.40t	Nett Weight: 12.96t
Product Description: KR-125MM MINUS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

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Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213715\1

Customer Name:	Time Dispatched:	Date: 21/08/2019
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight: 22.80t
Additional Instructions:		Tare Weight: 10.38t
	Daily Progressive Total: 314.82t	Nett Weight: 12.42t
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date: 22/08/2019
Delivery Address:	Carrier: GW & GJ Trappel	Vehicle Rego: XR24AO
	Order No:	Gross Weight: 22.86t
Additional Instructions:		Tare Weight: 9.90t
	Daily Progressive Total: 12.96t	Nett Weight: 12.96t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date: 22/08/2019
Delivery Address:	Carrier: Sweetman Haulage CM74PR	Vehicle Rego:
	Order No:	Gross Weight: 23.22t
Additional Instructions:		Tare Weight: 10.98t
	Daily Progressive Total: 25.20t	Nett Weight: 12.24t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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E: admin@hunterquarries.com.au

Docket No: A213726\1

Customer Name: KCR	Time Dispatched: 8:25 AM	Date: 22/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel	Vehicle Rego: XR23AQ
	Order No:	Gross Weight: 22.72t
Additional Instructions: KUBE #14 40407 111 15A *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 62.54t	Nett Weight: 12.82t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

Distribution: White - Office Copy Pink - Admin Copy Blue - Carrier Copy Yellow - Customer Copy

HUNTER QUARRIES

Karuah Quarry
ABN 15 093 914 937
Andersite Road
Karuah NSW 2324
Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213727\1

Customer Name: KCR	Time Dispatched: 8:40 AM	Date: 22/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Sweetman Haulage CM74FR	Vehicle Rego:
	Order No:	Gross Weight: 23.22t
Additional Instructions: KUBE #14 40407 111 15A *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.98t
	Daily Progressive Total: 74.78t	Nett Weight: 12.24t
Product Description:	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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Ph: 4997 5966 Fax: 4997 5933

Accounts
PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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HUNTER QUARRIES

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Accounts
PO Box 3284
Thornton NSW 2322
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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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Thornton NSW 2322
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E: admin@hunterquarries.com.au

Docket No: A213731\1

Customer Name: KCR	Time Dispatched: 9:50 AM	Date: 22/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: Peter Trappel Pa RX77DP	Vehicle Rego:
	Order No:	Gross Weight: 22.84t
Additional Instructions: *ORF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 10.38t
	Daily Progressive Total: 137.24t	Nett Weight: 12.46t
Product Description: KR-12MM MTHDS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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PO Box 3284
Thornton NSW 2322
Ph: 4966 8577 Fax: 4966 8522
E: admin@hunterquarries.com.au

Docket No: A213731\1

Customer Name: KCR	Time Dispatched: 9:39 AM	Date: 22/08/2019
Delivery Address: KCR Williamtown Drive (Airport Access R Williamtown	Carrier: GW & GJ Trappel XN23AO	Vehicle Rego:
	Order No:	Gross Weight: 22.92t
Additional Instructions: *ORF #14 *0407 111 358 *4922 5000 *Newcastle Airport Access Roads		Tare Weight: 9.90t
	Daily Progressive Total: 112.34t	Nett Weight: 13.02t
Product Description: KR-12MM MTHDS - NON	Stockpile No: All Areas	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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E: admin@hunterquarries.com.au

Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

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Customer Signature:

HQ-007 8/2015

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Docket No:

Customer Name:	Time Dispatched:	Date:
Delivery Address:	Carrier:	Vehicle Rego:
	Order No:	Gross Weight:
Additional Instructions:		Tare Weight:
	Daily Progressive Total:	Nett Weight:
Product Description:	Stockpile No:	

I agree to abide by all RMS Driver Fatigue Management and Chain of Responsibility legislation in acceptance and delivery of this load and do so under no duress by Hunter Quarries to breach in any form or part thereof.

Drivers Signature:

(Goods Received as per Conditions of Sale on overleaf)
Customer Signature:

HQ-007 8/2015

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Customer Movement Summary by Product HQE

Where transaction occurred between 1/01/2020 and 31/12/2020 and customer is Greater Newcastle Aerotropolis

Product	Movements	Net	Charge inc GST
Greater Newcastle Aerotropolis		Debtor Code:	Greater Newcastle Aerotropolis
Fill, Civil, Processed, Non Specified (Tippings)	1,945	64,013.26 t	$271,098.25
Large Rock, Civil, (Gabion) 90-250mm, Specified	113	3,620.64 t	$78,260.14
Large Rock, Civil, (Surge Material) 40-250mm, Non Specified	2	70.74 t	$2,178.80
Greater Newcastle Aerotropolis	2,060	67,704.64 t	$351,537.19
Report Total	2060	67,704.64 t	$351,537.19

The charge amounts shown in this report are those attributed to products only. Any charges relating to an entire transaction (e.g. Cartage) have not been included in this report and therefore the report may understate the total charges applicable to the transactions included.

HUNTER QUARRIES

ANDERSITE ROAD KARUAH NSW 2324

Tran By Customer By Product Summary

Print Date &Time: 7/02/2023 - 4:10:06PM

Customer equals Greater Newcastle Aerotropolis Pty Ltd AND Date is between 1/01/2020 and 31/12/2020

Product Code	Trans	Qty (t)	Product Avg $	Product $	Freight $	Total $ ex GST
Greater Newcastle Aerotropolis Pty Ltd						
KB-125MM MINUS	3	81.28	$4.60	$373.89	$568.96	$942.85
KB-GENERAL FILL - PROCI	773	24,770.36	$3.85	$95,365.89	$173,392.52	$268,758.41
	776	24,851.64	$3.85	$95,739.77	$173,961.48	$269,701.25
Totals for Report	**776**	**24,851.64**	**$3.85**	**$95,739.77**	**$173,961.48**	**$269,701.25**

Report End

10 September 2018

Hunter Quarries Pty Ltd
PO Box 23,
KARUAH NSW 2324

Attention: Adrian Czadrik

RE: VENM Assessment – Karuah East Quarry

Valley Civilab have been engaged on behalf of Hunter Quarries Pty Ltd to assess site won and produced material from Karuah East Quarry in accordance to Virgin Excavated Natural Material (VENM).

The Protection of the Environment Operations Act 1997 (POEO Act) defines VENM as material (such as clay, gravel, sand, soil or rock fines) which;

- Has been excavated or quarried from areas that are not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining or agricultural activities.
- Does not contain sulphidic ores or soils.

The material produced on site consists of residual rock which is first drilled and blasted, then crushed and screened to produce;

- Primary and Secondary class armour rock;
- Aggregates;
- Manufactured sand;
- Fine Crushed Rock;
- Overburden clay fill.

The produced materials above are an end product of the crushing and screening process of VENM won material. The produced materials listed are not mixed with any type of waste, contamination or otherwise and does not contain sulphate ores or soils. The Clay fill material is won from the Quarry overburden material, stripped from above the blasted rock and stockpiled.

In summary the produced materials are derived from excavated VENM.

Prepared by Jake Duck
Environmental Scientist
Valley Civilab Pty Ltd

10 September 2018

Hunter Quarries Pty Ltd
PO Box 23,
KARUAH NSW 2324

Attention: Adrian Czadrik

RE: VENM Assessment – Karuah Quarry

Valley Civilab have been engaged on behalf of Hunter Quarries Pty Ltd to assess site won and produced material from Karuah Quarry in accordance to Virgin Excavated Natural Material (VENM).

The Protection of the Environment Operations Act 1997 (POEO Act) defines VENM as material (such as clay, gravel, sand, soil or rock fines) which;

- Has been excavated or quarried from areas that are not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining or agricultural activities.
- Does not contain sulphidic ores or soils.

The material produced on site consists of residual rock which is first drilled and blasted, then crushed and screened to produce;

- Primary and Secondary class armour rock;
- Aggregates;
- Manufactured sand;
- Fine Crushed Rock;
- Overburden clay fill.

The produced materials above are an end product of the crushing and screening process of VENM won material. The produced materials listed are not mixed with any type of waste, contamination or otherwise and does not contain sulphate ores or soils. The Clay fill material is won from the Quarry overburden material, stripped from above the blasted rock and stockpiled.

In summary the produced materials are derived from excavated VENM.

Prepared by Jake Duck
Environmental Scientist
Valley Civilab Pty Ltd

APPENDIX C:

Daracon Documentation

DARACON Group

HEAD OFFICE
20 Kullara Close, Beresfield NSW 2322
PO Box 401 Beresfield NSW 2322
P 02 4974 9200

dgroup@daracon.com.au
www.daracon.com.au

SYDNEY
184 Adderley Street West, Auburn NSW 2144
P 02 8799 2600

HUNTER VALLEY
2 Kime Road, Mount Thorley 2330
P 02 6574 0200

GUNNEDAH
171 Blackjack Road, Gunnedah NSW 2380
PO Box 767 Gunnedah NSW 2380
P 02 6742 4977

4 May 2021

Greater Newcastle Aerotropolis Pty Limited

Private Bag 2001

Raymond Terrace NSW 2324

Dear Bede

RE: Astra Aerolab Civil Works Stage 1 - RAP Compliance

In accordance with Contract Preliminaries, Daracon confirm that that where applicable, Daracon have undertaken the works in accordance with the Remediation Action Plan prepared by Douglas Partners dated November 2019.

Details of works undertaken in accordance with Remediation Action Plan (RAP) Section 8 *Scope of Works,* are outlined as follows:

Identified Scope	**Treatment Details**	**Record**
Localised opportunistic Dumping	Site rubbish removed prior to Daracon commencement onsite. No treatment required.	Nearmaps high-resolution aerial image dated 11/2/2020 depicting absence of dumped rubbish and car bodies.
Additional Assessment of PFAS impacts	Additional assessment/ investigation undertaken in the form of PFAS testing by GNAPL. Results of testing indicate no requirement for barrier layer of capping, in line with RAP requirements.	Valley Civilab Report ref P-R-002-ESA-Rev0, and related email correspondence.
On-site Management of PFAS Impacts	Not required based on the above testing.	N/A
On-site management of impacts associated with effluent ponds	Not applicable to Daracon Scope of Work.	N/A

Sediments and Groundwater associated with effluent pond	Not Applicable to Daracon Scope of Works	N/A
Classification of imported materials for on-site reuse	Earthworks fill imported by GNAPL.	N/A
Unexpected Find – White Crystaline Material within excavated earthworks material	Material separated and stockpiled. Material testing undertaken by Qualtest. Material assessed as suitable for onsite reuse. No Treatment Required.	Qualtest Report NEW20P-0020-AC

Please don't hesitate to contact the undersigned for any further clarification regarding these works.

Yours sincerely,

Matthew Jensen
Project Manger
Daracon Contractors

Attachments:

1. Record of Start-up meeting, including RAP Requirements.
2. Aerial Photo dated 11/02/2020
3. Valley Civilab PFAS investigation and Results and correspondence, and related correspondence provided by GNAPL.
4. PFAS Results correspondence
5. Qualtest Report NEW20P-0020-AC
6. Reference correspondence


nearmap

APPENDIX D:

Tables

Table 1: Laboratory Analytical Results
Stockpiles on Lots 101-102, Stage 1, Astra Aerolab, Williamtown NSW

	Analytes	Units	LOR	HIL/HSL D	EIL/ESL D	Management Limits	Field ID	SP3-1	SP3-2	SP3-3	SP3-4	SP3-5	SP3-6	SP3-7	SP3-8	SP3-9	SP3-10	SP3-11	SP3-12	D.6.2.23
							Date	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	
Heavy Metals	Arsenic	mg/kg	2	3,000	160			< 2	3.3	3.5	< 2	< 2	< 2	12	5	< 2	< 2	2.2	2.9	< 2
	Cadmium	mg/kg	0.4	900				< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
	Chromium	mg/kg	5	3,600	670*			< 5	13	17	6.6	< 5	< 5	22	19	7	< 5	12	12	< 5
	Copper	mg/kg	5	240,000	90*			< 5	12	13	11	6.6	11	16	12	6.3	< 5	12	11	< 5
	Lead	mg/kg	5	1,500	1,800			7.3	6.9	8.3	5.6	< 5	6.4	6.5	8.6	5.1	9.2	8.4	7.9	8.1
	Mercury	mg/kg	5	730				< 0.1	< 0.1	< 0.1	0.2	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Nickel	mg/kg	5	6,000	330*			< 5	7.6	9.8	< 5	< 5	< 5	12	20	< 5	< 5	5.7	6.8	< 5
	Zinc	mg/kg	5	400,000	240*			13	38	43	28	23	28	54	41	28	24	42	46	12
PAHs	Acenaphthene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Acenaphthylene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Anthracene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Benz(a)anthracene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6
	Benzo(a)pyrene	mg/kg	0.5		1.4			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Benzo(a)pyrene TEQ	mg/kg	0.5	40				0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.4
	Benzo(b&j)fluoranthene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.8
	Benzo(g.h.i)perylene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6
	Benzo(k)fluoranthene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.9
	Chrysene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.8
	Dibenz(a.h)anthracene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.8
	Fluoranthene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Fluorene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Indeno(1.2.3-cd)pyrene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.7
	Naphthalene	mg/kg	0.5		370			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Phenanthrene	mg/kg	0.5					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Pyrene	mg/kg	0.5					0.6	< 0.5	< 0.5	< 0.5	< 0.5	0.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Total PAH*	mg/kg	0.5	4,000				0.6	< 0.5	< 0.5	< 0.5	< 0.5	1.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5.2
TRH	Naphthalene	mg/kg	0.5	NL	370			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	TRH C6-C10	mg/kg	20		215	700		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	TRH C6-C10 less BTEX (F1)	mg/kg	20	260				< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	TRH >C10-C16	mg/kg	50		170	1,000		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	NL				< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
	TRH >C16-C34	mg/kg	100		1,700	3,500		< 100	< 100	< 100	< 100	110	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
	TRH >C34-C40	mg/kg	100		3,300	10,000		< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
BTEX	Benzene	mg/kg	0.1	3	75			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Ethylbenzene	mg/kg	0.1	NL	165			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Toluene	mg/kg	0.1	NL	135			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Xylenes - Total*	mg/kg	0.3	230	180			< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
PFAS	PFOS	mg/kg	0.005		1			< 0.005	0.012	< 0.005	0.015	0.045	0.017	< 0.005	< 0.005	0.011	< 0.005	0.0056	< 0.005	-
	PFOA	mg/kg	0.005	50	10			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	-
	Sum (PFHxS + PFOS)*	mg/kg	0.005	20				< 0.005	0.012	< 0.005	0.015	0.0512	0.017	< 0.005	< 0.005	0.011	< 0.005	0.0056	< 0.005	-
	Sum of enHealth PFAS (PFHxS + PFOS + P	mg/kg	0.005					< 0.005	0.012	< 0.005	0.015	0.0512	0.017	< 0.005	< 0.005	0.011	< 0.005	0.0056	< 0.005	-
	Sum of PFASs (n=30)*	mg/kg	0.05					< 0.05	< 0.05	< 0.05	< 0.05	0.0512	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-

Table 1: Laboratory Analytical Results
Stockpiles on Lots 101-102, Stage 1, Astra Aerolab, Williamtown NSW

						Field ID	SP3-1	SP3-2	SP3-3	SP3-4	SP3-5	SP3-6	SP3-7	SP3-8	SP3-9	SP3-10	SP3-11	SP3-12	D.6.2.23
						Date	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	6/02/2023	
Analytes		Units	LOR	HIL/HSL D	EIL/ESL D	Management Limits													
OCPs	4.4'-DDD	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	4.4'-DDE	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	4.4'-DDT	mg/kg	0.5		640		< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	a-HCH	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Aldrin	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Aldrin and Dieldrin (Total)*	mg/kg	0.5	45			< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	b-HCH	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Chlordanes - Total	mg/kg	1	530			< 1	-	-	< 1	-	-	< 0.1	-	-	< 0.1	-	-	-
	DDT + DDE + DDD (Total)*	mg/kg	0.5	3,600			< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	d-HCH	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Dieldrin	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Endosulfan I	mg/kg	0.5	2,000			< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Endosulfan II	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Endosulfan sulphate	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Endrin	mg/kg	0.5	100			< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Endrin aldehyde	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Endrin ketone	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	g-HCH (Lindane)	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Heptachlor	mg/kg	0.5	50			< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Heptachlor epoxide	mg/kg	0.5				< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Hexachlorobenzene	mg/kg	0.5	80			< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Methoxychlor	mg/kg	0.5	2,500			< 0.5	-	-	< 0.5	-	-	< 0.05	-	-	< 0.05	-	-	-
	Toxaphene	mg/kg	10	160			< 10	-	-	< 10	-	-	< 0.5	-	-	< 0.5	-	-	-
	Vic EPA IWRG 621 OCP (Total)*	mg/kg	1				< 1	-	-	< 1	-	-	< 0.1	-	-	< 0.1	-	-	-
	Vic EPA IWRG 621 Other OCP (Total)*	mg/kg	1				< 1	-	-	< 1	-	-	< 0.1	-	-	< 0.1	-	-	-
PCBs	Aroclor-1016	mg/kg	1				< 1	-	-	< 1	-	-	< 0.1	-	-	< 0.1	-	-	-
	Aroclor-1221	mg/kg	1				< 1	-	-	< 1	-	-	< 0.1	-	-	< 0.1	-	-	-
	Aroclor-1232	mg/kg	1				< 1	-	-	< 1	-	-	< 0.1	-	-	< 0.1	-	-	-
	Aroclor-1242	mg/kg	1				< 1	-	-	< 1	-	-	< 0.1	-	-	< 0.1	-	-	-
	Aroclor-1248	mg/kg	1				< 1	-	-	< 1	-	-	< 0.1	-	-	< 0.1	-	-	-
	Aroclor-1254	mg/kg	1				< 1	-	-	< 1	-	-	< 0.1	-	-	< 0.1	-	-	-
	Aroclor-1260	mg/kg	1				< 1	-	-	< 1	-	-	< 0.1	-	-	< 0.1	-	-	-
	Total PCB*	mg/kg	1	7			< 1	-	-	< 1	-	-	< 0.1	-	-	< 0.1	-	-	-

Notes

EILs based on pH of 6, CEC of 5meq/100ml and clay content of 10%, based on assessment of soils to north of Astra Aerolab, and using backgroound concentrations from Olszowy et al (1995) old suburbs, high traffic, 95th percentile

Result Exceeds Health Investigation/Screening Level

Result Exceeds Ecological Investigation/Screening Level

Result Exceeds Management Limit

[1] ASC NEPM (2013) Health Investigation & Screening Levels, commercial/industrial land use, sand 0-1m

[1] ASC NEPM (2013) Ecological Investigation & Screening Levels, commercial/industrial land use

[1] ASC NEPM (2013) Management Limits, commercial/industrial land use, coarse grained soils

GNAPL
NEW23P-0005-AB

Table 2: Asbestos Results
Stockpiles on Lots 101-102, Stage 1, Astra Aerolab, Williamtown NSW

Sample ID	Matrix	Sample Date	ACM weight (g)	ACM weight (kg)	Soil density (kg/L)	Soil Volume (L)	Asbestos Content (%)	%w/w ACM in Soil	HSL-D	%w/w FA/AF in Soil	HSL-D
SP3-1	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001
SP3-2	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001
SP3-3	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001
SP3-4	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001
SP3-5	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001
SP3-6	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001
SP3-7	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001
SP3-8	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001
SP3-9	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001
SP3-10	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001
SP3-11	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001
SP3-12	Soil	6/02/2023	0	0	1.8	10	15	0.000	0.05	ND	0.001

Notes:

%w/w asbestos in soil calculated using: % asbestos content x bonded ACM (kg) / soil volume (L) x soil density (kg/L)

Result

Criteria from ASC NEPM (2013) Table 7 - Health Screening Level (HSL) for Asbestos, Commercial/Industrial Land Use

Table 3 - Quality Control Results
Stockpiles on Lots 101-102, Stage 1, Astra Aerolab, Williamtown NSW

		Sample ID		SP3-1	D.6.2.23	RPD %
		Date		6/02/2023	6/02/2023	
		Type		Primary	Duplicate	
Analytes		**Soil Units**	**LOR**			
Metals	Arsenic	mg/kg	2	< 2	< 2	0
	Cadmium	mg/kg	0.4	< 0.4	< 0.4	0
	Chromium	mg/kg	5	< 5	< 5	0
	Copper	mg/kg	5	< 5	< 5	0
	Lead	mg/kg	5	7.3	8.1	10
	Mercury	mg/kg	5	< 0.1	< 0.1	0
	Nickel	mg/kg	5	< 5	< 5	0
	Zinc	mg/kg	5	13	12	8
PAHs	Acenaphthene	mg/kg	0.1	< 0.5	< 0.5	0
	Acenaphthylene	mg/kg	0.1	< 0.5	< 0.5	0
	Anthracene	mg/kg	0.1	< 0.5	< 0.5	0
	Benzo(a)anthracene	mg/kg	0.1	< 0.5	0.6	18
	Benzo(a)pyrene	mg/kg	0.1	< 0.5	< 0.5	0
	Benzo(b&j)fluoranthene	mg/kg	0.1	< 0.5	0.8	46
	Benzo(ghi)perylene	mg/kg	0.1	< 0.5	0.6	18
	Benzo(k)fluoranthene	mg/kg	0.1	< 0.5	0.9	57
	Chrysene	mg/kg	0.1	< 0.5	0.8	46
	Dibenzo(ah)anthracene	mg/kg	0.1	< 0.5	0.8	46
	Fluoranthene	mg/kg	0.1	< 0.5	< 0.5	0
	Fluorene	mg/kg	0.1	< 0.5	< 0.5	0
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	< 0.5	0.7	33
	Naphthalene	mg/kg	0.1	< 0.5	< 0.5	0
	Phenanthrene	mg/kg	0.1	< 0.5	< 0.5	0
	Pyrene	mg/kg	0.1	0.6	< 0.5	18
BTEX	Benzene	mg/kg	0.1	< 0.1	< 0.1	0
	Toluene	mg/kg	0.1	< 0.1	< 0.1	0
	Ethylbenzene	mg/kg	0.1	< 0.1	< 0.1	0
	Xylenes - Total	mg/kg	0.3	< 0.3	< 0.3	0
TRH	Naphthalene	mg/kg	0.5	< 0.5	< 0.5	0
	TRH C6-C10	mg/kg	20	< 20	< 20	0
	TRH >C10-C16	mg/kg	50	< 50	< 50	0
	TRH >C16-C34	mg/kg	100	< 100	< 100	0
	TRH >C34-C40	mg/kg	100	< 100	< 100	0

*RPDs have only been considered where a concentration is greater than 10 times the EQL.
**High RPDs are in bold (Acceptable RPD range is 30% (>10 x EQL))

APPENDIX E:

Laboratory Reports

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

Company	Qualtest	Project №	NEW23P-0005	Project Manager	Emma Coleman
Address	2 Murray Dwyer Circuit NSW 2304	Project Name	GNAPL, Astra Aerolab	EDD Format (ESdat, EQuIS etc)	Excel
Contact Name	Emma Coleman				
Phone №					
Special Directions					
Purchase Order					
Quote ID №	180622QUAN-3				

Sampler(s)	Lewis Callinan	1/2			
Handed over by					
Email for Invoice	accounts@qualtest.com.au				
Email for Results	libbybetz@qualtest.com.au emmacoleman@qualtest.com.au billysnow@qualtest.com.au lewiscallinan@qualtest.com.au				

Analyses — Where multiple are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

Containers — Change container type & size if necessary.

Required Turnaround Time (TAT) — Default will be 5 days if not ticked.

♦Surcharge will apply
☐ Overnight (reporting by 9am)♦
☐ Same day ♦ ☑ 1 day ♦
☐ 2 days ♦ ☐ 3
☐ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Suite B7 (TRH,BTEX,PAHs, Metals)	Asbestos NEPM	PFAS	Suite B13 (OCP, PCB)	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	SP3-1	6/02/23	SOIL	X	X	X	X						1	1	1	
2	SP3-2	6/02/23	SOIL	X	X	X							1	1	1	
3	SP3-3	6/02/23	SOIL	X	X	X							1	1	1	
4	SP3-4	6/02/23	SOIL	X	X	X	X						1	1	1	
5	SP3-5	6/02/23	SOIL	X	X	X							1	1	1	
6	SP3-6	6/02/23	SOIL	X	X	X							1	1	1	
7	SP3-7	6/02/23	SOIL	X	X	X	X						1	1	1	
8	SP3-8	6/02/23	SOIL	X	X	X							1	1	1	
9	SP3-9	6/02/23	SOIL	X	X	X							1	1	1	
10	SP3-10	6/02/23	SOIL	X	X	X	X						1	1	1	
	Total Counts			10	10	10							10	10	10	page 1/2

Method of Shipment	☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name	Signature	Date	Time 11:3
Laboratory Use Only	Received By Jaidyn Stanyer	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date 7/2/23	Time 2:30	Temperature 2.8°
	Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	Time	Report №

961554

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ **Sydney Laboratory**
Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ **Brisbane Laboratory**
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07 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory**
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08 9251 9600 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory**
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

2/2

Company	Qualtest	**Project №**	NEW23P-0005
Address	2 Murray Dwyer Circuit NSW 2304	**Project Name**	GNAPL, Astra Aerolab
Contact Name	Emma Coleman	**Project Manager**	Emma Coleman
Phone №		**EDD Format** (ESdat, EQuIS etc)	Excel
Special Directions		**Sampler(s)**	Lewis Callinan
Purchase Order		**Handed over by**	
Quote ID №	180622QUAN-3	**Email for Invoice**	accounts@qualtest.com.au
		Email for Results	libbybetz@qualtest.com.au emmacoleman@qualtest.com.au billysnow@qualtest.com.au lewiscallinan@qualtest.com.au

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing

Containers — Change container type & size if necessary.

Required Turnaround Time (TAT) — Default will be 5 days if not ticked.
♦Surcharge will apply
☐ Overnight (reporting by 9am)♦
☐ Same day ♦ ☑ 1 day ♦
☐ 2 days ♦ ☐ 3
☐ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Suite B7 (TRH,BTEX,PAHs, Metals)	Asbestos NEPM	PFAS	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	SP3-11	6/02/23	SOIL	X	X	X						1	1	1	
2	SP3-12	6/02/23	SOIL	X	X	X						1	1	1	
3	D.6.2.23	6/02/23	SOIL	X								1	1	1	
4												1	1	1	
5												1	1	1	
6												1	1	1	
7												1	1	1	
8												1	1	1	
9												1	1	1	
10												1	1	1	
	Total Counts			3	2	2						10	10	10	page 1/2

Method of Shipment	☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name		Signature	Date		Time
Laboratory Use Only	Received By	Jaidyn Slongrove	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	[signature]	Date 7/2/23	Time 2:30	Temperature	11.3
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	Time	Report №	

961554

eurofins | Environment Testing

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Sample Receipt Advice

Company name:	Qualtest
Contact name:	Emma Coleman
Project name:	GNAPL ASTRA AEROLAB
Project ID:	NEW23P-0005
Turnaround time:	1 Day
Date/Time received	Feb 7, 2023 2:30 PM
Eurofins reference	961554

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Emma Coleman - emmacoleman@qualtest.com.au.

Note: A copy of these results will also be delivered to the general Qualtest email address.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Qualtest
2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Attention:	Emma Coleman
Report	961554-AID
Project Name	GNAPL ASTRA AEROLAB
Project ID	NEW23P-0005
Received Date	Feb 07, 2023
Date Reported	Feb 09, 2023

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

Project Name GNAPL ASTRA AEROLAB
Project ID NEW23P-0005
Date Sampled Feb 06, 2023
Report 961554-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
SP3-1	23-Fe0015344	Feb 06, 2023	Approximate Sample 871g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP3-2	23-Fe0015345	Feb 06, 2023	Approximate Sample 987g Sample consisted of: Brown coarse-grained sandy soil, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP3-3	23-Fe0015346	Feb 06, 2023	Approximate Sample 1071g Sample consisted of: Brown coarse-grained sandy soil, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP3-4	23-Fe0015347	Feb 06, 2023	Approximate Sample 900g Sample consisted of: Brown coarse-grained sandy soil, plant residue and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP3-5	23-Fe0015348	Feb 06, 2023	Approximate Sample 826g Sample consisted of: Brown coarse-grained clayey sandy soil, plant residue and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP3-6	23-Fe0015349	Feb 06, 2023	Approximate Sample 1031g Sample consisted of: Brown fine-grained clayey soil, plant residue and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP3-7	23-Fe0015350	Feb 06, 2023	Approximate Sample 1036g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP3-8	23-Fe0015351	Feb 06, 2023	Approximate Sample 953g Sample consisted of: Brown coarse-grained sandy soil, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
SP3-9	23-Fe0015352	Feb 06, 2023	Approximate Sample 1104g Sample consisted of: Brown coarse-grained sandy soil, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP3-10	23-Fe0015353	Feb 06, 2023	Approximate Sample 1021g Sample consisted of: Brown coarse-grained sandy soil, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP3-11	23-Fe0015354	Feb 06, 2023	Approximate Sample 1043g Sample consisted of: Brown coarse-grained sandy soil, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP3-12	23-Fe0015355	Feb 06, 2023	Approximate Sample 1028g Sample consisted of: Brown coarse-grained sandy soil, brick and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Feb 08, 2023	Indefinite

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Sydney 179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217
Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466
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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: GNAPL ASTRA AEROLAB
Project ID: NEW23P-0005

Order No.:
Report #: 961554
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Feb 7, 2023 2:30 PM
Due: Feb 8, 2023
Priority: 1 Day
Contact Name: Emma Coleman

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	Suite B13: OCP/PCB	Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	SP3-1	Feb 06, 2023		Soil	S23-Fe0015344	X	X	X	X	X
2	SP3-2	Feb 06, 2023		Soil	S23-Fe0015345	X		X	X	X
3	SP3-3	Feb 06, 2023		Soil	S23-Fe0015346	X		X	X	X
4	SP3-4	Feb 06, 2023		Soil	S23-Fe0015347	X	X	X	X	X
5	SP3-5	Feb 06, 2023		Soil	S23-Fe0015348	X		X	X	X
6	SP3-6	Feb 06, 2023		Soil	S23-Fe0015349	X		X	X	X
7	SP3-7	Feb 06, 2023		Soil	S23-Fe0015350	X	X	X	X	X
8	SP3-8	Feb 06, 2023		Soil	S23-Fe0015351	X		X	X	X
9	SP3-9	Feb 06, 2023		Soil	S23-Fe0015352	X		X	X	X
10	SP3-10	Feb 06, 2023		Soil	S23-Fe0015353	X	X	X	X	X
11	SP3-11	Feb 06, 2023		Soil	S23-Fe0015354	X		X	X	X
12	SP3-12	Feb 06, 2023		Soil	S23-Fe0015355	X		X	X	X
13	D.6.2.23	Feb 06, 2023		Soil	S23-Fe0015356			X	X	

Eurofins Environment Testing Australia Pty Ltd
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Address: 2 Murray Dwyer Circuit
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NSW 2304

Project Name: GNAPL ASTRA AEROLAB
Project ID: NEW23P-0005

Order No.:
Report #: 961554
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Feb 7, 2023 2:30 PM
Due: Feb 8, 2023
Priority: 1 Day
Contact Name: Emma Coleman

Eurofins Analytical Services Manager : Andrew Black

Sample Detail	Asbestos - WA guidelines	Suite B13: OCP/PCB	Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs)
Sydney Laboratory - NATA # 1261 Site # 18217	X	X	X	X	X
Test Counts	12	4	13	13	12

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (**% w/w**)
F/fld	Airborne fibre filter loading as Fibres (**N**) per Fields counted (**n**)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (**C**)
g, kg	Mass, e.g. of whole sample (**M**) or asbestos-containing find within the sample (**m**)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (**V = r x t**)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (**r**)
min	Time (**t**), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration: $C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{r}\right) \times \left(\frac{1}{t}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$

Asbestos Content (as asbestos): $\%\, w/w = \frac{(m \times P_A)}{M}$

Weighted Average (of asbestos): $\%_{WA} = \sum \frac{(m \times P_A)_x}{x}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w)**.
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Asbestos Counter/Identifier:

Chamath JHM Annakkage	Senior Analyst-Asbestos

Authorised by:

Sayeed Abu	Senior Analyst-Asbestos

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Qualtest
2 Murray Dwyer Circuit
Mayfield West
NSW 2304

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Emma Coleman**

Report **961554-S**
Project name GNAPL ASTRA AEROLAB
Project ID NEW23P-0005
Received Date Feb 07, 2023

Client Sample ID			**SP3-1**	**SP3-2**	**SP3-3**	**SP3-4**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S23-Fe0015344**	**S23-Fe0015345**	**S23-Fe0015346**	**S23-Fe0015347**
Date Sampled			**Feb 06, 2023**	**Feb 06, 2023**	**Feb 06, 2023**	**Feb 06, 2023**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	113	113	111	118
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			SP3-1	SP3-2	SP3-3	SP3-4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015344	S23-Fe0015345	S23-Fe0015346	S23-Fe0015347
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	118	91	95	109
p-Terphenyl-d14 (surr.)	1	%	135	84	87	122
Organochlorine Pesticides						
Comments			G01			G01
Chlordanes - Total	0.1	mg/kg	< 1	-	-	< 1
4.4'-DDD	0.05	mg/kg	< 0.5	-	-	< 0.5
4.4'-DDE	0.05	mg/kg	< 0.5	-	-	< 0.5
4.4'-DDT	0.05	mg/kg	< 0.5	-	-	< 0.5
a-HCH	0.05	mg/kg	< 0.5	-	-	< 0.5
Aldrin	0.05	mg/kg	< 0.5	-	-	< 0.5
b-HCH	0.05	mg/kg	< 0.5	-	-	< 0.5
d-HCH	0.05	mg/kg	< 0.5	-	-	< 0.5
Dieldrin	0.05	mg/kg	< 0.5	-	-	< 0.5
Endosulfan I	0.05	mg/kg	< 0.5	-	-	< 0.5
Endosulfan II	0.05	mg/kg	< 0.5	-	-	< 0.5
Endosulfan sulphate	0.05	mg/kg	< 0.5	-	-	< 0.5
Endrin	0.05	mg/kg	< 0.5	-	-	< 0.5
Endrin aldehyde	0.05	mg/kg	< 0.5	-	-	< 0.5
Endrin ketone	0.05	mg/kg	< 0.5	-	-	< 0.5
g-HCH (Lindane)	0.05	mg/kg	< 0.5	-	-	< 0.5
Heptachlor	0.05	mg/kg	< 0.5	-	-	< 0.5
Heptachlor epoxide	0.05	mg/kg	< 0.5	-	-	< 0.5
Hexachlorobenzene	0.05	mg/kg	< 0.5	-	-	< 0.5
Methoxychlor	0.05	mg/kg	< 0.5	-	-	< 0.5
Toxaphene	0.5	mg/kg	< 10	-	-	< 10
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.5	-	-	< 0.5
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.5	-	-	< 0.5
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 1	-	-	< 1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 1	-	-	< 1
Dibutylchlorendate (surr.)	1	%	98	-	-	137
Tetrachloro-m-xylene (surr.)	1	%	114	-	-	118
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 1	-	-	< 1
Aroclor-1221	0.1	mg/kg	< 1	-	-	< 1
Aroclor-1232	0.1	mg/kg	< 1	-	-	< 1
Aroclor-1242	0.1	mg/kg	< 1	-	-	< 1
Aroclor-1248	0.1	mg/kg	< 1	-	-	< 1
Aroclor-1254	0.1	mg/kg	< 1	-	-	< 1
Aroclor-1260	0.1	mg/kg	< 1	-	-	< 1
Total PCB*	0.1	mg/kg	< 1	-	-	< 1
Dibutylchlorendate (surr.)	1	%	98	-	-	137
Tetrachloro-m-xylene (surr.)	1	%	114	-	-	118

Client Sample ID			SP3-1	SP3-2	SP3-3	SP3-4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015344	S23-Fe0015345	S23-Fe0015346	S23-Fe0015347
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	3.3	3.5	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	13	17	6.6
Copper	5	mg/kg	< 5	12	13	11
Lead	5	mg/kg	7.3	6.9	8.3	5.6
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2
Nickel	5	mg/kg	< 5	7.6	9.8	< 5
Zinc	5	mg/kg	13	38	43	28
% Moisture	1	%	3.8	4.3	3.7	3.5
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	97	104	106	106
13C5-PFPeA (surr.)	1	%	109	104	108	112
13C5-PFHxA (surr.)	1	%	104	113	109	116
13C4-PFHpA (surr.)	1	%	111	114	121	109
13C8-PFOA (surr.)	1	%	105	104	108	114
13C5-PFNA (surr.)	1	%	111	124	122	124
13C6-PFDA (surr.)	1	%	129	139	141	138
13C2-PFUnDA (surr.)	1	%	135	137	136	145
13C2-PFDoDA (surr.)	1	%	127	131	134	139
13C2-PFTeDA (surr.)	1	%	171	179	147	185
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	103	106	103	110
D3-N-MeFOSA (surr.)	1	%	100	104	101	111
D5-N-EtFOSA (surr.)	1	%	117	118	119	121
D7-N-MeFOSE (surr.)	1	%	109	110	114	110
D9-N-EtFOSE (surr.)	1	%	99	98	101	99
D5-N-EtFOSAA (surr.)	1	%	181	INT	INT	INT
D3-N-MeFOSAA (surr.)	1	%	191	187	192	194

Client Sample ID			SP3-1	SP3-2	SP3-3	SP3-4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015344	S23-Fe0015345	S23-Fe0015346	S23-Fe0015347
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	[N09]12	< 5	[N09]15
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	97	107	103	114
18O2-PFHxS (surr.)	1	%	98	111	98	111
13C8-PFOS (surr.)	1	%	110	114	110	110
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	86	102	88	101
13C2-6:2 FTSA (surr.)	1	%	81	79	78	94
13C2-8:2 FTSA (surr.)	1	%	INT	INT	INT	INT
13C2-10:2 FTSA (surr.)	1	%	193	INT	INT	INT
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	12	< 5	15
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	12	< 5	15
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	12	< 5	15
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	12	< 10	15
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			SP3-5	SP3-6	SP3-7	SP3-8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015348	S23-Fe0015349	S23-Fe0015350	S23-Fe0015351
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	55	51	< 50	< 50
TRH C29-C36	50	mg/kg	68	63	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	123	114	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	110	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	110	< 100	< 100	< 100

Client Sample ID			SP3-5	SP3-6	SP3-7	SP3-8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015348	S23-Fe0015349	S23-Fe0015350	S23-Fe0015351
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	119	126	121	110
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	0.7	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	0.7	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	1.4	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	124	112	96	94
p-Terphenyl-d14 (surr.)	1	%	147	146	92	84
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	-	< 0.05	-
a-HCH	0.05	mg/kg	-	-	< 0.05	-
Aldrin	0.05	mg/kg	-	-	< 0.05	-
b-HCH	0.05	mg/kg	-	-	< 0.05	-
d-HCH	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	-	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	-	-	< 0.05	-

Client Sample ID			SP3-5	SP3-6	SP3-7	SP3-8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015348	S23-Fe0015349	S23-Fe0015350	S23-Fe0015351
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor	0.05	mg/kg	-	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.05	mg/kg	-	-	< 0.05	-
Toxaphene	0.5	mg/kg	-	-	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	113	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	86	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1221	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1232	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1242	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1248	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1254	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1260	0.1	mg/kg	-	-	< 0.1	-
Total PCB*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	113	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	86	-
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	12	5.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	22	19
Copper	5	mg/kg	6.6	11	16	12
Lead	5	mg/kg	< 5	6.4	6.5	8.6
Mercury	0.1	mg/kg	< 0.1	0.2	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	12	20
Zinc	5	mg/kg	23	28	54	41
% Moisture	1	%	7.5	3.4	2.7	4.2
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	105	111	113	113
13C5-PFPeA (surr.)	1	%	107	120	111	126
13C5-PFHxA (surr.)	1	%	110	131	128	106
13C4-PFHpA (surr.)	1	%	116	121	122	116

Client Sample ID			SP3-5	SP3-6	SP3-7	SP3-8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015348	S23-Fe0015349	S23-Fe0015350	S23-Fe0015351
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C8-PFOA (surr.)	1	%	118	132	115	117
13C5-PFNA (surr.)	1	%	125	141	117	122
13C6-PFDA (surr.)	1	%	142	153	143	152
13C2-PFUnDA (surr.)	1	%	136	152	138	148
13C2-PFDoDA (surr.)	1	%	147	159	148	134
13C2-PFTeDA (surr.)	1	%	198	INT	157	173
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	110	111	109	108
D3-N-MeFOSA (surr.)	1	%	112	115	114	113
D5-N-EtFOSA (surr.)	1	%	118	121	125	122
D7-N-MeFOSE (surr.)	1	%	113	113	120	116
D9-N-EtFOSE (surr.)	1	%	106	106	104	104
D5-N-EtFOSAA (surr.)	1	%	INT	INT	INT	189
D3-N-MeFOSAA (surr.)	1	%	INT	INT	INT	INT
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]6.2	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]45	[N09]17	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	112	116	112	110
18O2-PFHxS (surr.)	1	%	109	118	103	106
13C8-PFOS (surr.)	1	%	110	112	114	113
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	102	101	95	100
13C2-6:2 FTSA (surr.)	1	%	94	109	91	98
13C2-8:2 FTSA (surr.)	1	%	INT	INT	182	INT
13C2-10:2 FTSA (surr.)	1	%	INT	INT	INT	INT

Client Sample ID			SP3-5	SP3-6	SP3-7	SP3-8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015348	S23-Fe0015349	S23-Fe0015350	S23-Fe0015351
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	51.2	17	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	45	17	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	51.2	17	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	51.2	17	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	51.2	< 50	< 50	< 50

Client Sample ID			SP3-9	SP3-10	SP3-11	SP3-12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015352	S23-Fe0015353	S23-Fe0015354	S23-Fe0015355
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	112	113	117	111
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			SP3-9	SP3-10	SP3-11	SP3-12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015352	S23-Fe0015353	S23-Fe0015354	S23-Fe0015355
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	114	95	94	123
p-Terphenyl-d14 (surr.)	1	%	136	88	88	129
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	-
a-HCH	0.05	mg/kg	-	< 0.05	-	-
Aldrin	0.05	mg/kg	-	< 0.05	-	-
b-HCH	0.05	mg/kg	-	< 0.05	-	-
d-HCH	0.05	mg/kg	-	< 0.05	-	-
Dieldrin	0.05	mg/kg	-	< 0.05	-	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	-
Endrin	0.05	mg/kg	-	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-	-
g-HCH (Lindane)	0.05	mg/kg	-	< 0.05	-	-
Heptachlor	0.05	mg/kg	-	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Methoxychlor	0.05	mg/kg	-	< 0.05	-	-
Toxaphene	0.5	mg/kg	-	< 0.5	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	89	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	85	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1232	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1242	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1248	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1254	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1260	0.1	mg/kg	-	< 0.1	-	-
Total PCB*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	89	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	85	-	-

Client Sample ID			SP3-9	SP3-10	SP3-11	SP3-12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015352	S23-Fe0015353	S23-Fe0015354	S23-Fe0015355
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	2.2	2.9
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	7.0	< 5	12	12
Copper	5	mg/kg	6.3	< 5	12	11
Lead	5	mg/kg	5.1	9.2	8.4	7.9
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	5.7	6.8
Zinc	5	mg/kg	28	24	42	46
% Moisture	1	%	3.9	2.4	2.4	3.1
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	110	113	110	110
13C5-PFPeA (surr.)	1	%	112	113	106	113
13C5-PFHxA (surr.)	1	%	115	118	113	125
13C4-PFHpA (surr.)	1	%	112	117	111	110
13C8-PFOA (surr.)	1	%	118	118	116	107
13C5-PFNA (surr.)	1	%	119	137	118	124
13C6-PFDA (surr.)	1	%	150	150	146	146
13C2-PFUnDA (surr.)	1	%	154	140	133	136
13C2-PFDoDA (surr.)	1	%	143	141	140	133
13C2-PFTeDA (surr.)	1	%	166	181	162	165
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	106	114	108	108
D3-N-MeFOSA (surr.)	1	%	120	117	109	111
D5-N-EtFOSA (surr.)	1	%	121	122	118	123
D7-N-MeFOSE (surr.)	1	%	116	120	118	110
D9-N-EtFOSE (surr.)	1	%	107	104	100	102
D5-N-EtFOSAA (surr.)	1	%	INT	INT	198	197
D3-N-MeFOSAA (surr.)	1	%	INT	INT	INT	199

Client Sample ID			SP3-9	SP3-10	SP3-11	SP3-12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Fe0015352	S23-Fe0015353	S23-Fe0015354	S23-Fe0015355
Date Sampled			Feb 06, 2023	Feb 06, 2023	Feb 06, 2023	Feb 06, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]11	< 5	[N09]5.6	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	112	114	105	114
18O2-PFHxS (surr.)	1	%	102	112	111	106
13C8-PFOS (surr.)	1	%	113	122	103	107
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	114	108	95	95
13C2-6:2 FTSA (surr.)	1	%	89	98	85	85
13C2-8:2 FTSA (surr.)	1	%	INT	INT	INT	INT
13C2-10:2 FTSA (surr.)	1	%	INT	INT	INT	INT
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	11	< 5	5.6	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	11	< 5	5.6	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	11	< 5	5.6	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	11	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			D.6.2.23
Sample Matrix			Soil
Eurofins Sample No.			S23-Fe0015356
Date Sampled			Feb 06, 2023
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100

Client Sample ID			D.6.2.23
Sample Matrix			Soil
Eurofins Sample No.			S23-Fe0015356
Date Sampled			Feb 06, 2023
Test/Reference	LOR	Unit	
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	119
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.1
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.4
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.6
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	0.6
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	0.8
Benzo(g.h.i)perylene	0.5	mg/kg	0.6
Benzo(k)fluoranthene	0.5	mg/kg	0.9
Chrysene	0.5	mg/kg	0.8
Dibenz(a.h)anthracene	0.5	mg/kg	0.8
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.7
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	5.2
2-Fluorobiphenyl (surr.)	1	%	110
p-Terphenyl-d14 (surr.)	1	%	148
Heavy Metals			
Arsenic	2	mg/kg	< 2
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	< 5
Copper	5	mg/kg	< 5
Lead	5	mg/kg	8.1
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	12
% Moisture	1	%	3.6

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Feb 08, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Feb 08, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Feb 08, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Feb 08, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Feb 08, 2023	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Feb 08, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Sydney	Feb 08, 2023	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Sydney	Feb 08, 2023	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Feb 08, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Sydney	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Sydney	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Sydney	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Sydney	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Sydney	Feb 08, 2023	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Company Name: Qualtest
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Mayfield West
NSW 2304

Project Name: GNAPL ASTRA AEROLAB
Project ID: NEW23P-0005

Order No.:
Report #: 961554
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Feb 7, 2023 2:30 PM
Due: Feb 8, 2023
Priority: 1 Day
Contact Name: Emma Coleman

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	Suite B13: OCP/PCB	Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	SP3-1	Feb 06, 2023		Soil	S23-Fe0015344	X	X	X	X	X
2	SP3-2	Feb 06, 2023		Soil	S23-Fe0015345	X		X	X	X
3	SP3-3	Feb 06, 2023		Soil	S23-Fe0015346	X		X	X	X
4	SP3-4	Feb 06, 2023		Soil	S23-Fe0015347	X	X	X	X	X
5	SP3-5	Feb 06, 2023		Soil	S23-Fe0015348	X		X	X	X
6	SP3-6	Feb 06, 2023		Soil	S23-Fe0015349	X		X	X	X
7	SP3-7	Feb 06, 2023		Soil	S23-Fe0015350	X	X	X	X	X
8	SP3-8	Feb 06, 2023		Soil	S23-Fe0015351	X		X	X	X
9	SP3-9	Feb 06, 2023		Soil	S23-Fe0015352	X		X	X	X
10	SP3-10	Feb 06, 2023		Soil	S23-Fe0015353	X	X	X	X	X
11	SP3-11	Feb 06, 2023		Soil	S23-Fe0015354	X		X	X	X
12	SP3-12	Feb 06, 2023		Soil	S23-Fe0015355	X		X	X	X
13	D.6.2.23	Feb 06, 2023		Soil	S23-Fe0015356			X	X	

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Sample Detail	Asbestos - WA guidelines	Suite B13: OCP/PCB	Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs)
Sydney Laboratory - NATA # 1261 Site # 18217	X	X	X	X	X
Test Counts	12	4	13	13	12

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	104			70-130	Pass	
TRH C10-C14	%	74			70-130	Pass	
TRH C6-C10	%	103			70-130	Pass	
TRH >C10-C16	%	71			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	92			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	100			70-130	Pass	
o-Xylene	%	96			70-130	Pass	
Xylenes - Total*	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	80			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	88			70-130	Pass	
Acenaphthylene	%	80			70-130	Pass	
Anthracene	%	76			70-130	Pass	
Benz(a)anthracene	%	78			70-130	Pass	
Benzo(a)pyrene	%	77			70-130	Pass	
Benzo(b&j)fluoranthene	%	81			70-130	Pass	
Benzo(g.h.i)perylene	%	86			70-130	Pass	
Benzo(k)fluoranthene	%	77			70-130	Pass	
Chrysene	%	85			70-130	Pass	
Dibenz(a.h)anthracene	%	85			70-130	Pass	
Fluoranthene	%	90			70-130	Pass	
Fluorene	%	89			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	80			70-130	Pass	
Naphthalene	%	84			70-130	Pass	
Phenanthrene	%	86			70-130	Pass	
Pyrene	%	91			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	92			70-130	Pass	
4.4'-DDD	%	91			70-130	Pass	
4.4'-DDE	%	79			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDT	%	83			70-130	Pass	
a-HCH	%	81			70-130	Pass	
Aldrin	%	82			70-130	Pass	
b-HCH	%	81			70-130	Pass	
d-HCH	%	84			70-130	Pass	
Dieldrin	%	88			70-130	Pass	
Endosulfan I	%	86			70-130	Pass	
Endosulfan II	%	93			70-130	Pass	
Endosulfan sulphate	%	87			70-130	Pass	
Endrin	%	84			70-130	Pass	
Endrin aldehyde	%	90			70-130	Pass	
Endrin ketone	%	78			70-130	Pass	
g-HCH (Lindane)	%	81			70-130	Pass	
Heptachlor	%	82			70-130	Pass	
Heptachlor epoxide	%	86			70-130	Pass	
Hexachlorobenzene	%	84			70-130	Pass	
Methoxychlor	%	72			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	71			70-130	Pass	
Aroclor-1260	%	94			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	108			80-120	Pass	
Cadmium	%	106			80-120	Pass	
Chromium	%	110			80-120	Pass	
Copper	%	108			80-120	Pass	
Lead	%	106			80-120	Pass	
Mercury	%	105			80-120	Pass	
Nickel	%	109			80-120	Pass	
Zinc	%	111			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	100			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	104			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	99			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	99			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	106			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	98			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	104			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	100			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	101			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	89			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	106			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	103			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	90			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	106			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	103			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	100			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	103			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	108			50-150	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	100			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	96			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	99			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	92			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	106			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	89			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	96			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	104			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	100			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S23-Fe0010379	NCP	%	85			70-130	Pass	
TRH C10-C14	S23-Fe0014746	NCP	%	84			70-130	Pass	
TRH C6-C10	S23-Fe0010379	NCP	%	86			70-130	Pass	
TRH >C10-C16	S23-Fe0014746	NCP	%	77			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S23-Fe0010379	NCP	%	88			70-130	Pass	
Toluene	S23-Fe0010379	NCP	%	89			70-130	Pass	
Ethylbenzene	S23-Fe0010379	NCP	%	90			70-130	Pass	
m&p-Xylenes	S23-Fe0010379	NCP	%	96			70-130	Pass	
o-Xylene	S23-Fe0010379	NCP	%	92			70-130	Pass	
Xylenes - Total*	S23-Fe0010379	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S23-Fe0010379	NCP	%	73			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S23-Fe0011984	NCP	%	76			70-130	Pass	
Acenaphthylene	S23-Fe0011984	NCP	%	76			70-130	Pass	
Anthracene	S23-Fe0011984	NCP	%	74			70-130	Pass	
Benzo(a)pyrene	S23-Fe0011984	NCP	%	72			70-130	Pass	
Benzo(g.h.i)perylene	S23-Fe0011984	NCP	%	84			70-130	Pass	
Benzo(k)fluoranthene	S23-Fe0011984	NCP	%	75			70-130	Pass	
Chrysene	S23-Fe0011984	NCP	%	76			70-130	Pass	
Dibenz(a.h)anthracene	S23-Fe0011984	NCP	%	78			70-130	Pass	
Fluoranthene	S23-Fe0011984	NCP	%	79			70-130	Pass	
Fluorene	S23-Fe0011984	NCP	%	78			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S23-Fe0011984	NCP	%	81			70-130	Pass	
Naphthalene	S23-Fe0011984	NCP	%	76			70-130	Pass	
Pyrene	S23-Fe0011984	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S23-Fe0016053	NCP	%	82			70-130	Pass	
4.4'-DDD	S23-Fe0016053	NCP	%	78			70-130	Pass	
4.4'-DDE	S23-Fe0005335	NCP	%	89			70-130	Pass	
a-HCH	S23-Fe0005335	NCP	%	81			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aldrin	S23-Fe0016053	NCP	%	76			70-130	Pass	
b-HCH	S23-Fe0005335	NCP	%	72			70-130	Pass	
d-HCH	S23-Fe0016053	NCP	%	75			70-130	Pass	
Dieldrin	S23-Fe0016053	NCP	%	82			70-130	Pass	
Endosulfan I	S23-Fe0016053	NCP	%	75			70-130	Pass	
Endosulfan II	S23-Fe0016053	NCP	%	93			70-130	Pass	
Endosulfan sulphate	S23-Fe0016053	NCP	%	74			70-130	Pass	
Endrin	S23-Fe0016053	NCP	%	85			70-130	Pass	
Endrin aldehyde	S23-Fe0016053	NCP	%	70			70-130	Pass	
Endrin ketone	S23-Fe0016053	NCP	%	76			70-130	Pass	
g-HCH (Lindane)	S23-Fe0016053	NCP	%	78			70-130	Pass	
Heptachlor	S23-Fe0016053	NCP	%	74			70-130	Pass	
Heptachlor epoxide	S23-Fe0016053	NCP	%	77			70-130	Pass	
Hexachlorobenzene	S23-Fe0016053	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S23-Fe0005335	NCP	%	82			70-130	Pass	
Aroclor-1260	S23-Fe0016053	NCP	%	78			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Cadmium	S23-Fe0002104	NCP	%	104			75-125	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	S23-Fe0015345	CP	%	94			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S23-Fe0015345	CP	%	98			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S23-Fe0015345	CP	%	93			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S23-Fe0015345	CP	%	89			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S23-Fe0015345	CP	%	105			50-150	Pass	
Perfluorononanoic acid (PFNA)	S23-Fe0015345	CP	%	96			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S23-Fe0015345	CP	%	94			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S23-Fe0015345	CP	%	97			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S23-Fe0015345	CP	%	103			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S23-Fe0015345	CP	%	92			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S23-Fe0015345	CP	%	98			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	S23-Fe0015345	CP	%	88			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S23-Fe0015345	CP	%	91			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S23-Fe0015345	CP	%	89			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S23-Fe0015345	CP	%	87			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S23-Fe0015345	CP	%	108			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S23-Fe0015345	CP	%	98			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S23-Fe0015345	CP	%	96			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorobutanesulfonic acid (PFBS)	S23-Fe0015345	CP	%	99			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S23-Fe0015345	CP	%	100			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S23-Fe0015345	CP	%	90			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S23-Fe0015345	CP	%	90			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S23-Fe0015345	CP	%	96			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S23-Fe0015345	CP	%	96			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S23-Fe0015345	CP	%	91			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S23-Fe0015345	CP	%	107			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S23-Fe0015345	CP	%	96			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S23-Fe0015345	CP	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S23-Fe0015345	CP	%	98			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S23-Fe0015345	CP	%	102			50-150	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S23-Fe0015350	CP	%	105			75-125	Pass	
Chromium	S23-Fe0015350	CP	%	110			75-125	Pass	
Copper	S23-Fe0015350	CP	%	111			75-125	Pass	
Lead	S23-Fe0015350	CP	%	118			75-125	Pass	
Mercury	S23-Fe0015350	CP	%	121			75-125	Pass	
Nickel	S23-Fe0015350	CP	%	114			75-125	Pass	
Zinc	S23-Fe0015350	CP	%	102			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S23-Fe0014744	NCP	mg/kg	< 20	23	120	30%	Fail	Q15
TRH C15-C28	S23-Fe0014744	NCP	mg/kg	56	71	24	30%	Pass	
TRH C29-C36	S23-Fe0014744	NCP	mg/kg	50	54	8.3	30%	Pass	
TRH >C10-C16	S23-Fe0014744	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S23-Fe0014744	NCP	mg/kg	< 100	110	18	30%	Pass	
TRH >C34-C40	S23-Fe0014744	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Toxaphene	S23-Fe0012426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Total PCB*	S23-Fe0011983	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S23-Fe0012419	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S23-Fe0012419	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S23-Fe0015344	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S23-Fe0015344	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S23-Fe0015344	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S23-Fe0012419	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S23-Fe0012419	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S23-Fe0015345	CP	%	4.3	4.5	3.6	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S23-Fe0015347	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10	S23-Fe0015347	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S23-Fe0015347	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S23-Fe0015347	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S23-Fe0015347	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S23-Fe0015347	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S23-Fe0015347	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S23-Fe0015347	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S23-Fe0015347	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S23-Fe0015349	CP	mg/kg	0.7	0.5	34	30%	Fail	Q15
Fluorene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S23-Fe0015349	CP	mg/kg	0.7	< 0.5	28	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S23-Fe0015349	CP	mg/kg	< 1	< 1	<1	30%	Pass	
4.4'-DDD	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4.4'-DDE	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4.4'-DDT	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
a-HCH	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aldrin	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
b-HCH	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
d-HCH	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dieldrin	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endosulfan I	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endosulfan II	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endosulfan sulphate	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin aldehyde	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin ketone	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
g-HCH (Lindane)	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Heptachlor	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Heptachlor epoxide	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Hexachlorobenzene	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methoxychlor	S23-Fe0015349	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S23-Fe0015349	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Aroclor-1221	S23-Fe0015349	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Aroclor-1232	S23-Fe0015349	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Aroclor-1242	S23-Fe0015349	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Aroclor-1248	S23-Fe0015349	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Aroclor-1254	S23-Fe0015349	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Aroclor-1260	S23-Fe0015349	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S23-Fe0015349	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S23-Fe0015349	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S23-Fe0015349	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S23-Fe0015349	CP	mg/kg	11	9.4	17	30%	Pass	
Lead	S23-Fe0015349	CP	mg/kg	6.4	5.6	13	30%	Pass	
Mercury	S23-Fe0015349	CP	mg/kg	0.2	0.2	14	30%	Pass	
Nickel	S23-Fe0015349	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S23-Fe0015349	CP	mg/kg	28	22	21	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S23-Fe0015355	CP	%	3.1	3.0	3.5	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Adam Bateup	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile
Sayeed Abu	Senior Analyst-Asbestos

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

APPENDIX F:

Data Validation Report

QA/QC DATA VALIDATION REPORT
Job No: NEW23P-0005-AB

Eurofins report: 961554-S, 961554-AID

1. SAMPLE HANDLING

Item	Yes/No	Comments
Were the sample holding times met?	Yes	
Were the samples in proper custody between collection in the field and reaching the laboratory?	Yes	
Were the samples properly and adequately preserved?	Yes	
Were the samples received by the laboratory in good condition?	Yes	

Sampling Handling was:

Satisfactory : ✓	Partially Satisfactory:	Unsatisfactory:

2. PRECISION AND ACCURACY ASSESSMENT

Item	Yes/No	Comment
Was a NATA registered laboratory used?	Yes	-
Did the laboratory perform the requested tests?	Yes	-
Were the laboratory methods adopted NATA endorsed?	Yes	-
Were the appropriate test procedures followed?	Yes	-
Were the reporting limits satisfactory?	Yes	-
Was the NATA seal on the reports?	Yes	-
Were the reports signed by an authorised person?	Yes	-

Laboratory Precision and Accuracy was:

Satisfactory : ✓	Partially Satisfactory:	Unsatisfactory:

3. FIELD QA/QC

Soil Samples

	Soil
No. Samples Analysed	12
No. of Duplicates	1
No. of Triplicates	0
No. of Wash Blanks	0
No. of Trip Blanks	0
No. of Trip Spikes	0

No. Days Sampling

Item	Soil
Number of Days Sampling	1
Number of Sampling Events	1

Field Duplicates

Item	Yes/No	Comments
Were an adequate number of field duplicates collected?	Yes	Duplicates collected at a rate of 12 per samples.
Were RPDs within control limits? No Limit for 5-10 x EQL and 30% for >10 x EQL	Yes	RPDs were within the acceptable range.

Trip Blanks/Trip Spikes

Item	Yes/No	Comments
Were an adequate number of trip blanks and trip spikes collected?	Yes	Trip blanks and trip spikes were not collected, as volatiles were not a primary contaminant of concern. This was supported by the field observations (no stains, odours).
Were the trip blanks free of contaminants? (If no, comment whether the contaminants present are also detected in the samples and whether they are common laboratory chemicals).	N/A	
Were the trip spikes within recovery limits (between 80% and 120%)	N/A	

Rinsate Samples

Item	Yes/No	Comments

Were an adequate number of rinsate samples used? (1 per day of using reusable sampling equipment – trowel, hand auger etc)	N/A	No rinsate samples were collected. No re-useable sampling equipment was used, samples were collected directly from the centre of the excavator bucket.
Were the rinsate samples free of contaminants? (If no, comment whether the contaminants present are also detected in the samples and whether they are common laboratory chemicals).	N/A	

4. LABORATORY INTERNAL QUALITY CONTROL PROCEDURES

A) Type of QA/QC Sample	Yes/No	Comments
Laboratory Blanks/Reagent Blanks (at least 1 per batch)	Yes	-
Laboratory Duplicates (at least 1 per batch or 1 per 10 samples)	Yes	-
Matrix Spikes, Matrix Spike Duplicates (1 for each soil type)	Yes	-
Laboratory Control Spike	Yes	-
Surrogate (where appropriate)	Yes	-

Item	Yes/No	Comments
B) Were the laboratory blanks and/or reagent blanks free of contamination?	Yes	-
C) Were the spike recoveries within control limits? I: *Organics/inorganics/metals (50% to 150%)* II: *Phenols (20% to 130%)*	Yes	-
D) Were the RPDs of the laboratory duplicates within control limits?	Yes	The laboratory quoted code Q15 for RPDs for TRH C10-C14 and fluoranthene. Code Q15 states: "*The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.*" Based on this, these RPDs do not affect data usability
E) Were the surrogate recoveries within control limits?	Yes	-

Laboratory Internal QA/QC was:

Satisfactory :	✓	Partially Satisfactory:	Unsatisfactory:

5. DATA USABILITY

Item	Yes/No	Comments
Was the data directly usable?	Yes	
Was the data usable with the following corrections/modifications? (see comments)	NA	
Was the data not usable?	NA	